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For comments on this review, please contact trade.environment@unctad.org. This review is also available at www.unctad.org/trade_env/TER

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Foreword

Without intervention, markets often fail to take full account of the environmental and health impacts of economic activity. Environmental and related health requirements in governmental regulations and private standards are generally designed to address legitimate concerns about these impacts.

Such requirements might at first sight appear to be simple technical or procedural norms. On closer scrutiny, however, they have very important implications for trade, in particular for market access and development, influencing employment, infrastructure, environment and social conditions. A number of standards, including environmental requirements, are also used as effective instruments in the race for international competitiveness, as well as to influence the behaviour of independent companies participating in supply chains. New standards in the agri-food sector, for instance, not only aim at assuring food safety and continuously high food quality, they also transfer the associated risk and cost onto suppliers, and are used as effective supply-chain governance tools. The new requirements also lead to a concentration of dedicated suppliers along the supply chain, which creates major problems for small and medium-sized companies.

Developing countries are considerably affected by these trends. A holistic approach is needed to effectively deal with standards, and in particular with environmental and health-related requirements – an approach that goes well beyond trade rules and trade policies. The lack of institutional, technical, infrastructural and managerial capacity in developing countries presents a dual problem: on the one hand, it leads them to adopt a mere reactive, fire-fighting approach to address new environmental requirements; on the other hand, the adjustment process is very onerous and costly, often harming export competitiveness and, in some urgent cases, obliging governments in exporting developing countries to siphon away resources from other areas.

The Trade and Environment Review 2006 examines some specific examples and sectors to show what governments and other key stakeholders in developed and developing countries could do to limit the trade-restricting effects of environmental requirements and to maximize their contribution to sustainable development in developing countries, for example by helping to enhance resource efficiency, lower emission intensity and improve occupational safety. The *Review* also elaborates on how countries could seize the export opportunities arising from more stringent environmental requirements and growing markets for environmentally preferable products.

The *Review* highlights the fact that the role of WTO rules and disciplines for limiting the trade-restrictiveness of environmental requirements is often overestimated. WTO Agreements can also do little to overcome the supply-related capacity constraints of exporting developing countries or contribute to turning environmental requirements into a catalyst for sustainable development. This *Review* addresses these crucial issues, including what UNCTAD can do, in particular in the context of the new Consultative Task Force on Environmental Requirements and Market Access for Developing Countries, and the UNCTAD/FAO/IFOAM International Task Force on Harmonization and Equivalence in Organic Agriculture.

The *Review* argues that exporting developing countries will have to become much more strategic and proactive in coping with environmental requirements. No amount of external leadership, action or assistance can substitute for domestic awareness, commitment and cooperation. In addition, however, developing countries need to vigorously defend their interests, both in the WTO with regard to mandatory requirements, and along supply chains with regard to voluntary stand-

ards, with a view to limiting negative impacts at the design stage and discrimination during implementation of new environmental requirements. Furthermore, these countries should learn to exploit new market opportunities created by new requirements.

It is my hope that this issue of the *Trade and Environment Review* will fulfil an important function of awareness-raising and international consensus building on key issues that have a bearing on the interaction between trade expansion and liberalization, environmental protection and development policies in order to achieve a triple win in these three areas. Indeed these are important aspects of UNCTAD's mission. I also hope that it will encourage closer development cooperation reflecting the shared responsibility of both developed and developing countries.



Supachai Panitchpakdi
Secretary-General of UNCTAD

Contents

Foreword	iii
Supachai Panitchpakdi, Secretary-General of UNCTAD	
Acknowledgements	ix
Abbreviations	xi
Introduction	xiii
Lakshmi Puri, Director, Division on International Trade in Goods and Services, and Commodities, UNCTAD	

CHAPTER 1

Environmental requirements and market access for developing countries: promoting environmental - not trade - protection	1
Ulrich Hoffmann (UNCTAD) and Tom Rotherham (International Institute for Sustainable Development, Canada)	
A. Introduction	2
B. Scope and trends of Environmental and Related Health Requirements (ERHRS)	3
1. Scope	3
2. Trends	4
3. Summary: scope and trends in ERHRS	9
C. Coping with environmental and related health requirements	9
1. Strengthening technical and institutional capacity	10
2. Limiting trade restrictiveness of ERHRS at the design stage	12
3. Coordinated and comprehensive technical assistance	14
4. ERHRS and the limitations of the WTO agreements	16
5. Anticipating change	20
6. ERHRS and their impact on competitiveness	21
7. Summary: coping with ERHRS	23
D. UNCTAD's Consultative Task Force on environmental requirements and market access for developing countries	25
E. Conclusions	26
Notes	28
References	33
Commentaries by experts	36
Tjalling Dijkstra, Ministry of Foreign Affairs (Netherlands)	36
Paulo Ferracioli, National Institute of Metrology, Standardisation and Industrial Quality (Brazil)	40
Jan Kees Vis, Unilever (Netherlands)	43
Nigel Garbutt, EurepGAP	47
Sanjay Kumar, Ministry of Commerce and Industry (India)	49
Patrick Mallett, International Social and Environmental Accreditation and Labelling Alliance	54
Julius Langendorff and Gareth Steel, European Commission	57
Notes to Commentaries	60

CHAPTER 2

Environmental requirements and market access for developing countries: the case of electrical and electronic equipment	61
René Vossenaar (UNCTAD), Lorenzo Santucci (UNESCAP) and Nudjarin Ramungul (National Metal and Materials Technology Center, Thailand)	
A. Introduction	62
B. Policy developments concerning waste from EEE	63
1. European Union: the WEEE and ROHS directives	64
2. Japan	66
3. United States	67
4. Canada	68
5. Switzerland	69
C. Implications	69
1. Implications for producers	69
2. Implications for companies in third countries	70
D. Consultations	72
1. National or regional consultations	72
2. Consultations with third countries	72
E. Adjustment processes in selected developing countries	73
1. China	73
2. The Philippines	77
3. Thailand	82
4. Comparison of adjustment processes in three developing countries	88
F. Conclusions and recommendations	89
1. Specific conclusions concerning the EEE sector	89
2. Trends in environmental policies, and implications for developing countries	89
3. Recommendations	90
Annex 1: EEE waste and the Basel convention	92
Constanza Martinez, Secretariat of the Basel Convention	
Annex 2: The WEEE and RoHS directives	96
Annex 3: Trade statistics	98
Notes	101
References	106
Commentaries by experts	108
Martin Charter, Centre for Sustainable Design (United Kingdom) and, Ritu Kumar, Sustainable Trade and Innovation Centre	108
Ned Clarence-Smith and Gerardo Pataconi, United Nations Industrial Development Organization (UNIDO)	114
Pierre Portas, Secretariat of the Basel Convention	118
United Nations Economic Commission for Asia and the Pacific (UNESCAP), Environment and Sustainable Development Division	120
Ruediger Kuehr, United Nations University Zero Emissions Forum	122
Bakar Jaafar, Siew Hai Wong, and Manickam Supperamaniam (Malaysia)	125
Federation of Industries of the State of São Paulo (Brazil)	130
Kakali Mukhopadhyay, Asian Institute of Technology (Thailand)	133
James Lovegrove, American Electronics Association (AeA) Europe, and Becky Linder, AeA	137
Notes to Commentaries	140

CHAPTER 3

PART I - Organic agriculture: a trade and sustainable development opportunity for developing countries	141
Sophia Twarog (UNCTAD)	
A. Introduction	142
B. Organic agriculture: definitions and scope	142
1. What is organic agriculture?	142
2. Organic production worldwide	144
C. Potential contribution of organic agriculture to national sustainable development	147
1. Economic benefits	147
2. Food security	150
3. Environmental benefits	151
4. Social and cultural benefits	152
D. Organic agriculture as an export opportunity for developing countries	153
1. Market trends	155
2. Market access and entry requirements	163
E. Challenges related to the production and export of developing countries organic agricultural products	167
1. Challenges related to organic production	168
2. Challenges related to organic exports	169
3. OA and the least developed countries	174
F. Seeking solutions	175
1. Recommendations at national level	175
2. Recommendations at international level	177
G. Conclusion	180
Annex 1: Estimates of hectares of land under certified organic production by country in 2004	181
Annex 2: Farm-gate prices of selected organic and conventional products in the United States in 2005	182
Notes	183
References	185
Commentaries by experts	189
Moses K. Muwanga, National Organic Agricultural Movement of Uganda	189
Daniele Giovannucci, World Bank	191
Xingji Xiao, Organic Food Development Centre (China)	194
Diane Bowen, International Federation of Organic Agriculture Movements	198
Ken Commins and David Crucefix, International Organic Accreditation Service	202
Florentine Meinshausen, Institute for Marketecology (Switzerland)	204
Gunnar Rundgren, GroLink AB	208
Felicia Echeverría Hermoso, Ministry of Agriculture and Livestock (Costa Rica)	212
Mohamed Ben Kheder, Technical Center of Organic Agriculture (Tunisia), and Samia Maamer Belkhiria, Ministry of Agriculture (Tunisia)	217
Notes to Commentaries	223

PART II - Organic agriculture: the experiences of Central America, Cuba and the Dominican Republic	225
René Vossenaar (UNCTAD) and Amy Angel (Foundation for Economic and Social Development, El Salvador)	
A. Introduction.....	226
B. Organic agriculture in the region.....	227
1. Organic production.....	228
2. Exports of organic certified produce.....	231
C. Challenges.....	234
1. Organic guarantee systems.....	234
2. Systems and institutions to promote the development of the organic sector.....	235
3. Certification.....	239
4. Harmonization and equivalence.....	240
D. Conclusions and recommendations.....	242
Annex: Organic guarantee systems in the region.....	245
Notes.....	248
References.....	250
Commentaries by experts.....	252
Pedro Cussianovich, Instituto Interamericano de Cooperación para la Agricultura (IICA).....	252

CHAPTER 4

Overview of technical cooperation/capacity building activities, 2004-2005	255
A. Introduction.....	256
B. Overview of TC/CB activities.....	256
1. Environmental requirements and market access.....	257
2. Environmental goods and services.....	263
3. Traditional knowledge.....	265
4. UNEP-UNCTAD Capacity-Building Task Force on Trade, Environment and Development (CBTF).....	265
5. Support to relevant TC/CB activities of the WTO.....	266
6. The UNCTAD BioTrade Initiative.....	266
7. Climate change.....	270
C. Beneficiary countries of TC/CB activities.....	271
D. Selected publications.....	272
Notes.....	275

Acknowledgements

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Abbreviations

The following is a list of the most frequently used abbreviations in this Review.

AeA	American Electronics Association
ASEAN	Association of South-East Asian Nations
CAFTA-DR	Central America Free Trade Agreement with the United States, plus the Dominican Republic
CBD	Convention on Biological Diversity
CBI	Centre for the Promotion of Imports from developing countries (the Netherlands)
CBTF	Capacity-Building Task Force on Trade, Environment and Development (UNEP-UNCTAD)
CCO	Coordinadora de Certificadoras Orgánicas (Coordination of Organic Certifiers), Dominican Republic
CDM	Clean Development Mechanism
CIMS	The Sustainable Markets Intelligence Centre
CIRAD	Centre de Coopération Internationale en Recherche Agronomique pour le Développement
CSR	corporate social responsibility
CTE	Committee on Trade and Environment (of the WTO)
CTESS	Committee on Trade and Environment, Special Session (of the WTO)
CTF	Consultative Task Force on Environmental Requirements and Market Access for Developing Countries (UNCTAD)
EC	European Commission
EE	electrical and electronic
EEE	electrical and electronic equipment
EEI	Electrical and Electronics Institute, Thailand
EGS	environmental goods and services
EISFOM	European Information System for Organic Markets
EPOPA	Export Promotion of Organic Products from Africa (Programme of the Swedish International Development Cooperation Agency)
EPP	environmentally preferable product
EPR	extended producer responsibility
ERHR	environmental and related health requirements
EST	environmentally sound technology
EU	European Union
EuP	energy-using product (also EuP Directive of the EU)
EUREP	Euro-Retailer Produce Working Group
EurepGAP	Euro-Retailer Produce Working Group on Good Agricultural Practices
E-waste	waste from electronic equipment (which may also include electrical equipment)
FAO	Food and Agriculture Organization of the United Nations
FDI	foreign direct investment
FIELD	Foundation for International Environmental Law and Development (United Kingdom)
FIESP	Federation of Industries of the State of São Paulo, Brazil
GATT	General Agreement of Tariffs and Trade
GM	genetically modified
GMO	genetically modified organism
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit GmbH (German Agency for Technical Cooperation)
HACCP	Hazard Analysis Critical Control Point
HARL	Home Appliances Recycling Law
HEA	household electrical appliance
HIVOS	Humanist Institute for Cooperation with Developing Countries (the Netherlands)
IAF	International Accreditation Forum

ICS	internal control system
IFAD	International Fund for Agricultural Development
IFOAM	International Federation of Organic Agricultural Movements
IICA	Inter-American Institute for Cooperation on Agriculture (Instituto Interamericano de Cooperación para la Agricultura)
IISD	International Institute for Sustainable Development
IPM	integrated pest management
IPR	intellectual property right
ISEAL	International Social and Environmental Accreditation and Labelling Alliance
ISO	International Organization for Standardization
IT	information technology
ITC	International Trade Centre of UNCTAD/WTO
ITF	International Task Force on Harmonization and Equivalence in Organic Agriculture (UNCTAD-FAO-IFOAM)
JAS	Japan Agricultural Standard
LDC	least developed country
MAG	Ministerio de Agricultura y Ganadería (Ministry of Agriculture and Livestock)
MEA	multilateral environmental agreement
MRL	maximum residue level
MTEC	National Metal and Materials Technology Centre (Thailand)
NGO	non-governmental organization
OA	organic agriculture
ODS	ozone-depleting substance
OECD	Organisation for Economic Co-operation and Development
PBB	polybrominated biphenyls
PBDE	polybrominated diphenyl ethers
PC	personal computer
PCB	polychlorinated biphenyl
PCT	polytriphenyls
PRSP	poverty reduction strategy paper
R&D	research and development
REACH	Registration, Evaluation and Authorisation of Chemicals (also REACH Directive of the EU)
RoHS	Restriction of certain Hazardous Substances in electrical and electronic equipment (also RoHS Directive of the EU)
SEPA	State Environmental Protection Administration of China
SIDS	small island developing State
SMEs	small and medium-sized enterprises
SPS	sanitary and phytosanitary (also WTO SPS Agreement)
TBT	technical barrier to trade (also WTO TBT Agreement)
TC/CB	technical cooperation and capacity building
TED	trade, environment and development
TER	Trade and Environment Review
TK	traditional knowledge
TNC	transnational corporation
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
USDA	United States Department of Agriculture
WEEE	waste from electrical and electronic equipment (also WEEE Directive of the European Union)
WTO	World Trade Organization

Introduction

Lakshmi Puri

Director, Division on International Trade in Goods and Services, and Commodities (DITC)

Context

As multilateral, regional and bilateral trade negotiations on trade liberalization result in further tariff reductions, discussions on market access are increasingly focusing on the growing use of non-tariff measures, including environmental requirements. Some analysts and policy-makers believe environmental and related health requirements (ERHRs) are long overdue to counter unsustainable trends in production and consumption; others warn that such requirements run the risk of being turned into a new form of versatile non-tariff barrier (NTB) that could hamper developing-country exports. One key question therefore is how to foster environmental, not trade, protection. Another important question is: How can developing countries benefit from consumer preferences for environmentally preferable products?

Against this background, this *Trade and Environment Review* analyses the relationship between environmental requirements and market access for developing countries. The first two chapters attempt to conceptualize the key issues at stake, provide practical information and identify possible actions, at the national and multilateral levels, that could assist developing countries in strengthening their capacities to respond to emerging ERHRs and take advantage of new opportunities. The *Review* also attempts to respond to the need for more sector-specific analysis. Chapter 2, for instance, analyses adjustment strategies in developing countries to new environmental requirements for electrical and electronic equipment in international markets. This is a very dynamic export sector in which some Asian developing countries are major global suppliers. The adjustment strategies also need to address problems related to the growing domestically generated waste from electrical and electronic equipment. Chapter 3 discusses market opportunities for environmentally preferable products that may result from new ERHRs, with special emphasis on organic agricultural exports from developing countries.

Although the theme of environmental requirements and market access for developing countries is not part of the current WTO negotiations as provided in paragraph 32(i) of the Doha Ministerial Declaration, it is an important part of the Doha work programme and is included in the NTB-related negotiations on Non-Agricultural Market Access (NAMA).¹ It is also an area in which UNCTAD has been particularly active through all three pillars of its work – consensus building through intergovernmental deliberations, policy analysis and technical cooperation/capacity building (TC/CB). One of the outcomes of the UNCTAD XI process has been the launching of a Consultative Task Force on Environmental Requirements and Market Access for Developing Countries (CTF) as a project-based activity. The conceptual background to and possible ways in which the CTF could assist developing countries in reducing potentially negative impacts of new ERHRs on market access and in harnessing development and trade opportunities that might arise from such requirements are discussed extensively in this *Review*.

With regard to the second question, UNCTAD has also been exploring the trade and sustainable development opportunities arising from emerging markets for environmentally preferable products. Important UNCTAD initiatives in this area include the International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF) created by UNCTAD, the International Federation of Organic Agricultural Movements (IFOAM) and the Food and Agriculture Organization of the United Nations (FAO), as well as ongoing and planned activities under the UNEP-

UNCTAD Capacity Building Task Force on Trade, Environment and Development (CBTF). The latter aims at assisting several East African countries in promoting production and trading opportunities for organic agriculture and in exploring the development of a subregional standard for organic agriculture that could be recognized as technically equivalent to mandatory requirements on organic agriculture in key export markets, thereby facilitating organic exports. Substantive analytical studies have also been carried out in Central America, Cuba and the Dominican Republic. Lessons learned from an analysis of the experiences of the region may be useful for other small developing countries, for example in defining government policies that support the sector and for strengthening institutions.

The *Trade and Environment Review* aims to assist developing countries in addressing trade and environment linkages and in influencing the international agenda as part of their efforts to secure development gains from international trade. The *Review* also aims to contribute to developing countries' awareness and knowledge of issues at the interface between trade, environment and development, as well as to promote policy dialogue between developed and developing countries by critically examining key trade and environment issues from a development perspective. The first issue of the *Trade and Environment Review* focused on two topics that are part of negotiations currently underway at the WTO Committee on Trade and Environment: (i) the relationship between specific trade obligations set out in multilateral environmental agreements and WTO rules; and (ii) the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.

This second issue of the *Trade and Environment Review* follows the same approach as the first: it contains papers on trade and environment issues of key concern to developing countries, each followed by commentaries by appropriate experts. The large number of commentaries included in the present publication, generously contributed by a variety of experts from developing and developed countries, intergovernmental organizations and civil society, illustrate the important role that the *Review* plays in promoting a constructive dialogue between a multitude of stakeholders in developed and developing countries.

The final chapter of the *Trade and Environment Review* highlights the main technical cooperation and capacity-building (TC/CB) activities carried out in 2004 and 2005, and their results. As the reader will note, there are strong synergies between the TC/CB programme and the other two pillars of UNCTAD's work on trade, environment and development. In particular, chapters one to three in this *Review* build on the results of analyses and policy dialogues carried out by experts in beneficiary developing countries as part of UNCTAD's capacity-building activities, in particular a project funded by the United Kingdom's Department for International Development (DFID).

About the chapters

The first chapter, entitled *Environmental Requirements and Market Access: Promoting Environmental – not Trade – Protection*, by Hoffmann and Rotherham, emphasizes that trade interests can be significantly affected by the establishment of ERHRs. These requirements are mushrooming in developed countries, increasing in both stringency and complexity. When these affect key export sectors of developing countries, the limited capacity of many of their exporters to fulfil those requirements means that the ERHRs are often viewed by developing-country governments with suspicion and resentment, notwithstanding legitimate regulatory objectives in many cases. Whether

specific ERHRs are an important catalyst for greater environmental sustainability or a disguised trade barrier for developing countries, however, requires sector-specific analysis.

Although only a few international standards on ERHRs exist, many ERHRs in key export markets are becoming “transnationalized” through supply chains, thus imposing requirements that were created with little or no regard to developing-country environmental situations, development priorities and trade concerns.

Meeting ERHRs in export markets has both a market-access and a sustainable development dimension. Undoubtedly, the implementation of many ERHRs can enhance material and energy efficiency, overcome serious national or transboundary environmental problems and improve public health in exporting developing countries. But meeting such ERHRs often leads to competition for scarce resources and capacities in these countries, in particular the least developed and small island developing countries. ERHRs may also pose a serious development challenge to small and medium-sized enterprises. To achieve win-win-win outcomes (for trade, development and the environment), through meeting ERHRs in export markets, a more holistic (development-oriented) and proactive (anticipatory) approach needs to be pursued, based on “shared responsibility” between developed and developing countries.

Least developed countries (LDCs) are particularly hard hit by new ERHRs. Such requirements prevent them from taking full advantage of preferential market access offered by many developed-country markets. Notably, their resource-based industries, such as timber, but also agriculture and textiles and clothing, face a wide spectrum of mandatory and voluntary ERHRs. Because of LDCs’ lack of institutional, technical and managerial capacity, adjustment costs to meet new ERHRs in export markets are higher for them than for other developing countries. Yet their overall share of exports subject to ERHRs in export markets is lower than that of other developing countries, and much lower than that of the rapidly industrializing countries.

ERHRs are a growing and important area of regulatory and standard-setting activity, whether in the form of government regulations, private sector supply chains or non-governmental standard and certification schemes. The chapter tries to demonstrate that those that develop new ERHRs can reduce many (though not all) potentially adverse effects by ensuring a transparent and inclusive consultative process with the concerned parties, based on a comprehensive ex-ante impact assessment. Moreover, better coordination among the actors – governments, international organizations, NGOs and developing-country exporters – could help identify potential hurdles and good practices. In response to environmental degradation, ERHRs can contribute to environmentally sustainable development. However, policy-makers and other stakeholders need to ensure that they are not misused as instruments of trade protectionism.

The first chapter of this *Review* by Hoffmann and Rotherham argues for developing countries to adopt a more proactive and strategic approach to effectively and efficiently deal with existing ERHRs and cope with new ones. By anticipating change, developing countries should be able to harness the sustainable development benefits for the national economy in terms of enhanced resource efficiency, lower pollution intensity, greater occupational safety and better public health, and thereby raise productivity and welfare gains. Many developing countries have the political will to comply with ERHRs in key export markets, but often suffer from serious technical and human resource problems and fundamental institutional weaknesses.

The authors suggest that too many hopes are currently pinned on WTO rules and disciplines for limiting the trade restrictiveness of ERHRs. Apart from the fact that the disciplines of the WTO Agreement on Technical Barriers to Trade (TBT), concerning justification, legitimacy and the role of science related to ERHRs, are not very strong, many developing countries lack the institutional capacity to effectively defend their WTO rights. Moreover, the majority of the current ERHRs are voluntary in nature and are imposed by the private sector and NGOs. They are sometimes guided by WTO disciplines, but there is nothing the WTO can directly do to address specific problems arising from the preparation, setting and implementation of such ERHRs.

A number of informal proposals have been made to tighten WTO disciplines under the TBT Agreement on mandatory ERHRs. These include the use of an approach similar to Article 5.1 of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) (i.e. a necessity test, linked to risk assessment), or the establishment of expert panels that review the scientific justification of a particular ERHR as soon as it is notified to the WTO, or the development of a mediation procedure, or an ombudsman process to examine potential conflicts as an additional step before dispute settlement action is launched. There is also merit in considering under the TBT Agreement a recent decision adopted by the SPS Committee on enhancing transparency in special and differential (S&D) treatment (WTO document G/SPS/33). The decision envisages the identification of S&D treatment in comments of developing countries on notifications, and the notifying member being asked to examine whether and how the identified problems could best be addressed while taking into account the special needs of the interested exporting developing-country member.

UNCTAD's new Consultative Task Force (CTF) on Environmental Requirements and Market Access for Developing Countries is a step in the direction of a more holistic, development-oriented approach that embraces all stakeholders, as stated in chapter 1 of this *Review*. Furthermore, by providing a forum for the involvement of advocates of voluntary ERHRs – the private sector and NGOs – the CTF constitutes a formal exchange mechanism between these stakeholders and governments. The CTF is also a forum for the exchange of national experiences among developing countries on their adjustments to new ERHRs.

Against this background and through its proactive, business-oriented and practical initiatives, the CTF can also provide useful inputs into WTO debates. The WTO Committee on Trade and Environment (CTE) has already discussed a proposal to structure its discussion on paragraph 32 (i) of the Doha Ministerial Declaration along the lines of UNCTAD's sector- and country-focused approach to the analysis of ERHRs and related TC/CB activities. There has been support for moving the CTE discussion forward by sharing national experiences based on sectoral analyses that focus on: (i) the effects of ERHRs on market access by developing countries; (ii) "process issues" in the area of transparency, notification and consultation procedures to facilitate information flow on new ERHRs to exporters in developing countries, and thus enhance their awareness; (iii) designing new ERHRs in a manner consistent with WTO rules and in the least trade restrictive manner; and (iv) technical assistance to developing countries in complying with new ERHRs.²

The second chapter, *Environmental requirements and market access for developing countries: the case of electrical and electronic equipment (EEE)*, by Vossenaar, Santucci and Ramungul illustrates the growing significance of environmental requirements in trade, and how, in a global industry, legal requirements and private sector initiatives almost anywhere in the world translate

into new requirements for developing countries through the supply chain. The authors point out that in response to these requirements and challenges, developed countries adopt varying policy approaches that could benefit from a coordinated approach, such as recycling and the control of hazardous substances.

The principal reasons why the EEE sector has been selected for analysis are because (a) it is a very important and dynamic sector for developing countries' exports; (b) environmental requirements in key export markets play an increasingly important role in market access and competitiveness of exporting developing countries; and (c) the key EEE exporting developing countries are being compelled to address environmental problems at home, in particular those resulting from the growing mountains of domestically-generated EEE waste.

There are additional reasons why the EEE sector makes an interesting case for an analysis of environmental requirements and market access for developing countries. First, environmental legislation and other initiatives already exist for this sector (even though several issues still need to be addressed), but adjustment processes have only recently started to be implemented. Second, approaches and policy instruments chosen in national legislation to address concerns in this sector could form the basis of future regional or multilateral legislation that may have more general trade and systemic implications, such as the European Union's Directive on Eco-design Requirements for Energy-Using Products (EuP Directive). Third, environmental requirements in this sector are found in both government regulations and industry standards, which calls for an analysis of a whole range of environmental requirements, in particular those transmitted through the supply chain, which have implications for developing countries. Finally, it is also interesting from a more general point of view to review some procedural aspects in the development of new environmental requirements, in particular because a fair amount of information is available on consultations and regulatory impact assessments for this sector. It therefore enables lessons to be drawn on a range of issues, which will be addressed within the framework of the CTF. In fact, the EEE sector is one of two sectors selected for in-depth analysis under the umbrella of the CTF.

The EEE sector is largely a global industry, with the production of components and assembly operation being increasingly outsourced to developing countries. Four developing countries in East and South-East Asia – China, Malaysia, the Philippines and Thailand – now supply almost 40 per cent of the value the total EEE imports of developed countries (excluding intra-EU trade).

Concern over environmental and health-related problems associated with growing volumes of post-consumer waste from EEE has triggered significant environmental policy initiatives. Comprehensive new legislation has been introduced in the EU, Switzerland and Japan, with greater emphasis on the prevention, reuse, recycling and recovery of waste EEE through the application of the principle of producer responsibility. Legislation is also being introduced at the sub-national level in the United States (e.g. in the state of California) and Canada. As a result, businesses increasingly have to include waste management considerations (such as the use of easily recyclable/recoverable materials and the control of hazardous substances) in the design and production of EEE, as well as providing information on specific components and materials to customers downstream in the supply chain. At the same time, manufacturers and governments in rapidly industrializing developing countries are aware that there is a growing mountain of domestic EEE waste that will need to be adequately addressed in the future.

Global supply chain management plays a key role in the adjustment to new environmental requirements. Small and medium-sized enterprises have to abide by requirements set by global supply chains or risk being phased out as input providers. For the concerned rapidly industrializing countries, it is more effective and cost-efficient to combine an adjustment to external requirements for exported EEE with an adjustment to internal requirements for sound national EEE waste collection and management. To achieve this, these countries not only need accurate and timely information, but also assistance in the interpretation of such information to enable appropriate design and implementation of effective and efficient adjustment strategies. The formation of effective public–private partnerships also plays an important role in implementing a proactive adjustment approach.

Key issues addressed in this chapter include awareness of these new environmental requirements in different segments of the EEE sector in rapidly industrializing countries, cooperation in information sharing and consultations among developed and developing countries, as well as adjustment approaches in concerned developing countries. The chapter highlights the experiences of China, the Philippines and Thailand, building on work carried out within the framework of the DFID-funded trade and environment project. It is hoped that lessons learned from the experiences of these three countries will also be useful to governments and companies in other developing countries involved in the supply chain, including second-tier suppliers.

The authors call for greater efforts by developed countries to identify possible market access implications for developing countries in the process of developing new environmental regulations. They also call for greater dialogue with these countries. On the one hand, this should allow developed countries to minimize the negative impact on exporting developing countries already at the design stages of the regulations. On the other hand, it should also assist companies and governments in developing countries in making timely adjustments to external environmental requirements as well as in implementing appropriate national legislation and other instruments to address domestic environmental concerns in a developmentally benign way. The chapter also makes recommendations in the area of capacity building. Finally, it illustrates the useful role that the CTF can play.

The third chapter has two parts. Part I, entitled *Organic agriculture: a trade and sustainable development opportunity for developing countries*, by Twarog analyses the export opportunities for organic products from developing countries. These opportunities have arisen as a result of continuous growth in demand for such products in major markets, and the price premiums for organic as compared to conventional products. The global centre of growth has now shifted away from Europe to North America, where the market is expected to expand at an annual rate of 20 per cent over the next five years. Retail and farm-gate price premiums of generally 10–25 per cent and even up to 100 per cent have been reported. Organic agriculture also has the potential to offer a range of local and national sustainable development opportunities. In addition to the positive economic effects of providing higher income, organic agriculture has a less detrimental effect on the environment and on the health of agricultural workers than conventional agriculture based on chemical inputs. Furthermore, a number of studies have indicated that the application of organic techniques to the agriculture practiced by smallholders in many developing countries, with its low external inputs, can lead to an increase in yields, and hence, enhanced food security.

To take advantage of these opportunities, however, potential and actual producers and exporters of organic agricultural products in developing countries must successfully address a number of

challenges. On the production side, organic agriculture is fairly knowledge-intensive and it is a challenge to get this knowledge to the farmers, particularly smallholders in remote areas. For products to be exported as organic, they must be certified by a third party as being organic and as meeting the production standards that are required by the government and retailers in the country of import and sale. Usually this requires the involvement of expensive foreign certifiers, and production has to meet standards that may not be entirely appropriate to the local environment. In addition, there are challenges related to access to accurate market information, particularly as few, if any, countries gather and publish official statistics on organic agriculture. Finally, some consumers and supermarkets prefer locally grown organic produce.

In most developing countries, the organic sector has developed without government support or policies. Developing-country governments can support their organic sector by assessing the ways in which current policies and practices are affecting the sector, and channelling some of the resources for agriculture into that sector. For example, agricultural extension workers could be given training in organic production techniques; credits could be given at preferential rates for organic farmers, particularly during the conversion period; part of the public research and development funds could be devoted to developing organic techniques and materials well-suited to the local climatic and ecological conditions. These ideas will be elaborated and tested in the field in the course of the project ‘Promoting Production and Trading Opportunities for Organic Agricultural Products in East Africa’, which was launched in 2005 under the umbrella of the UNEP-UNCTAD Capacity-Building Task Force (CBTF) on Trade, Environment and Development.

The international community also has a very important role to play. Over 80 per cent of certified organic agricultural products produced in developing countries are exported to markets in North America, Europe and Japan. Governments in these countries can give a boost to sustainable development by facilitating market access and entry for developing country organic products. A source of much confusion and extra costs for developing country organic producers and exporters is the existence of hundreds of government and private sector standards and labels, each with similar but slightly different requirements and little room for interchange between the different systems. UNCTAD has joined the FAO and IFOAM to address these issues through the International Task Force on Harmonization and Equivalence in Organic Agriculture. As mentioned earlier, one of the key objectives of the Task Force is to facilitate access to organic markets, in particular by developing countries and smallholders. Chapter 3 summarizes the recent results of the activities of the Task Force in furthering this objective.

Part II of the chapter on Organic Agriculture supplements part I. In part II, Vossenaar and Angel analyse relevant developments in organic agriculture in Central America, Cuba and the Dominican Republic, drawing from the results of studies and policy dialogues carried out under the DFID-funded project. This region provides prime examples of the opportunities for and challenges of organic agriculture in developing countries. Many countries in the region are currently in the process of implementing organic guarantee systems. They are also attempting to design and implement national development policies with for the further development of the organic agricultural sector – a sector that has so far depended largely on donor and NGO support to small farmers. The work of the recently created Central American Commission of Competent Authorities in Organic Agriculture, on regional harmonization and cooperation on conformity assessment and other issues, is another interesting development that is relevant for the discussions on harmonization and equivalence issues addressed in part II of the chapter. There are many interesting “stories” from the region, including: (a) the transformation of the Cuban agricultural sector in the 1990s

may be considered one of the most significant conversions to organic agriculture in the world; (b) among the small developing countries, the Dominican Republic is one of the largest exporters of organic agricultural products, supplying 60 per cent of organic bananas and half of the organic cocoa traded internationally; and (c) Costa Rica is the second developing country (after Argentina) to have been included in the EU “third-country” list of countries with equivalent standards to those of the EU.

A large number of experts from developing and developed countries, intergovernmental organizations and civil society have taken the trouble to provide commentaries – in their private capacity – on the issues raised in the respective chapters of this *Review*. Along with the chapters, their inputs, from so many different perspectives, contribute greatly to one of the key objectives of the *Trade and Environment Review*, namely to facilitate a constructive dialogue by critically analysing issues of interest to developing countries from a development perspective. Many thanks to all of them.

Notes

- ¹ More than 200 environmental and health measures have been notified by WTO members to the NAMA negotiations as constituting NTBs under paragraph 16 of the Doha Ministerial Declaration. For more information see: www.foe.co.uk/resource/media_briefing/ntbsanalysis.pdf and www.foe.co.uk/resource/evidence/non_tariff_barriers.pdf.
- ² For more detail see: Report of the CTE meeting held on 22 February 2005 (WTO document WT/CTE/M/39), Geneva, 2 May 2005, p. 2.

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Chapter

ENVIRONMENTAL REQUIREMENTS AND MARKET ACCESS FOR DEVELOPING COUNTRIES: PROMOTING ENVIRONMENTAL - NOT TRADE - PROTECTION

Ulrich Hoffmann, UNCTAD

Tom Rotherham, International Institute for Sustainable Development, IISD

A. Introduction

The pursuit of sustainable development requires balancing the objectives of economic growth, environmental protection and social development. Achieving a balance between these often-conflicting priorities is difficult enough at the national level, where competing interests are at least grounded in a common environmental, social and economic context. At the international level, where different countries have vastly different circumstances and priorities, it is significantly harder. One of the many ways in which this challenge manifests itself in the real world is in the conflict between the desire to promote trade by reducing non-tariff barriers and the desire to protect the environment and health through the use of technical regulations and standards.

Our understanding of the fragility and interconnectedness of our environmental support systems has grown in lockstep with our attempts to forge closer economic ties between countries, including through negotiations in the World Trade Organization (WTO) of binding commitments on trade liberalization. It is now almost universally accepted that production and consumption can have negative impacts on the environment, whether from resource use or from waste and emissions. It follows that citizens and consumers in developed countries, where environmental protection may be given relatively higher priority, are increasingly imposing their preferences on countries that – while connected both in economic and environmental terms – have fundamentally different contexts and, hence, priorities.

While not exclusively a developed-country phenomenon, consumers in OECD countries increasingly want the goods and services they purchase protected by environmental and related health requirements (ERHRs). Governments have reacted by developing regulations and standards, and non-governmental organizations (NGOs) are taking on a new role in the development of standards and codes of conduct. At the same time, a large number of companies have begun imposing strict requirements on their suppliers. Companies that do not understand their market conditions and trends risk going out of business. The trend of ERHRs is an increasingly important market reality, and must not be seen simply through the eyes of protectionism.

Because trade with developed countries makes up an ever-increasing share of the gross domestic product (GDP) of many developing countries,¹ ERHRs can increase the vulnerability of developing-country economies to market conditions beyond their control and capacity to address. Particularly as tariff barriers and quantitative restrictions become dismantled in multilateral and bilateral trade liberalization agreements, there is concern that product and related process requirements have the potential to be misused by countries to create technical barriers to trade. This has led to concerns that some ERHRs are designed not so much to protect the environment or health, as to protect domestic trade interests in OECD countries.

Experience has demonstrated that trade interests can be significantly affected by the establishment of ERHRs. As such requirements in developed countries are mushrooming – increasing in both stringency and complexity – their political impact is also enhanced. Because many ERHRs affect key export sectors and many developing-country exporters have limited capacity to fulfil them, they are often viewed by developing-country governments with suspicion and resentment, notwithstanding the legitimate public policy ambitions that may underlie them. This suspicion and resentment is unlikely to dissipate in the absence of clear criteria that distinguish environment-protective from trade-protective ERHRs.²

Although the precise impact of ERHRs is difficult to quantify, few trade and sustainable development experts would deny that recent trends in ERHRs have important implications for developing countries, or that action is needed to address them. This paper argues for a strategic, proactive and cooperative approach, involving exporters and importers as well as standard-setters from both developed and developing countries. The paper first describes in detail the concept of ERHRs and reviews the major trends in such requirements, making the case for why this is an issue that

deserves attention. It then discusses some of the difficulties faced by developing countries, distinguishing between capacity constraints and policy limitations. Finally, it outlines some solutions to existing problems, and argues for the need to broaden the discussion beyond the WTO trade-policy community.

Our conclusion suggests that what is needed, above all, is a commitment by developed- and developing-country governments as well as by importing and exporting companies to work together to ensure stability during the time it takes for exporters to achieve compliance with ERHRs. However, no amount of external actions or assistance can compensate for a lack of activity and commitment at the national level in developing countries. In addition, it appears certain that the challenges created by non-tariff barriers cannot be solved through trade policy alone; complementary industrial policy is also of fundamental importance. The political will to address specific problems – rather than just raise general objections – requires a realistic and informed assessment of the situation; until environmental pressures are reduced, there is little likelihood that ERHRs will diminish in either number or stringency. Moreover, a proactive approach can enable developing countries not only to minimize the potential costs associated with ERHRs, but also to maximize the related domestic economic, social and environmental benefits.

While companies and governments in developing countries must take ultimate responsibility for implementing the necessary changes, there is much that developed countries can do to catalyse, facilitate and provide support through policy coherence, cooperation, transparency and capacity building. The authors believe also that a range of measures can be taken at international, regional and national levels to resolve the unavoidable – but manageable – conflict between economic and environmental priorities. But for these cooperative solutions to be identified and for partnerships to be developed, it is our firm belief that the discussion has to be broadened beyond the traditional WTO trade-policy community to include a more diverse range of stakeholders that cannot participate in WTO meetings. The Consultative Task Force on Environmental Requirements and Market Access recently created by UNCTAD is a step in this direction, and can provide a much-needed forum of dialogue with those stakeholders.

B. Scope and trends of Environmental and Related Health Requirements (ERHRs)

To be able to compete successfully, developing-country producers must – like any other producers – examine and anticipate developments in international markets for their products and services. This includes both regulatory changes and changes in concepts of product quality. Awareness of the link between consumption and consequent environmental impacts is leading not only to increased regulations, but also to the integration of “environmental quality” into consumers’ perception of product quality. This is not just limited to the physical characteristics of a product; it also extends to impacts associated with its production process. Thus, if they are to defend and expand their international market shares, developing countries need to treat ERHRs as an integral part of export business strategies at the company level and of economic policy-making at the national level.

1. Scope

The term “environmental and related health requirements” is defined loosely in this paper to include a wide range of different types of voluntary standards and mandatory technical regulations. Indeed, ERHRs is not an easily defined concept. Such requirements can target physical product characteristics, production processes, or both; be developed by governments, companies or NGOs; be mandatory or voluntary; and, even when they are not requirements in the legal sense, the market context may make compliance with them a commercial imperative. Moreover, they can have a myriad of public policy objectives. For example, the regulation of pesticide residues in food products may be instigated to ensure the safety of food, protect the health of farm workers and minimize environmental impact at the point of production. Therefore, some environmental require-

ments may be related to health, food safety or occupational safety, but these should have an environmental aspect during production, use or recovery – this is why we term them ERHRs. The fact that there is no simple definition of ERHRs also makes it harder to identify, understand and address their impacts.

The production of any good or service requires resource inputs and involves some type of waste or emission. Because of this, most ERHRs seek to reduce trade in those goods or services that have *relatively* worse environmental or related health impacts. Thus, while the objective of many ERHRs is not to restrict trade per se, many of these measures do intend to regulate or reduce trade in products or services that do not comply with certain criteria or specifications. In most cases, therefore, it will not be possible to eliminate all trade implications of ERHRs; their objective is to encourage changes in production and trade patterns by altering market conditions. But while overall trade patterns will, in principle, always change, the application of ERHRs could in some cases actually lead to more trade. As a simple example, reducing the amount of pesticide residue on fruit below a threshold that has negative impacts on consumers' health will induce them to purchase and consume more, thus leading to an increase in overall trade in fruit.

Importantly, however, the trade-related impacts of ERHRs are linked not only to the requirements themselves, but also to the procedures by which they are developed, adopted and applied. In some cases, the problem may not be that the company does not want to or is unable to comply with the requirements, but simply that it is not aware of them, or cannot demonstrate that it complies. Recognizing the importance of these procedural aspects, governments have negotiated through the WTO a range of internationally agreed rules to address them. Depending on their nature, ERHRs can fall under the disciplines of either the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) or the WTO Agreement on Technical Barriers to Trade (TBT Agreement). As discussed below, although there are some overarching similarities in both the SPS and TBT Agreements, in certain respects disciplines differ significantly. However, it is important to note that many ERHRs that are commercial (not legal) imperatives, such as supply-chain requirements, do not fall under the relevant WTO Agreements.

Both mandatory and voluntary ERHRs can appear in many different forms, with many different purposes. Some of the most common relate to packaging regulations and certain SPS measures;³ product content (e.g. limits for certain substances); process requirements (e.g. the standard on Good Agricultural Practice of the Euro Retailer Produce Working Group (EurepGAP) on agrochemicals management); banned substances; energy efficiency; recycled content; and recyclability or degradability, many of which require labelling to demonstrate conformity. Environmental product taxes and charges can be based on some characteristics of the product (e.g. on the sulphur content in mineral oil) or on the product itself (e.g. mineral oil). Take-back obligations are aimed at encouraging reuse and recycling, and related compliance costs may induce more environmentally conscious product development.⁴ The next chapter in this *Review* examines developments in environmental policies related to growing volumes of post-consumer waste (in particular electronic waste), based on the principle of *producer responsibility*. It notes the growing relevance of product design requirements. Environmental requirements affecting international trade are also applied pursuant to certain multilateral environmental agreements (MEAs), such as the Montreal Protocol, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the Basel Convention.⁵

2. Trends

There is a pronounced trend of an increasing number of ERHRs. According to the WTO Environmental Database (EDB), which used to contain information on governmental ERHRs and other provisions notified under the TBT or SPS Agreements, the share of environment-related notifications under the TBT Agreement has increased from 10 per cent in the early 1990s to 18 per cent in 2002.⁶ Although there is no formal tracking system for voluntary ERHRs, evidence from informal

lists suggests that these are growing at least as fast.⁷ But from the perspective of a developing-country exporter, the difficulties with ERHRs relate not only to the fact that they are growing in number, but also that they are becoming more stringent and complicated, are subject to frequent changes, and do not tend to follow international standards (although, as discussed later, globalization of trade and investment flows alters this to a certain extent). Therefore ERHR requirements frequently differ from export market to export market, even if the general objective is the same.

Increasing stringency, complexity and multi-dimensionality

Environmental requirements are also becoming more stringent as a result of increased knowledge of the risk and harm to health and the environment, in particular of certain chemicals. For example, threshold limits for certain substances may be set so low (e.g. some maximum residue levels are already expressed in parts per billion) that they are no longer detectable except with the latest equipment, which may not be available or affordable in developing countries. Standards and regulations concerning maximum residue levels (MRLs) for pesticides and other chemicals are thus an issue of concern to developing countries, which, even if they wanted to comply, may not have access to the equipment needed to monitor and demonstrate compliance.⁸ In some cases, previously accepted substances are being banned outright, such as mercury regulations in the United States, which have also influenced regulations in Canada. For Guatemala and Honduras, difficulties in complying with their obligations under the Montreal Protocol with regard to methyl bromide have affected their melon exports. These countries have recently obtained funding support from the Multilateral Fund of the Montreal Protocol to overcome this problem.⁹

Not only are ERHRs becoming more stringent, they are also becoming more complex. Recent examples of this trend are the draft chemical safety regulation in the European Union (EU) concerning registration, evaluation and authorization of chemicals (REACH), the draft EU regulation on eco-design for energy-using products (EUPs), and mandatory requirements on recycling and phasing out of hazardous substances for electrical and electronic equipment in the EU, Japan and Switzerland (analysed in the next chapter of this Review). Whereas in the past most standards and regulations focused on specific sectors, recent legislative projects, such as the draft REACH and EUP Directives, or the recycling-oriented policy framework in Japan, have a much broader, cross-sectoral impact that is more complicated to assess and more difficult to address.¹⁰ This complicates the planning and implementation of adjustment measures, especially for developing countries. The often sophisticated technical issues are beyond the ability of many individual companies to address and require sectoral cooperation and government action. In sectors dominated by small and medium-sized enterprises (SMEs), this problem is even more acute.

Part of the complexity is the multi-dimensionality of an increasing number of ERHRs. That is, new regulations and standards often deal with health, food safety and environmental (increasingly also supplemented by social) requirements at the same time, which makes it more difficult to classify them and, in the WTO, to decide whether to notify a regulation under the SPS or TBT Agreement, or both. Examples include regulations on organic agriculture or on mandatory traceability and Hazard Analysis and Critical Control Points (HACCP) of food.

Shift to precaution and risk avoidance

There is a clear trend towards the more widespread use of a precautionary approach on ERHRs in situations where satisfactory or sufficient evidence on negative environmental impact is not yet available. For instance, the draft REACH Directive, which was developed pursuant to the *White Paper on a Strategy for a Future Chemicals Policy in the European Communities*, is based on the precautionary principle. It will effectively reverse the burden of proof in that it will require producers, users and importers of chemicals or downstream industries using chemicals to test, assess and take responsibility for risk management of all chemicals on the European market in order to ensure their safe use.¹¹ Even more important, there appears to be a move in some developed coun-

tries towards shifting the emphasis in the regulatory framework from (classical) *risk management* to *risk avoidance*.¹² In the EU, for instance, maximum residue levels of pesticides have already reached levels that are far below 0.01 mg/kg.

These recent developments, however, are occurring in the absence of a holistic approach to precaution. In other words, if the precautionary principle is applied to environmental issues it should also be applied to trade-related impacts. This should include issues such as impact assessment, proactive consultations, and the use of complementary tools to ensure that the transition period to compliance is as short, easy and uncomplicated as possible.

Internationalization of environmental and related health requirements

Enhanced globalization of investment and trade flows leads to a spreading of national mandatory or voluntary ERHRs from developed countries to other countries. This internationalization (or often transnationalization) of ERHRs de facto results in a certain harmonization of requirements, in particular through supply-chain requirements, industry codes on good practice or benchmarking. For instance, globally active supermarkets such as Ahold, Carrefour or Tesco tend to apply one global purchasing standard (e.g. EurepGAP) across a range of food items – both internationally and domestically sourced products.¹³ In sectors with high trade intensity and a high concentration of related foreign direct investment in developing countries, such as electrical and electronic equipment, mandatory ERHRs in some developed countries also show signs of universal application over time.

Although, from a legal point of view, only a few international standards on ERHRs exist, many of them in key export markets are becoming “transnationalized” through supply chains. They thereby impose requirements that were created with little or no regard to developing countries’ environmental situations, development priorities and trade concerns.

The way standards are created – notably voluntary requirements in the private sector – and implemented might give rise to monopolistic, anti-competitive practices. So far, such issues have not been satisfactorily addressed; they require further analysis and, if need be, anti-trust measures. Casella argues that the primary role of governments “is not that of establishing harmonization (of standards) through inter-governmental treaties, but rather setting up the appropriate regulatory framework to prevent anti-competitive outcomes (Casella, 2001).

Closely related and contributing to the trend of transnationalization of ERHRs is the increasing industrial redeployment or outsourcing of manufacturing activities to developing countries. Industrial outsourcing offers opportunities for a new, cooperative partnership whereby both exporting and importing countries can discuss means and required supportive measures to meet a certain target ERHR that is in the interest of both parties. Transnationalization of ERHRs, however, also entails the risk that inappropriate requirements could be imposed on foreign suppliers. This makes it important to ensure that local conditions that are essential for meeting ERHRs are adequately reflected therein.¹⁴

The third chapter in this Review, on regulation and standards for organic agriculture, elaborates further on the growing convergence between domestic requirements and technical regulations and standards in external markets.

Increasing importance of voluntary ERHRs in the marketplace

Although mandatory ERHRs are generally perceived as having a greater effect on exporters,¹⁵ certain types of voluntary requirements are far more numerous, evolve faster and include more stringent specifications than those mandated by law (i.e. “beyond compliance”).¹⁶ These voluntary requirements are increasingly playing a key role in many sectors. Voluntary requirements include

private sector supply-chain management as well as codes, standards and related certification and labelling systems, developed either by private sector associations or non-governmental bodies. While voluntary in the legal sense, these types of environmental requirements can become commercial imperatives¹⁷ if a large proportion of buyers require them. This is particularly acute in sectors with a high market concentration of large multi-national companies, as is the case for certain agricultural, textile and electronic products. The WTO's World Trade Report 2005 comes to the conclusion that "many standards which are public by law are based on technical specifications and initiatives by private standard-setting organizations. The question thus arises as to whether such standards should indeed be considered 'public'."¹⁸

Three features make voluntary ERHRs more difficult to address than mandatory ones. First, as they fall outside WTO disciplines, there are no clear rules of process that have to be followed in their development and implementation. Even where the TBT or SPS Agreements' provisions on justification, transparency and consultation would apply,¹⁹ the mechanisms to ensure that non-State actors comply with them are relatively few and largely ineffective. Second, as they can emanate from a multitude of sources, they are much harder to track and harmonize. At the same time, successful voluntary ERHRs often become precursors of regulations, which underlines their importance for developing-country exporters. Third, although voluntary requirements are generally very important, many specific voluntary requirements never become a relevant or decisive factor in the marketplace. It is therefore difficult for companies to know whether they should invest in making required adjustments. While this has the potential to affect all exporters, various factors conspire to magnify the relative impact on developing-country exporters, particularly SMEs.

Supply-chain-driven nature of ERHRs

In an effort to respond to consumer-led concerns about the environmental sustainability of their purchasing, the private sector is increasingly developing ERHRs for suppliers. This has resulted in a proliferation of voluntary standards, codes and benchmarks, often as part of commitments under corporate social responsibility (CSR), within risk-management initiatives or integrated product policies. Various schemes combine environmental issues with social issues.

In the food sector, for example, the Euro Retailer Produce Working Group (EUREP), which includes the leading supermarkets in Europe, launched its protocol on Good Agricultural Practice (EurepGAP) for horticultural products in 1999, originally in response to consumer fears over food safety, including local food safety crises. EurepGAP seeks to provide a framework for independent verification of, on the one hand minimum social, environmental and food safety standards throughout the supply chain, and, on the other hand continuous quality assurance and improvement²⁰ for the production of fresh fruit, vegetables, flowers and ornamentals, green coffee, aquaculture products and agricultural raw materials from overseas (see box). Such measures may affect companies in developing countries, for example on account of the need to collect information to respond to questionnaires, traceability and audit requirements.²¹ They may also create a bias towards the operation of large firms, thus risking the crowding out of small firms by the large firms and transnational corporations (TNCs).²²

In practice, supply-chain-driven requirements seem to account for the majority of all ERHRs in international markets. In many cases, they are more dynamic, stringent and complex than mandatory requirements, envisage a faster phase-out of harmful substances or require changes in processes and production methods.²³ Effective voluntary requirements might also become precursors of government regulations. As can be seen in box 1 on the EurepGAP protocol, some voluntary ERHRs combine mandatory and voluntary requirements (in the EurepGAP case, mandatory requirements on food safety with additional voluntary requirements on food quality).²⁴ Also, monitoring and effective implementation of many voluntary supply-chain requirements are often stronger than for government ERHRs. However, this has more to do with the supply-chain as a mechanism for effectively pushing requirements than with the content of the requirements themselves.

Therefore, in practice, many environmental standards and labelling programmes are getting spread through supply chains (or “commercial” policies), and not through formal “trade” policy.²⁵ In some respects, this can be expected to create relatively greater market-access problems. While companies are likely to use supply-chain requirements as a determinant of market access (i.e. if you want to supply to me, conform to my standards or labelling requirements), governments are more likely to use them either as specific conditions for market access (e.g. restrictions on pesticides), or through market-based incentive measures that offer preferential treatment to products or producers that comply (e.g. government procurement that favours environmentally preferable products).²⁶

Box 1. The Standard on Good Agricultural Practice of the Euro Retailer Produce Working Group (EurepGAP)

EurepGAP has developed an auditable standard promoting Good Agricultural Practices (GAP), which covers the production of fruit, vegetables and flowers. In September 2004 it introduced a Reference Code for (green) Coffee. EurepGAP has also developed standards for Integrated Farm Assurance and Integrated Aquaculture Assurance.

The EurepGAP protocol defines the elements of good agricultural practices (GAP) and includes topics such as Integrated Crop Management (ICM), Integrated Pest Control (IPC), Quality Management System (QMS), Hazard Analysis and Critical Control Points (HACCP), worker health, safety and welfare, environmental pollution and conservation management. EurepGAP seeks to provide a harmonized set of standards on hygiene, safety and quality for the production of food, which forms the basis of EUREP's retailer procurement requirements. The current checklist for fruit and vegetables comprises several checkpoints, a number of which require rigorous compliance, whereas others are considered "recommendations" or "minor must". The key clusters are:

- Traceability of the product back to the producing farm;
- Record-keeping and internal self-inspection;
- Varieties and rootstocks accounting and management;
- Documentation of site history and site management;
- Documentation of soil and substrate management;
- Recording of fertilizer use;
- Documentation of irrigation and fertigation practices;
- Recording of crop-protection practices;
- Documentation of harvesting methods;
- Records on produce handling;
- Records on waste/pollution management, reuse and recycling;
- Documentation of worker health, safety and welfare;
- Records on environmental issues; and
- Documentation of complaints.

Many of these requirements are similar to establishing an ISO 14001-compliant environmental management system. They all symbolize a transition to high-precision agriculture.

Producer associations or individual growers that meet EurepGAP criteria receive a certificate, which is issued by a EurepGAP-approved independent certifying body. Another option is to participate in the EurepGAP benchmarking option, which facilitates existing national or regional quality assurance schemes to prove equivalence with EurepGAP requirements. This encourages the development of regionally adjusted integrated crop management systems.

Source: EurepGAP checklist for fruit and vegetables, version 2.0, January 2004, accessible at: <http://www.eurep.org>; CBI, International management system, EurepGAP agriculture, in: CBI Access Guide, accessible at: <http://www.cbi.nl/accessguide>.

Although voluntary requirements seem to account for the majority of ERHRs for internationally traded goods, there is the apparent dilemma that under current circumstances WTO parties do little to address exporters' ERHR-related concerns.²⁷ This heightens the need to consider other mechanisms for ensuring that voluntary ERHRs are not inappropriately prepared, adopted and implemented. The initiatives of NGOs in this regard notwithstanding, there is also the question of how these requirements could be analysed and discussed in an intergovernmental setting. If the TBT Agreement sets out a recognized framework for helping governments to minimize trade-distorting regulations, could it not also be a helpful framework for companies to consider?

3. Summary: Scope and trends of ERHRs

ERHRs are not a distinct group of measures: they address a wide range of issues, ranging from species or ecosystem protection to human health and safety. They may also be either mandatory or voluntary, address a single issue or multiple issues, include product- and/or process-related requirements, be developed by governments or NGOs, and be relatively static or very dynamic. Some ERHRs result in differentiation within existing product categories (e.g. recycled paper is seen as an environmentally preferable alternative); others can lead to market segmentation (e.g. organic produce).

All ERHRs seek to restrict trade in goods and services that have *relatively* worse environmental and related health impacts. While mandatory regulations will likely have a greater impact on market access, it is important not to underestimate the overall impact of voluntary requirements. Not only are voluntary requirements growing in number and evolving quickly, if they become integrated into supply chains – as in the case of sustainable forest management standards – they can become commercial imperatives for certain markets. Also, whereas the procedural aspects of voluntary standards can be as important as for technical regulations, most of the provisions in the TBT and SPS Agreements are commitments between governments, and are not binding on NGOs that develop voluntary standards. Finally, standards, in particular when successful in implementing ERHRs, are often the precursors of regulations, and can eventually be integrated into mandatory measures. However, a large number of voluntary ERHRs never become relevant or decisive factors in international markets, which makes it difficult for companies in exporting countries to decide on whether they should invest in making required adjustments.

Consumers, producers, regulators and all concerned stakeholders are becoming increasingly aware of environmental and health problems and are looking for versatile tools to effectively address them. This is leading to more complex ERHRs with broader impacts, and adjustment, which often requires close coordination between a number of actors, including governments. Consequently, adjustment to new ERHRs is a growing and more serious problem, in particular in developing countries. Given their potential impact, some interest groups may use ERHRs – as with other types of standards and regulations – as strategic tools to protect markets or market share.²⁸

C. Coping with Environmental and Related Health Requirements

The previous section alluded to a number of possible concerns of developing countries resulting from the imposition of ERHRs. In this section, these concerns are considered more systematically. By identifying the potential problems, it is hoped to provide policy-makers and practitioners with a better basis to find the right solutions. It would help ensure that ERHRs function as tools to promote sustainable production and consumption, and achieve the desired developmental benefits, without unnecessarily or unintentionally restricting market access or hurting the competitiveness of developing-country producers.

One of the main challenges in identifying and understanding problems related to ERHRs is the difficulty in isolating and tracking their impacts. At a fundamental level, the universally harmo-

nized product codes used in the trade nomenclature for tracking trade flows of products do not distinguish between those that are and are not affected by, or comply with, ERHRs. As a result, there is an absence of data on changing trade flows in product segments defined by ERHRs, such as eco-labelled products, or even products of organic agriculture. In addition, ERHRs are only one category of a wide range of specifications that a producer must comply with in order to access a market. Consequently, it is often difficult to conclude that it is an ERHR that is creating the problem with market entry rather than, say, a product quality specification or even difficulty in finding a local distributor. Thus, not only is it almost impossible to identify the changes in trade flows in products that need to meet certain ERHRs, but even if it were possible, it would be difficult to conclude that ERHRs are the sole or most important reason for these changes.

Identification and understanding of the impact of ERHRs on market access is further complicated by the fact that the types of problems that could arise fall into several interrelated clusters of categories that are addressed by different groups of stakeholders (e.g. international organizations, national governments, different ministries, private standard setting bodies, large buyers and NGOs) and discussed in different national and international forums. This results in imperfect problem identification and solution finding, which means that interrelated aspects of the issue cannot easily be addressed in a holistic manner.

It is also worth highlighting that there is “shared responsibility” for resolving adjustment problems to new ERHRs. Some issues need to be resolved by developing countries on their own (e.g. institutional and structural changes); for others, there is a shared responsibility, with developing countries being responsible for the actions but developed countries having some responsibility for assisting them to comply (through trade-related technical assistance and other means highlighted in TBT Article 11). There are other areas where the responsibility lies solely with developed countries (e.g. transparency, stakeholder consultations, ex-ante impact assessment, least trade-restrictiveness of the requirements).

Moreover, it should not be overlooked that government subsidies play a significant role in the adjustment process to ERHRs in various countries, notably in developed ones. As chapter three of this Review shows, producers in a number of developed countries can readily draw on a multilayer financial support mechanism that facilitates transition to and reduces the costs of certification for organic production. Such subsidy schemes are the rare exception in developing countries (the Government of Tunisia, for instance, provides partial subsidies to cover inspection and certification fees for the first five years of organic production). In short, ERHR-adjustment-related subsidies are likely to further distort market access and market prices.

Experience and case studies have demonstrated that there are a number of factors which influence how well developing-country exporters can adapt to ERHRs. Overall, it appears that if developing countries adopt a merely firefighting, rather than a strategic, approach to addressing ERHRs in their key export markets, ERHRs may well hurt international competitiveness. While resolving the problems of market access requires the participation of the importer (country, company, standards body), from a broader, market-entry perspective there are a large number of actions that governments need to take domestically to strengthen export competitiveness. That is, even in the absence of any improvement in export markets, developing countries can act internally to increase the capacity and effectiveness of institutions, infrastructures and legal frameworks, and strengthen their key industries at both the sectoral and enterprise level.

1. Strengthening technical and institutional capacity

Apart from problems related to the complexity, stringency or technical characteristics of certain ERHRs, companies in developing countries face a number of other constraints as a result of structural problems. Many find their export markets restricted, not because their exporters are unwilling to comply with ERHRs, but because of an inability to identify the requirements, access or

afford the required technology, make changes to production techniques, or demonstrate compliance in a credible way. While some of these problems relate to deficiencies at the enterprise level, many of them arise from more fundamental institutional weaknesses. Crucially, countries must start looking at ways to strengthen the institutions needed to deal with ERHRs – that is by establishing early-warning systems, enquiry points, standards bodies, specialized consultants, testing and metrology labs, and accreditation agencies – much as they seek to improve their road networks, ports and telecommunications. All of these form part of the national infrastructure that is essential for enabling companies to participate in international trade.

The fundamental importance of this institutional infrastructure is implied in the texts of the TBT and SPS Agreements, which include specific provisions on technical assistance to help developing countries upgrade their national bodies that deal with such aspects as standards, conformity assessment and accreditation. This issue is addressed in more detail below. At present, most developing countries have insufficient technical capacity to efficiently manage many kinds of standards and technical regulations, including ERHRs. Typically, essential facilities such as laboratories are short of adequately skilled staff, scientific equipment is obsolete for the required tests, and there is little, if any, systematic collection and recording of information.²⁹ Even when equipment and testing is available, the laboratories may not be recognized by authorities or companies in the importing country, and so tests must be commissioned from foreign laboratories. This increases the relative costs of conformity assessment for firms in developing countries. As UNCTAD and OECD case studies demonstrate, many of these constraints have obvious cumulative effects (UNCTAD, 2004b; OECD, 2002a).

This lack of national infrastructure leads to three general problems at the enterprise level. First, in those cases where a company's comparative advantage lies in maintaining low capital costs and high labour inputs, even relatively small additional investments in equipment can overstretch available short-term credit limits and result in substantial increases to marginal costs. This is especially the case for SMEs. Second, the required equipment or management expertise may not be available locally,³⁰ and local companies may not have the capacity to conduct international searches for suitable suppliers. Finally, even where equipment or consulting services are available locally, they are most likely to be provided by foreign firms at prices that tend to be higher than in developed countries. Thus, even when companies in developing countries are able to comply with importers' ERHRs, their costs are likely to be relatively higher than for competitors in developed countries.³¹

Where national infrastructure is inadequate, large TNCs may be able to invest in upgrading their own facilities, particularly in the case of intra-firm trade rather than direct retail trade. But where export industries are composed of a significant proportion of SMEs, the lack of financial resources prevents them from addressing critical trade-related infrastructural deficiencies. Recent research by UNCTAD and the OECD on the leather industry in several Asian countries (Bangladesh, Cambodia, China, India, the Philippines, Thailand and Viet Nam) suggests that ERHRs can actually drive industry concentration, reducing the number of small, family-owned enterprises (OECD 2002b: 31–36; and UNCTAD, 2003b). There is therefore a strong case to be made for trade for aid in a well-coordinated manner that would enable expanded capacity building. This is particularly important for LDCs and other low-income countries, which often lack the necessary technical and logistical infrastructure so vital for supporting quality assurance systems.

Given the declining levels of public expenditure in many countries, this situation is unlikely to improve in the short term.³² In addition, although foreign assistance is essential, deep-rooted institutional problems will be difficult to overcome by technical assistance measures alone, which are more appropriate for isolated problems within an overall sound institutional setting. Developing countries need to adopt long-term strategies to improve the infrastructure needed by their companies to address ERHRs, focusing first on priority industrial sectors and key export markets. At the same time, developed countries should recognize that until this infrastructure is in place, ERHRs

will have a proportionally greater impact on the competitiveness of companies in developing countries than on those in their own jurisdictions. This implies a responsibility for developed countries to undertake all reasonable efforts to reduce the impact of ERHRs, including by governments, importing companies and, where relevant, non-governmental standards bodies.

2. Limiting trade restrictiveness of ERHRs at the design stage

Recent debates in the WTO Committee on Trade and Environment (CTE) have reiterated that an approach that mostly or exclusively focuses on technical assistance to developing countries to comply with ERHRs is insufficient. Article 12 of the TBT Agreement and Article 10 of the SPS Agreement require that Members take into account the special needs of developing countries in the preparation of mandatory ERHRs (WTO, 2004a). In accordance with Principle 11 of the Rio Declaration, “environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.”

There are a number of practical steps that can be taken to duly implement Principle 11. First, developed countries could guarantee inclusiveness and transparency in the process of ERHRs’ development. This applies in particular to facilitating the participation of developing-country representatives in pre-regulation and pre-standard-setting consultations. It should include both the publishing of information in hard copy or electronic form as well as an active outreach effort to developing countries likely to be particularly affected by the trade effects of new ERHRs (also see recommendations of the next chapter in this regard). Second, ex-ante assessments of the likely trade effects on developing countries’ key export interests can also go a long way towards addressing major concerns at the design stage of new ERHRs.

Pre-regulation and pre-standard-setting consultations

As regards mandatory ERHRs, a recent analysis by Earley (2004) suggests that it is arguable whether OECD countries have indeed ensured that their regulatory processes satisfy the TBT/SPS requirements for transparency and consultation. At the most general level, the obligations of the SPS and TBT Agreements are not being fully implemented in spirit, even where developed countries have fully elaborated internal regimes that impose obligations for transparency and consultation in the standard-setting process. In part, this is because the statutory framework imposing these obligations was enacted initially for the protection and democratic participation of citizens. The extension of transparency and consultation provisions to SPS and TBT obligations therefore often results in a poor ‘fit’ between the national administrative framework and WTO requirements. Even in the most advanced developed countries, some regulatory agencies do not consider themselves “trade agencies” and are loath to provide notification, particularly at an early stage, to trading partners. In countries where internal transparency regimes are not in place, breaches of TBT/SPS requirements are even more likely.

Some developed countries share the experience of developing countries in penetrating the regulatory jungle where obligations have been devolved to a state or sub-federal level. The transparency obligations of the WTO apply to a central government body that is primarily responsible for ensuring that sub-national government bodies adhere to WTO agreements, but there is sometimes little explicit oversight.

None of the developed countries/regions studied by Earley for UNCTAD (Canada, the European Union, Germany, Sweden and the United Kingdom) implement domestic transparency requirements in a sufficiently comprehensive way with the result that implementation of TBT/SPS requirements is incomplete. The development of better integrated policies at the national level in many developed countries may result in greater attention to responding more effectively to the

needs of outsiders that are trying to cope with regulations intended to be national in scope. Undoubtedly, there is an increasing understanding that many kinds of regulations need to be addressed in a multilateral context, and an increased formalization of administrative procedures will help in this regard.

However, more direction is needed when consultation and transparency are to be provided to importers from developing countries, who, in some cases, are as fully a part of the regulatory stakeholder base as their domestic supplier counterparts. Electronics, as amply demonstrated in the next chapter, is a case in point. The most obvious ways to facilitate developing-country involvement in pre-ERHR-setting processes is to invite comments and provide access to information resources on the Internet or to actively facilitate participation of developing-country representatives in pre-regulation-setting stakeholder consultations. Of all the countries studied, Canada, Sweden and the United Kingdom are the most active in this respect. The decision of the European Commission to hold an Internet-based consultation on its draft REACH Directive was helpful in soliciting the kinds of comments that were not received when developing the Waste Electrical and Electronic Equipment (WEEE) Directive and the Restriction of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive. The European Commission has recently also created an Internet-based “single access point” for open public consultations (generally lasting eight weeks).³³

The results of the recent stakeholder consultations on the draft REACH system give an indication of the role pre-regulation-setting stakeholder consultations can play in addressing specific concerns. The draft proposal on REACH, which was posted for Internet consultation in mid-2003, has been thoroughly revised to cut costs and minimize bureaucracy whilst safeguarding human health and the environment. In the new impact assessment, it was estimated that the direct cost of REACH to the European chemicals industry would total some •2.3 billion over an 11-year period. This is a reduction of over •10 billion compared with the draft REACH text posted on the Internet. This reduction is due to changes such as reduced testing requirements and simplified registration procedures for low volume chemicals, exclusion of polymers from registration, and a major reduction in downstream user requirements.³⁴

Finally, better interagency coordination in developed countries can also facilitate developing-country involvement in pre-ERHR-setting processes. If aid and capacity-building processes are linked to regulatory ones, a developed country can internally ensure that developing country or importing perspectives will be heard. Steps in this direction have included the placing of an ombudsman for developing countries in the Swedish Trade Ministry and the roles played by the Centre for the Promotion of Imports from Developing Countries (CBI) in the Netherlands (www.cbi.nl), the Danish Import Promotion Office for Products from Developing Countries (DIPO) (www.dipo.dk), the Open Trade Gate Sweden (www.opentradegate.se) and the European Commission’s Expanding Exports Helpdesk for Developing Countries (www.export-help.cec.eu.int).

As regards pre-standard-setting consultations in the private sector, analysis shows that the perception that developing countries and their industries stand at the receiving end of these efforts is sometimes well founded. The questions that need answers, therefore, are whether existing initiatives and efforts are adequate for driving change in a sufficiently open process, and whether additional mechanisms could add value and facilitate developing-country involvement. It is possible, but not very likely, that additional best-practice guidelines on procedural aspects of the development of new voluntary ERHRs will come from the private sector, even given the existence of recently introduced normative standards for transparency, such as those of the International Social and Environmental Accreditation and Labelling Alliance (ISEAL).³⁵

Additionally, it will be very difficult to effect change in the way private sector standards are created without the cooperation of private sector bodies. It is possible that if developing countries can find a larger voice in multilateral standards-setting organizations, this could play a role in

negotiating transparency and consultation with the major private sector programmes. The International Federation of Organic Agricultural Movements (IFOAM), for instance, has already been an active participant in a harmonization effort organized jointly with the Food and Agriculture Organization of the United Nations (FAO) and UNCTAD through the FAO/IFOAM/UNCTAD International Task Force on Harmonization and Equivalence in Organic Agriculture (see chapter 3 of this *Review*), and the Global Eco-labelling Network is ready to assist multilateral efforts as well as national ones.

Private sector standardization bodies that have recognized the Code of Good Practice for the Preparation, Adoption and Application of Standards in Annex III of the TBT Agreement have pledged to observe disciplines on transparency and consultation similar to those in the TBT Agreement. However, in practice this is difficult for developing-country representatives to implement, and often lack of funding prevents participation in consultations open to third parties (Henson, Preibisch and Masakure, 2001: 26).

Ex-ante assessment of the impact of new ERHRs

Ex-ante analyses of the trade impacts of new ERHRs on key exporting developing countries may be able to limit market-access problems. Such analyses could be a useful input into the pre-regulation-setting stakeholder consultations (discussed above) or in environmental policy dialogues, which the European Commission, for instance, has recently held with China and Thailand to discuss common approaches to environmental concerns and related market-access issues, including the WEEE and RoHS Directives (for more details, see WTO, 2004b: 7–8 and chapter 2 of this *Review*).

By way of illustration, the European Communities have recently introduced a “Better Regulation Package”, which aims at improving regulation through improving knowledge about its impact and systematic consultations with stakeholders, including those from developing countries. The package envisages a preliminary impact assessment, and for a selected number of significant proposals, including ERHRs, a more in-depth analysis – called an extended impact assessment – of proposals that could have substantial economic, environmental or social impacts. This impact assessment should include an analysis of the potential effects on countries outside the EU, if these countries are major interested parties with regard to the regulation concerned (WTO, 2004b).

Sector-focused OECD (2004: 20) and UNCTAD studies, carried out before REACH, found only one example of a thorough ex-ante impact assessment, which concerned the European Commission’s review of the impact of the Directive on azo dyes.³⁶ A recent UNCTAD/FIELD Stakeholder Consultation on REACH and Developing Countries referred to the extended impact assessment of the draft REACH regulation conducted by the European Commission. However, this comprehensive analytical effort did not include the external impact on developing-country exporters; it was generally believed that the impact analysis of REACH on developing countries was insufficient, and that further efforts were needed to consider its economic, social and environmental impacts in those countries. The meeting therefore recommended that such an analysis be undertaken by the European Commission, including on the use of both chemical substances and substances in articles, from an economic, environmental and social perspective (UNCTAD/FIELD, 2004: 17, 21).

3. Coordinated and comprehensive technical assistance

While technical assistance from developed countries cannot on its own solve the problems associated with the growing number and complexity of ERHRs, there is no doubt that it is needed. Indeed, a number of technical assistance and capacity-building initiatives have taken place in developing countries to facilitate the fulfilment of ERHRs in external markets and thus ease market access. These have been undertaken by international, multilateral and regional organizations, through bilateral assistance, and by the private sector and NGOs. However, only very few of these

activities are being coordinated in terms of implementation and/or shared learning. Also, few take the kind of holistic and systematic approach necessary to address the fundamental institutional development that is ultimately needed. As mentioned above, this is not entirely surprising, since most technical assistance is not well suited to institution building.

Of more concern, however, is the fact that many initiatives are reactive in nature; they tend to solve problems only after they arise. This is linked to the challenge of demonstrating a need to donors before a problem arises or is visible. But one notable exception is the technical assistance and capacity building that occurs within the framework of the Montreal Protocol to phase out production and consumption of ozone-depleting substances (ODS). These initiatives are financed through a designated Multilateral Fund. Apart from the significant size of funding support,³⁷ the technical assistance and capacity building aspects of the Protocol also include the funding of ozone offices at country level, which ensure a systematic and coordinated approach to ODS out-phasing,³⁸ including support for training, transfer of technology and building of infrastructure.³⁹ In recent years, as experiences with and understanding of ODS replacement have grown, it has been possible to shift from a mere reactive to a more proactive approach to technical assistance.⁴⁰

A variety of measures could help reduce the piecemeal and uncoordinated approach that characterizes ERHR-related technical assistance. Regular exchange of information on ongoing and planned technical assistance and capacity-building activities, and some mechanism for coordinating them, would help.⁴¹ Given its central role in the process, such coordination would need to be initiated at source and spearheaded by donor agencies. Participation of donors in relevant forums for coordination would also help. While it is often difficult to segregate trade-related technical assistance from more general development assistance, it would also be useful for donor agencies to publish registers of their trade-related projects. Some donors (most recently, for instance, the EC and Switzerland)⁴² have submitted such lists to the WTO's Committees on Trade and Environment (CTE) or Technical Barriers to Trade.

The ultimate goal is a more holistic approach that combines institution building with technical assistance for infrastructure and training. The Standards and Trade Development Facility (a joint initiative addressing SPS issues involving the WTO, the World Bank, FAO, the World Organization for Animal Health and the World Health Organization (WHO)), established in mid-2002, is expected to receive longer term funding in 2005. The Facility will then be able to address longer term issues of capacity and compliance, rather than concentrating exclusively on short-term or "firefighting" projects.⁴³ At present, no such mechanism or facility exists or has even been discussed for TBT-related measures.

Nevertheless, it will be impossible to address institutional development issues unless developing countries themselves take a more proactive and strategic approach. That will require some baseline efforts to analyse adverse trade effects of ERHRs in key export markets, improve information management and the level of awareness, and develop versatile adjustment approaches that focus on maintaining or improving export competitiveness. Development assistance agencies should not only support, but also actively participate in, these strategic planning initiatives so that a common understanding of needs and opportunities is reached. Eventually, trade-related technical assistance should be integrated into all long-term development planning processes, such as poverty reduction strategy papers (PRSPs).

Any realistic assessment of what it will take to identify priorities and resolve long-term, ERHR-related capacity issues will immediately conclude that discussions on these issues need to involve an extremely broad range of stakeholders. As will be discussed later, this should not only include national bodies interested in reducing the negative trade-related impacts, but also those interested in maximizing the positive (catalytic) environmental and related health impacts. Some actions, such as notifications of technical regulations and standards, will necessarily have to be taken through the relevant WTO Committees (TBT, SPS and CTE). Many others, however, will involve

groups that have no regular connection with the WTO at all, such as negotiations on mutual recognition and technical equivalence, consultations with developing countries in regulation and standards setting, and helping developing countries to adjust.

The text of the WTO Agreements themselves underlines the need to broaden discussions on ERHRs beyond the traditional WTO community. Article 11 of the TBT Agreement and Article 9 of the SPS Agreement include provisions on trade-related technical assistance. Strictly speaking, however, these provisions are not mandatory as they have been linked to phrases such as “under mutually agreed terms” (Art. 11.2. of the TBT Agreement), “take reasonable measures as may be available to them” (Art. 11.3. and 11.4. of the TBT Agreement), “to facilitate the provision of technical assistance” (Art. 9.1. of the SPS Agreement) or “shall consider providing such technical assistance” (Art. 9.2. of the SPS Agreement). Furthermore, while the national trade ministries that negotiated the WTO Agreements made the promise of technical assistance, it is the national development ministries that control most of the technical assistance budgets. Because development assistance budgets were not increased to accommodate the additional commitments made in the TBT and SPS Agreements, trade-related technical assistance must compete with other priorities, such as education, health and other public services.⁴⁴ Thus without close coordination with donor agencies, an extremely important provision cannot possibly be implemented. As discussed in more detail below, there are also many other important provisions in the TBT and SPS Agreements that cannot be implemented by trade ministries alone. The discussion should therefore be broadened to include many other players.

It would also be helpful for the discussions in the WTO on technical cooperation/capacity-building activities as well as special and differential (S&D) treatment to address specific concerns and link them to notifications. Since October 2002, for instance, there has been a debate in the SPS Committee on a Canadian proposal to enhance transparency of S&D treatment within the SPS Agreement (see WTO document G/SPS/W/132/Rev.3). The proposal envisaged the identification of S&D treatment in comments of developing countries on notifications, and examination by the notifying Member as to whether and how the identified problems could best be addressed taking into account the special needs of the interested exporting developing-country Member. On 27 October 2004, the SPS Committee took a decision, which adopted, in principle, the Canadian proposal (WTO document G/SPS/33).

4. ERHRs and the limitations of the WTO Agreements

ERHRs are, to a certain degree, “regulated” by the provisions in the WTO’s TBT and SPS Agreements, which include provisions on the preparation, adoption and application of technical regulations, standards and conformity assessment procedures. While many of the potential impacts of ERHRs are addressed and would be mitigated by full implementation of these Agreements, three categories of problems restrict their degree of effectiveness.

First, as discussed in detail above, developing countries cannot take advantage of their rights under these Agreements without a minimum level of institutional capacity, which currently does not exist in many countries. Second, trade ministries cannot resolve all problems related to standards and technical regulations through the drafting of good rules alone. Furthermore, some of the provisions in the TBT and SPS Agreements are relatively meaningless without the active participation and commitment of parties that are external to most trade-policy debates. Third, and related to this, voluntary ERHRs applied by the private sector and NGOs are sometimes guided by WTO disciplines, but WTO forums are limited in their ability to directly address specific problems related to preparing, setting and implementing such standards.

Justification, legitimacy and the role of science

Article 2.2 of the TBT Agreement contains a non-exhaustive list of *legitimate* objectives for the pursuit of which technical regulations can be imposed. This list includes the protection of human

health and safety, animal life and health and the environment. Article 2.2 also stipulates that technical regulations should not be more trade restrictive than necessary to achieve these policy goals. This language is consistent with that in Article XX of the GATT 1994, on general exceptions (for more detail, see box 2 below). Finally, the TBT Agreement establishes a presumption that technical regulations based on international standards are least trade-restrictive.⁴⁵

Other than the “not more trade-restrictive than necessary” obligations in the TBT Agreement, there are no specific benchmarks or criteria in that Agreement for justifying the need for ERHRs per se. In particular, a risk assessment is not required before an ERHR regulation is enacted, and no scientific justification for the imposition of a measure needs to be given at any time other than in a dispute resolution proceeding.⁴⁶ This is in contrast to the SPS Agreement, Article 5.1 of which requires a prior risk assessment to provide evidence of the *necessity* of the measure taken for food safety. Furthermore, Article 5.7 of the SPS Agreement stipulates that in cases where relevant scientific evidence is insufficient, a country may provisionally adopt SPS measures, but then must, within a reasonable period of time, seek additional information for a more objective assessment of the risk, and also review its necessity.

This difference between how the TBT and SPS Agreements approach legitimacy and necessity has caused dissatisfaction among some developing countries. They assert that the “legitimate objective” notion of the TBT Agreement is too vague, and leads to both the imposition of unjustified ERHRs and to the large degree of variation that exists in the levels of protection accorded in

Box 2. Some general conclusions from the WTO dispute settlement practice related to GATT Article XX

Article XX contains limited exceptions to obligations under certain other provisions of the GATT 1994, not positive rules establishing obligations in themselves. Therefore, a Party invoking an exception under Article XX has to prove first, that the inconsistent measure has a provisional justification under one of the explicit exceptions figuring in Article XX; and second, that further appraisal of the same is required under the introductory clause of Article XX.

There has been some evolution in the interpretation of the necessity requirement of Article XX (b) - protection of human, animal or plant life or health - and (d) - securing compliance with laws or regulations that are not inconsistent with the provisions of the GATT 1994. The interpretation has evolved from a least trade-restrictive approach to a less trade-restrictive one, supplemented with a proportionality test (i.e. a process of weighing and balancing a series of factors).

The chapeau of Article XX contains three standards to be tested: (i) arbitrary discrimination, (ii) unjustifiable discrimination, and (iii) a disguised restriction on international trade. Several panels confirmed that it was the application of the measure, and not the measure itself, that needed to be examined. With regard to the arbitrary and unjustifiable discrimination of a measure, panels have accorded special attention to flexibility in the application of the concerned measure.^a The more rigid and inflexible the application, the greater the likelihood that the measure will be regarded as arbitrary and unjustifiable. In order to determine whether a measure is a disguised restriction on trade, three criteria have been progressively introduced by panels and the Appellate Body: (i) the publicity test; (ii) the consideration of whether the application of a measure also amounts to arbitrary or unjustifiable discrimination, and (iii) the examination of the design and architecture of the measure at issue.

Source: Compiled from WTO document WT/CTE/W/203 of 8 March 2002.

^a The shrimp-turtle case (involving Malaysia, India, Pakistan and Thailand versus the United States in 1997-1998) for instance, suggests two conclusions on the extraterritorial application of an environmental regulation. First, such application is permissible if it is implemented in the context of an international agreement such as an MEA. Second, such measures need to be applied in a transparent, predictable and uniform way to all WTO Members.

ERHRs with similar objectives in different countries. Indeed, it is not rare to find diverging levels of stringency in an ERHR even among EU member States, for example in the case of packaging regulations or in systems for management of waste electrical and electronic equipment.

There have been various proposals to address this problem, including:

- Introducing into the TBT Agreement a requirement to provide information that justifies the measure, and linking it to a risk assessment in accordance with methodologies developed by relevant international organizations. This would be analogous to, but perhaps less onerous than, SPS Article 5.1;
- Establishing a panel of experts to review the scientific justification of a particular ERHR as soon as it is notified to the WTO's TBT and SPS Committees (Xia, 2003); and
- Developing a mediation procedure or an ombudsman process to examine potential conflicts as an additional step before dispute settlement action is launched. The creation of such a procedural step could address concerns about any potential abuse of TBT measures, in particular when the problem is related to capacity – not willingness – to comply.

These proposals are controversial, and there are conflicting views as to whether they are desirable, even among the authors of this paper. The tension lies in the balance between minimizing the scope of abuse in the use of ERHRs versus providing maximum flexibility for governments to regulate in environment-related areas. In the WTO, this tension is manifest in the reluctance of many Members to reopen the TBT agreement. There is also concern that a justification requirement or a review panel would serve to challenge regulatory attempts to limit environmental harm in a preventive manner.

Notifications and transparency

Without some degree of prior warning that an ERHR is going to be applied, it is almost impossible for any company to manage the transition and to avoid losing market share, even if only temporarily. As a result, both the TBT and SPS Agreements include provisions requiring prior notification and transparency in the development of new technical regulations. New mandatory ERHRs must be notified to the WTO secretariat or to the ISONet,⁴⁷ which then communicates the notification to other countries' TBT or SPS enquiry points. However, without an effective chain of communication flowing at the national level, from the importing country's enquiry point to the actual producers themselves, the information cannot be used. Without an effective early-warning system, a capable and well-resourced enquiry point, and effective industry associations that are in contact with their membership, the TBT and SPS Agreements' notification provisions cannot achieve much on their own.⁴⁸ In countries where most producers are SMEs, or where there may be a basic lack of IT infrastructure, this problem is magnified. In addition, current notification requirements do not distinguish between relatively simple and much more complex ERHRs; they allow the same notice period for a change to the level of an existing requirement as for complicated and far-reaching ERHRs like the WEEE and RoHS Directives,⁴⁹ which would require a substantially longer transition and implementation period.⁵⁰ To make such tools operational, specific criteria would need to be developed which would distinguish complex from simple ERHRs that fall under the TBT and SPS Agreements.

Another problem is that the present format of notifications is not very user-friendly for the real target group – the industries that have to apply the requirements. The notification form provides little information, and often refers to legal texts that are difficult for non-lawyers to understand.⁵¹

As noted above, voluntary standards and supply-chain requirements are becoming an increasingly important source of ERHRs. Because they can entail significant changes in production processes, it is also important that they be notified as far in advance as possible. However, even though the Code of Good Practice for the Preparation, Adoption and Application of Standards, which forms Annex 3 of the TBT Agreement, includes text that relates to non-governmental bodies, these

provisions are more akin to “guidance” than to “requirements”. Since the WTO Agreements are only binding on States, there are no mechanisms for ensuring compliance by non-governmental bodies. While governments are obliged to take “reasonable measures” to ensure compliance by bodies within their territories under Article 2 of the TBT Agreement, many governments have expressed reluctance to intervene in the affairs of independent non-governmental bodies located within their jurisdictions. Moreover, it has been reported that some important non-governmental bodies that develop ERHRs are unsure of whether they may use the WTO’s notification procedures, even though there is no other obvious alternative mechanism for communicating their ERHRs.

Of course, prior warning to enable a smooth transition and implementation of the ERHR is not the only purpose of the notification provisions. Without this information, producers in developing countries could not possibly comment on the development of ERHRs that may have an impact on their market access. Thus, even though the TBT and SPS Agreements, in theory, empower developing countries to influence the development of new ERHRs, in practice, technical and capacity constraints often render these provisions ineffective for many developing countries.⁵²

International standards and technical equivalence

Article 2.4 of the TBT Agreement states that “where technical regulations are required and relevant international standards exist or their completion is imminent, Members shall use them, or the relevant parts of them, as a basis for their technical regulations except when such international standards or relevant parts would be an ineffective or inappropriate means for the fulfilment of the legitimate objectives pursued, for instance because of fundamental climatic or geographical factors or fundamental technological problems.”

Against this background, one of the implicit objectives of the TBT Agreement is the harmonization⁵³ of technical regulations and standards. Harmonization should not be narrowly interpreted as achieving identical standards. Rather, it should be seen as a process that uses different tools for achieving various degrees of commonality, such as through mutual recognition,⁵⁴ technical equivalence or benchmarking⁵⁵ and international standards.

Undue attention has been given to the role of international standards in the ERHR arena. This is despite the fact that, as a recent OECD study concludes, “in many of the most notable cases where environmental requirements have created market-access problems for developing-country exporters, an international standard did not exist. It remains the case today that there are many regulations, especially relating to chemical residues in consumer items (such as leather and fabrics), that are not based on any international standard – usually because only a small group of countries had decided to regulate that substance.”(OECD, 2004).

But even where international standards do exist, they are often developed by large companies in developed countries.⁵⁶ This has two important implications: (i) the kinds of international standards that are developed are often those that respond to developed-country priorities; and (ii) even where international standards respond to developing-country needs, their specifications are more likely to be suited to large, capital-rich companies rather than to labour-intensive SMEs (Rotherham, 2003). These two points are particularly important when the standard has implications for production or purchasing, whether product-related or not. As noted earlier, many of the sectors where developing countries maintain a comparative advantage are characterized by high levels of SME involvement.

Although the TBT Committee has long highlighted the need to increase developing-country participation in international standardization, little progress has been made. Indeed, all that the Committee can do is to encourage countries to participate and encourage other countries to help finance this participation.⁵⁷ Without working more closely with the international standards bodies, the WTO cannot possibly address this problem any more than it already has. Moreover, the focus

on increasing *participation* is misplaced; what is more important is to increase developing-country influence. In addition, given the fundamental differences between the contexts in which small and large companies operate, it might be more important to increase the participation and influence of SMEs in international standardization. But a fundamental mistake too often made is to ignore the fact that technical equivalence itself could be a way of increasing developing-country influence over the standards to which they are expected to adhere.

Conceptually, there are two elements to the technical equivalence issue. First, and as outlined above, there is a need for some harmonization procedure in the absence of international standards. Second, some environmental and health issues have to be addressed in a context-relevant manner. It is therefore unfeasible to think about international standards that could set common international requirements appropriate for all countries. This is particularly the case with the most controversial ERHRs – measures based on non-product-related processes and production methods – which address the impacts of production and must therefore be appropriate to the local social, economic and environmental context. The inevitable conclusion is that technical equivalence is the only way to harmonize some types of ERHRs.

Article 2.7 of the TBT Agreement encourages members to accept “as equivalent technical regulations of other Members, even if these regulations differ from their own, provided they are satisfied that these regulations adequately fulfil the objectives of their own regulations.” To date, there has been little effort and success in negotiating technical equivalence agreements. Most existing agreements are of a bilateral nature, between countries of a comparable level of economic development. There are only a few multilateral approaches, two of which are in the area of organic agriculture: the Codex Alimentarius international standard on organic agriculture, and the IFOAM’s Basic Standards.⁵⁸

It has been suggested that it is possible to create an international framework to facilitate the development of technical equivalence agreements. Along with helping to implement Article 2.7 of the TBT Agreement, this may also be an effective way of increasing the influence of developing countries over those standards and regulations, the effectiveness or appropriateness of which depends on fundamental climatic or geographical factors or fundamental technological problems. Against this background, in February 2003 the FAO, UNCTAD and IFOAM jointly created the International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF-Organic). The ITF will review the trade and production implications of lack of harmonization and equivalence of standards, and then devise short- and long-term measures that can foster harmonization and equivalence in standards-setting, conformity assessment and accreditation (for more elaborate information and analysis, see the third chapter of this Review on organic agriculture).⁵⁹ Initial analysis for the ITF-Organic confirms that additional direct and indirect costs for multiple certifications against an array of public and private standards are significant (Wynen, 2004).

5. *Anticipating change*

To date, many developing-country exporters have only been able to react to, not anticipate, new ERHRs. Unless they are able to develop a proactive approach to the assessment of the costs, benefits and capacity needs associated with ERHRs in key export markets, they will not be able to harness a range of associated environmental and other benefits and reduce adjustment costs, either at the country or enterprise level. In the absence of a proactive approach, attention will continue to be focused on preventing negative (mostly trade) impacts, rather than also maximizing the positive (catalytic) effects associated with environmental protection, material-efficiency gains, occupational safety and public health.⁶⁰

A number of the mandatory ERHRs being put in place in developed countries could be seen as part of an attempt to internalize environmental costs. The theory is that altered factor prices should influence investment and consumption decisions and, as a result, reduce pollution and increase re-

source efficiency. In analysing the impact of such ERHRs, it is important for developing countries to recognize the benefits for sustainable development of the national economy, for instance in terms of enhanced resource efficiency, lower pollution intensity, higher occupational safety and better public health, even if these are not always accorded the same priority in developing countries as in developed ones.

Deriving the benefits of ERHRs, however, is not just about efficient use of resources; rather, it is the reinforcement of the cumulative gains of local dynamic growth forces, notably labour, technology, public health and the environment. Unless this dynamic effect of adjustment to new ERHRs is considered, adjustment costs may be overestimated. The reinforcement of cumulative gains of national growth forces might go beyond sector-specific adjustment measures, and necessitate close linkages between capital accumulation, technological progress and structural change as a basis for rapid and sustained productivity growth. However, the implementation of such an approach will require coherence in terms of being accompanied by measures to secure (i) access to and effective use of environmentally sound technology; (ii) availability of skilled labour; and (iii) provision of adequate trade-related technical assistance. That such coherence exists in developing countries and that the necessary support is being provided is currently the exception rather than the rule.

There are a number of reasons why the attitude towards ERHRs might vary among countries: environmental absorptive capacities may vary; different risk perceptions might favour risk management over risk avoidance; or lower income levels may not create a sufficiently large market for products that meet specific ERHRs (unless the prices of such products are reduced through the implementation of stricter ERHRs). Moreover, ERHRs in developed countries may not, or may only partly, address environmental or environmental-health problems that are treated as priorities in many developing countries, such as safe water and sanitation. If the balance of priorities implicit in foreign ERHRs is not consistent with domestic policies, then investments in compliance alone will not promote national sustainable development policy goals.

A formidable challenge for developing countries is to avoid a situation in which investments in public institutional capacity and regulation setting as well as in the infrastructure needed to comply with ERHRs in export markets, crowds out investment in much-needed social services or other infrastructure such as safe water supply and sanitation.⁶¹

Only a strategic, proactive and integrated approach in developing countries to meeting constantly changing ERHRs in key export markets can assure that cumulative gains from and close linkages between capital accumulation, technological progress and structural change are implemented in a manner that is consistent with development objectives. This will require more emphasis on: (i) systematic gathering, analysis and dissemination of information on new ERHRs; (ii) the development of well-planned adjustment strategies, with an adequate involvement of all key stakeholders; and (iii) the crafting of effective public-private partnerships for implementing adjustment measures.⁶²

Proactive adjustment policies will also have to pay special attention to adjustment problems and suitable approaches for SMEs. New ERHRs in export markets are particularly difficult for SMEs to meet. Consequently, they increasingly tend to be excluded from supply chains or “outgrower” networks.⁶³ As SMEs play a key role in many sectors of special export interest to developing countries (such as textiles and clothing, leather and footwear, horticulture, and even electronics), the major policy challenge for developing-country governments is to facilitate and support the adjustment process of SMEs without perpetuating their backwardness.

6. ERHRs and their impact on competitiveness

To understand the relationship between ERHRs and competitiveness, it is necessary to have a clear idea of the concept of competitiveness. This can contribute to an understanding of the distribution of wealth, both nationally and internationally, if it is recognized that (i) it can be applied at both

the enterprise and country level, (ii) when applied at the enterprise level, it relates to profits or market shares; (iii) when applied at the country level, it relates to both national income and international trade performance, particularly in relation to specific industrial sectors that are important in terms of, for instance, employment or productivity and growth potential, and (iv) not all countries can simultaneously improve the competitiveness of their firms or sectors relative to other countries, but all countries can simultaneously raise productivity and wages to improve their overall economic welfare without altering their relative competitive positions.⁶⁴ Even if compliance with new ERHRs in external markets does not lead to relative international competitiveness gains, or might even lead to temporary competitiveness losses, this does not rule out the fact that compliance leads to (absolute) gains in national productivity and economic welfare.

The core requirement is to analyse under what conditions technological and managerial upgrading, and resulting productivity gains at the enterprise level, lead to structural change at the national level, and enable an upgrading of the technology content and product quality of a country's exports. For this it is necessary to distinguish between short- and long-term effects of new ERHRs on competitiveness, and to recognize that adjustment is a dynamic process.

"Environmental friendliness" has become an integral aspect of perceptions of a product, in addition to other more traditional "quality" characteristics, such as durability, reliability, colour or taste, in an increasing number of product markets. This is partly a response to consumer concerns on environmental issues, but it is also caused by a deliberate drive by some companies to develop a specific pro-environment corporate image or eco-positioning for their products. NGO campaigns and labelling initiatives are contributing to this trend. Governments are also enacting legislation on ERHRs to create markets for environmentally preferable, or less harmful, products in an effort to level the competitive playing field for producers, notably in some very environment-sensitive sectors, such as chemicals, metals, packaging material or energy. As a result, more and more environmental features are graduating from aiming at niche markets to being mainstreamed by large companies or supermarkets.⁶⁵

ERHRs are also increasingly becoming versatile tools of companies as they seek to gain or temporarily maintain a competitive edge over rivals. Eco-positioning of products is a growing trend even outside the category of resource- or material-intensive and environmentally sensitive products. Pace-setting companies tend to impose their ERHRs on rivals, both nationally and internationally, or attempt to set industry standards that are similar to their proprietary ERHRs.

As mentioned above, more stringent ERHRs demanded in external markets may generate economic, environmental and health benefits and more efficient use of resources at the national level in developing countries. However, they may also adversely affect competitiveness at the sector or enterprise level. Whereas, on average, such effects may be modest, in some sectors, particularly in pollution-intensive industries, compliance costs can be significant.⁶⁶ That said, even where compliance costs appear significant in a static analysis, a dynamic analysis may show lower costs, since incentives for innovation and the use of "clean technologies" may result in cost savings over the long term (Porter, 1990; Porter and van der Linde, 1995). This would suggest that trade effects could be small. Win-win situations could arise where increased resource efficiency can be achieved or where price premiums can be obtained.⁶⁷

A number of other issues have a bearing on the impact of ERHRs on competitiveness. First, ERHRs are very prominent in a number of sectors where developing countries have become particularly competitive, such as fishery⁶⁸ and forestry products,⁶⁹ leather,⁷⁰ textiles⁷¹ and certain consumer products.⁷² Second, SMEs, which may find it relatively more difficult to respond to stringent environmental requirements, often play an important role in these sectors.⁷³ Third, many developing countries sell standardized, mass-produced goods at low prices, for which new ERHR-induced cost increases may drastically reduce profit margins but not necessarily competitiveness if all or most producers are affected by the new requirements. A study on Brazil points out that

product differentiation is more difficult in the case of homogeneous products, and producers generally find it difficult to recover the increased costs required for environmental improvements through price premiums (De Motta Veiga, Resis Castilho and Ferraz Filho, 1999).

In addition, compliance with certain environmental regulations and standards may require specific technologies, which may be protected by intellectual property rights.⁷⁴ Standards compliance may therefore require mechanisms or incentives for the dissemination of environmentally sound technologies (ESTs).

7. *Summary: Coping with ERHRs*

Developing countries need to adopt a more proactive and strategic policy approach to effectively and efficiently comply with ERHRs as part of a “shared responsibility” between developed and developing countries. In anticipation of more stringent and wider reaching ERHRs, it is important for developing countries to harness the sustainable development benefits for the national economy that can be derived from meeting ERHRs. Such benefits take the form of enhanced resource efficiency, lower pollution intensity, higher occupational safety and better public health, which could help raise productivity and welfare gains. Many developing countries have the political will to comply with ERHRs in key export markets, but often are prevented from doing so because of serious technical problems and fundamental institutional weaknesses. These need to be overcome with assistance from developed-country partners.

Undesirable impacts of new ERHRs on trade, economic, social and environmental conditions in exporting developing countries can be limited through early and effective involvement of developing-country representatives in pre-regulation and pre-standards-setting consultations, as well as in ex-ante impact assessments that include the specific effects of new ERHRs on developing countries. Informed by the latter, well-coordinated and comprehensive technical assistance can overcome specific capacity problems in exporting developing countries. Such measures can also significantly reduce adjustment costs in developing countries. Evidence suggests, however, that the involvement of developing-country representatives in consultations at the design stage of ERHRs and the preparation of ex-ante assessments of the impact of new ERHRs on developing countries are the exception rather than the rule. Moreover, there tends to be mainly a piecemeal approach towards trade-related technical assistance and capacity building for developing countries, and it is mostly reactive in nature – solving problems only after they arise. There is therefore a strong case for coordinated aid for trade and expanded capacity building in this area.

To a certain extent, ERHRs are subject to disciplines of the WTO’s TBT and SPS Agreements. Apart from the fact that the disciplines of the TBT Agreement on justification and legitimacy related to ERHRs are not very strong, most developing countries cannot effectively exercise their rights because they lack the requisite institutional capacity. What is more, many problems related to new ERHRs cannot be addressed through WTO rules. Addressing such problems would require the active cooperation of various stakeholders who are unable to participate in most trade-policy debates. The majority of current ERHRs are voluntary in nature and are applied by the private sector and NGOs. They are sometimes guided by WTO disciplines, but the WTO is not able to directly address specific problems arising in their preparation, setting and implementation.

Generally, a more holistic approach to ERHRs and market access is required that systematically addresses policy issues and capacity constraints at the WTO, at the international level outside the WTO and at the national level in developing countries. The table below highlights some of the key issues in this regard.

Box 3. Policy and capacity issues at various intervention levels^a

At WTO level

Policy Issues

Justification and legitimacy of ERHRs and the role of science under WTO rules.

Effective use of existing WTO mechanisms to limit undesirable impacts:

- notification discussions;
- monitoring implementation;
- using S&D provisions; and
- using dispute settlement.

Review of good regulatory practice and transparency procedures^b (e.g. information on and possibility for participating in pre-regulation setting consultations).

Coherent and better coordinated trade-related technical assistance targeting mandatory ERHRs. On request, mandatory technical assistance to other WTO Members, if a WTO Member implements a regulation that is stricter than existing international standards.

Capacity Issues

WTO as a source of information on ERHRs.

Operationalizing and fully benefiting from TBT and SPS inquiry points.

Active participation in pre-regulation setting consultations.

At international level, outside the WTO

Policy Issues

Lack of international standards, harmonization or equivalence of national standards, and mutual recognition.

Avoiding a situation in which voluntary ERHRs become significant TBTs and market-entry hurdles (by dealing with voluntary ERHRs in an intergovernmental setting).

Obtaining permission from standard setters to participate in standard-setting consultations.

Coherent and better coordinated trade-related technical assistance targeting voluntary ERHRs.

Capacity Issues

Information gathering and dissemination.

Capacity to review trends in ERHRs in international markets.

Active participation in pre-standard setting consultations.

At national level in developing countries

Policy Issues

Proactive policies to harness developmental gains of ERHRs and boost competitiveness.

Forming public-private partnerships.

Use of publicly supported eco-labelling schemes.

Special attention to adjustment needs of SMEs.

Capacity Issues

Enhance response and supply capacity.

Make efforts or assist with information management and analysis of new ERHRs.

Improve technical infrastructure, notably monitoring and testing equipment.

Use (voluntary) eco-labelling and environmental management schemes.

^a The difference between policy and capacity issues at the WTO level is not entirely clear-cut. The desire to tighten disciplines on the implementation of some specific TBT and SPS provisions might lead to policy decisions (e.g. on seeking or assuring the active participation of developing-country exporters that might be particularly affected by a specific environmental/health requirement in pre-regulation-setting consultations) that address or overcome (fully or partly) lack of capacity.

^b The Third Triennial Review of the Operation and Implementation of the TBT Agreement (WTO document G/TBT/13 of 11 November 2003) has made a number of recommendations on good regulatory practice and on enhancing transparency procedures.

D. UNCTAD's Consultative Task Force on environmental requirements and market access for developing countries

In the light of the analysis above and its consequent conclusions, what can UNCTAD do to help developing countries become more proactive in adjusting to ERHRs in key export markets in a manner that is consistent with their development objectives and with a view to increasing their market shares?

Following an Expert Meeting on Environmental Requirements and International Trade in October 2002, UNCTAD's Commission on Trade in Goods and Services, and Commodities, at its seventh session in February 2003, recommended that the secretariat "explore the possibility of creating a consultative group on environmental requirements and international trade, which should closely coordinate and collaborate with relevant work and initiatives in other bodies and involve the private sector, as a project-based activity."⁷⁵ The UNCTAD secretariat has conducted several exploratory activities since February 2003, and at UNCTAD XI in June 2004 it launched the Consultative Task Force (CTF) on Environmental Requirements and Market Access for Developing Countries.⁷⁶

The CTF is an open-ended, project-funded multi-stakeholder forum comprising representatives of governments, the private sector, NGOs, international organizations and academia. It aims to assist developing countries in analysing key trends of ERHRs in export markets. It will enable the exchange of national experiences on proactive approaches to meeting these ERHRs with a view to maintaining market access, harnessing development gains and safeguarding social welfare. CTF activities will analyse and discuss ways of overcoming specific developing-country challenges regarding the development and implementation of, as well as adjustment to, ERHRs.⁷⁷

The CTF has been created and designed to address a number of the problems outlined in this paper. Its added value is that it will (i) link policy and capacity-constraint issues with the aim of developing a more holistic and development-oriented approach on environmental requirements and market access; (ii) link discussions in the WTO, notably on paragraph 32(i) of the Doha Ministerial Declaration (i.e. on environmental requirements and market access), with other relevant debates at the international and national level; (iii) provide a formal exchange mechanism between all stakeholders for analysis and discussion, including in the area of voluntary ERHRs set by the private sector and NGOs; (iv) draw into the discussion stakeholders normally not involved in WTO debates; and (v) allow regular exchange of information among agencies and initiatives that provide technical and capacity-building assistance in fields relevant to CTF discussions.

Like other initiatives (e.g. the Sustainable Trade and Innovation Center), CTF activities will supplement (notably based on sector-focused work), not duplicate, discussions on ERHRs in the WTO. By including stakeholders normally not involved in WTO debates and dealing with voluntary ERHRs more systematically in an intergovernmental setting, it can play a particularly useful role feeding findings and conclusions of relevant CTF activities into the WTO process.

The CTF will provide support in four areas: analytical, policy dialogue, information exchange, and technical assistance. Its activities will be closely coordinated with all concerned stakeholders. The CTF dialogue will be based on the following specific activities:

- Reviewing sector-specific experiences in the preparation, adoption and implementation of regulations and standards, and related examination of possible trade and developmental impacts for developing countries;
- Exchanging national experiences on the development of holistic, proactive strategies in developing countries that effectively respond to ERHRs in key export markets; improving access to and the dissemination of information on ERHRs, including private sector requirements; and
- Giving guidance on further analytical and practical work on the interface of ERHRs and

market access using a more systematic and holistic approach, and promoting a regular exchange of information and enhanced dialogue among international organizations, bilateral donors, private sector associations, NGOs and academia on those of their activities that are relevant for the CTF.

Under its umbrella, the CTF may consider launching some specific, well-defined and time-limited project activities, the results of which will aid the substantive debate in the CTF. At its first substantive meeting in November 2004, the CTF agreed to focus in the coming year on two sector-specific subjects: (i) examining and disseminating the national experiences of China, Malaysia, the Philippines and Thailand on adjustment strategies to ERHRs for electrical and electronic equipment in overseas markets; and (ii) exploring national or subregional codes of good agricultural practice for horticultural exports ultimately benchmarked to EurepGAP for Ghana, Kenya, and Uganda in Africa; Malaysia, Thailand, the Philippines and Viet Nam in Asia; and Argentina, Brazil, Chile, and Costa Rica in Latin America. As regards studying the feasibility of better linking existing international information systems on environmental requirements and improving the collection of and access to information on voluntary requirements set by the private sector or NGOs, a CTF working group will further explore the shape of a suitable platform (most likely a “portal”) for guiding users on and facilitating access to existing market-intelligence systems.⁷⁸ The CTF will regularly review the effectiveness of project activities and decide on their continuation or termination, or on a change in its course of action.

E. Conclusions

ERHRs are a growing and important area of regulatory and standard-setting activity. Whether in the form of government regulations, private sector supply chains or non-governmental standard and certification schemes, ERHRs present opportunities and challenges for developing-country exporters. This paper has sought to demonstrate that those developing new ERHRs can do much to minimize their adverse effects by ensuring a transparent and consultative process with the concerned parties. Moreover, through better coordination among the actors – including governments, international organizations, NGOs and developing-country exporters – and a more systemic approach to the identification of potential hurdles and good practices, it is possible to move from the prevailing firefighting approach to a more anticipatory and proactive approach in adjusting to new ERHRs. In response to environmental degradation, ERHRs can function as important catalysts for greater environmental sustainability. This can be achieved only if practitioners and policy-makers adopt a more systematic and focused approach towards them and ensure that they are not misused for trade protection purposes. Ultimately, however, the onus of responsibility is on companies and governments in developing countries; no amount of external leadership, actions or assistance can substitute for domestic awareness, commitment and cooperation.

Too many hopes are currently pinned on WTO rules and disciplines for limiting the trade-restrictiveness of ERHRs. Apart from the fact that the disciplines of the TBT Agreement on justification, legitimacy and the role of science related to ERHRs are not very strong, most developing countries lack the institutional capacity to effectively defend their rights. Moreover, many problems related to new ERHRs cannot be dealt with by WTO rules. In many cases, they cannot even be resolved through trade policy alone; they require complementary industrial policy initiatives as well. Addressing such problems therefore requires active cooperation by stakeholders that are not included in most trade policy debates. The majority of currently applied ERHRs are voluntary in nature and are applied by the private sector and non-governmental bodies. They are sometimes guided by WTO disciplines, but not all WTO Members have imposed these requirements on the non-governmental bodies, industry associations and companies operating in their jurisdictions. The impact of WTO rules to address specific problems arising in the preparation, setting and implementation of many types of ERHRs has therefore been limited.

UNCTAD’s new Consultative Task Force on Environmental Requirements and Market Access for Developing Countries is a step in the direction of a more holistic, development-oriented and

multi-stakeholder-embracing approach. In particular, it includes voluntary ERHRs and their advocates – the private sector and NGOs – in analysis and discussions, and provides a formal exchange mechanism between these stakeholders and governments. By working together these different stakeholders can find ways to ensure that the transition to compliance with ERHRs creates as few unintended adverse trade-related impacts as possible while maximizing the benefits for sustainable development.

NOTES

- ¹ For instance, between 1990 and 2001, this share increased from 12 to 16 per cent (*UNCTAD Handbook of Statistics*, various issues).
- ² This concerns not only the nature of the ERHRs, but, as will be seen later, also procedural issues, such as the ways in which they are prepared, adopted and implemented.
- ³ In the context of the Environmental Database, the WTO secretariat has taken the view that only some of the SPS measures are directly related to the environment, and that most measures for environmental protection are addressed by the TBT Agreement or Article XX of the General Agreement on Tariffs and Trade (GATT).
- ⁴ See also UNCTAD, Environmental requirements and international trade (TD/B/COM.1/19.2), Geneva 2002, accessible at: www.unctad.org.
- ⁵ These are MEAs that contain trade measures. However, there are also MEAs that do not have trade measures, but may have significant trade implications: for example, the United Nations Framework Convention on Climate Change encourages energy efficiency measures and a transition to renewable and low greenhouse-gas-emitting energy sources.
- ⁶ Whereas in the early 1990s, about 40 environment-related TBT notifications were submitted, in 2002 this figured jumped to 114. WTO, WT/CTE/EDB/2, Environmental Database for 2002. The Environmental Database has been supplemented by the Central Registry of Notifications that is accessible through the WTO website. Part of the trend may be artificial as the total number of notifications dramatically changes following reviews of the TBT Agreement.
- ⁷ See, for example, [www.oecd.org/olis/1998doc.nsf/c16431e1b3f24c0ac12569fa005d1d99/c125692700622425c12569a40038da6c/\\$FILE/04E95110.DOC](http://www.oecd.org/olis/1998doc.nsf/c16431e1b3f24c0ac12569fa005d1d99/c125692700622425c12569a40038da6c/$FILE/04E95110.DOC).
- ⁸ Japan, for instance, has recently introduced stringent MRLs on various horticultural products of key export interest to developing countries. For example, Japan drastically decreased the MRL of *chlorpyrifos*, a pesticide used in mango production, which is now 10 to 20 times stricter than comparable MRLs in other developed-country markets (for more information, see Amores, 2004).
- ⁹ For more information, see UNCTAD, 2005.
- ¹⁰ Chemicals subject to the REACH system, for instance, contribute more than 30 per cent of the value of the following manufactured products: paints, medicines, cleaning compounds, cosmetics and toiletries, tyres, photo materials and equipment, carpets and rugs, CDs and tapes, curtains and drapes, boots and athletic shoes, eyeglasses and contact lenses, batteries, upholstered furniture, kitchen sinks and plumbing fixtures, medical supplies, and agricultural products (International Council of Chemical Associations, Chemicals and the Doha Round, 2004).
- ¹¹ For more information on REACH and developing countries, see *Report of the Stakeholder Dialogue on REACH and Developing Countries*. The dialogue was organized jointly by UNCTAD and the Foundation for International Environmental Law and Development (FIELD), in Brussels, 28-29 October 2004, accessible at: www.unctad.org/trade_env/test1/meetings/brussels2.htm.
- ¹² Whether risk avoidance should be part of or distinguished from risk management is an open question.
- ¹³ It is estimated that supermarkets in Latin America buy 2.5 times more fruit and vegetables from local producers than is exported by these countries to international markets (Reardon T, et al., 2003).
- ¹⁴ Under EurepGAP, for instance, growers or marketing organizations can implement a different management system. Such national or regional management schemes must, however, be benchmarked to the EurepGAP protocols to ensure that their standards will yield equivalent outcomes. With regard to systems in developing countries, EurepGAP has recognized one system, the ChileGAP scheme for fresh fruit and vegetables grown in Chile for export or local consumption, developed by the Fundación para el Desarrollo Frutícola. For more information, see Trade, Environment and Development, Background note by the UNCTAD secretariat TD/B/COM.1/70, accessible at: www.unctad.org/Templates/meeting.asp?intItemID=3314&lang=1&m=9478&info=doc.
- ¹⁵ A recent study by the International Trade Centre (ITC) found that no less than 4,000 of the 5,000 goods that are internationally traded and reflected in trade statistics are subject to mandatory environmental or health regulatory requirements (Fontagné and von Kirchbach, 2001).
- ¹⁶ They can be more stringent in terms of product or process requirements or in terms of reporting/certification requirements.
- ¹⁷ In Brazil, for instance, some 70 per cent of fruit exports to Europe are subject to the Standard on Good Agricultural Practice (for fruit and vegetables) of EurepGAP (Ferracioli, 2004).
- ¹⁸ “Often, the specific measures that satisfy the objectives of government regulations are spelled out in technical standards developed by private organizations. In European countries, the government refers to the privately

developed standards in regulations. In the United States, local authorities, which typically lack the technical resources necessary to formulate the standards, often adopt privately developed standards.” (WTO, 2005: 32, 90).

- ¹⁹ For instance, the Code of Good Practice for the Preparation, Adoption and Application of Standards in Annex III of the TBT Agreement.
- ²⁰ The foremost objective of EurepGAP codes is the assurance of consistency of quality of covered agricultural produce. Social (related to workers’ health, safety and welfare) and environmental requirements are almost entirely related to hygiene, and are not classified as “major must” in the checklists of EurepGAP. Most of these issues are either considered as “recommendations” or, in a few cases, “minor must”. For details, see EurepGAP Checklist for Fruit And Vegetables (version 2.1. of October 2004), accessible at: www.eurep.org/fruit/Languages/English/documents.html.
- ²¹ For more information in this regard, including certification problems of SMEs, see Plantconsult, 2003.
- ²² On the adjustment problems of SMEs and the enhanced concentration of suppliers in Thailand’s fruit export sector, see Boselie and Buurma, 2003: 123-155.
- ²³ A number of globally operating electrical and electronic companies, such as Sony, issue environmental requirements that provide for a faster phase-out of heavy metal use in electrical and electronics manufacturing than envisaged under the EU’s Restriction of Hazardous Substances (RoHS) Directive or Japanese legislation enacted in the context of the recycling-oriented policy framework. For more information, see chapter 2 in this *Review*.
- ²⁴ However, meeting the voluntary standard does not necessarily mean conforming with mandatory requirements.
- ²⁵ Key standards used for supply chains can be integrated into trade policy (e.g. government procurement of timber products from certified sustainably managed forests only), but this might raise problems vis-à-vis the WTO.
- ²⁶ When describing this situation, some studies make a distinction between market access and market entry. According to that interpretation, market entry depends on both market-access conditions – determined by legal, administrative and technical rules – including conditions imposed by the importing countries under internationally agreed trade rules, as well as the competitiveness of the exporter, characteristics of supply chains and the structure of markets (see, for example, UNCTAD, 2003a).
- ²⁷ Under WTO law, governments have certain responsibilities for non-governmental actors. Therefore, certain voluntary ERHRs could be discussed in the WTO.
- ²⁸ Exporters in Egypt and China, for instance, claim that importing countries’ recourse to ERHRs is much more frequent during the harvest season for food products that directly compete with local supply in the target markets (UNCTAD, 2004a; and information provided by the Mission of Egypt to the WTO).
- ²⁹ In India, for example, it took the Government and local industry four years (1997–2001) to establish the testing facilities necessary to comply with the European standards concerning limits on aromatic amines in textiles coloured with azo dyes. A recent UNCTAD study on horticultural exports of Bangladesh amply illustrates the lack of capacity for testing and certification (Hossain, forthcoming).
- ³⁰ At an UNCTAD Subregional Workshop on Environmental Requirements and Market Access for Electrical and Electronic Products from China, the Philippines and Thailand (Manila, 18-20 February 2004), it was highlighted that there was a critical lack of an adequate number and quality of design and process engineers to implement eco-design programmes required for phasing out heavy metals and for designing for recycling following recent EU and Japanese legislation (see: www.unctad.org/trade_env/test1/meetings/manila.htm).
- ³¹ For more information, see Rotherham, 2003: 15. Supermarkets or large purchasing companies in export markets often insist on specific certifiers or testing institutions to demonstrate compliance with their requirements, irrespective of whether local inspection and certification capacity is available.
- ³² According to Garbutt and Coetzer (forthcoming) “of some concern is the apparent lack of underpinning support for the implementation of Good Agricultural Practices in developing countries evidenced by the gradual erosion of official agricultural extension services in parts of Africa. This is at odds with stated Government policies to involve smallholders in the export sector. It is unlikely that the market mechanisms alone would be sufficient to bear all the one-off costs of training and capital investment that are required to make the very large numbers of smallholders compliant with Good Agricultural Practices. In this context the role of the development partners in providing technical assistance has been, and continues to be, crucial.”
- ³³ Accessible at: www.europa.eu.int/yourvoice/consultations/index_en.htm.
- ³⁴ <http://europa.eu.int/rapid/pressReleasesAction.do?reference=MEMO/03/202&format=HTML&aged=0&language=EN&guiLanguage=en>.
- ³⁵ ISEAL is an association of leading international standard-setting, certification and accreditation organizations that focus on social and environmental issues. It has recently developed a Code of Conduct for Setting Social

and Environmental Standards. Among others, the Code calls upon members to actively facilitate participation of developing-country representatives in pre-standard-setting consultations. The Code is mandatory for ISEAL members, and is accessible at: www.isealliance.org.

- ³⁶ An impact study of the WEEE and RoHS legislation on key exporters among Asian developing countries was prepared in 2004 for the Sino-European dialogue on environmental and health policy organized by the European Commission. Because of its timing and character, however, this analysis does not really qualify as an ex-ante impact assessment. For more information, see *CREM Newsletter*, Summer 2004, accessible at: www.crem.nl/pagesen/nbzomer2004.html.
- ³⁷ The Multilateral Fund has so far disbursed more than \$1 billion to almost 120 developing countries. This investment has supported about 2,000 projects to phase out some 60 per cent of ODS consumption in developing countries. It amounts to a disbursement of roughly \$9 million per developing country in the 1990s or almost \$1 million per country per annum.
- ³⁸ However, this does not rule out the fact that there are still some coordination problems between the government and the private sector, as illustrated by the problems of Guatemala and Honduras in phasing out methyl bromide.
- ³⁹ The Multilateral Fund was created to meet the “agreed incremental costs” of ODS phase-out in developing countries on the basis of a specific list of categories of incremental costs. It covers costs for technology transfer or domestic development of ODS substitutes, the equipment needed and its installation costs, and training. It also covers support for institutional strengthening of projects, which has been very important in practice. (For more information, see Hoffmann, 2004: section VI.2).
- ⁴⁰ In the early years of its existence, the Multilateral Fund supported primarily the closure of ODS-producing facilities in developing countries. More recently, support has also been given to the development of ODS substitutes (see Jha and Hoffmann, 2000).
- ⁴¹ The report of the recently concluded third triennial review of the TBT Agreement (WTO document G/TBT/13) recommends “the creation of an information coordination mechanism”.
- ⁴² EC submission to the Committee on Trade and Environment (WTO document WT/CTE/W/231) dated 5 September 2003; submission G/TBT/W/247 of Switzerland to the TBT Committee, dated 3 November 2004.
- ⁴³ For more information, see Draft Final Business Plan of the Standards and Trade Development Facility, June 2004; and <http://stdfdb.wto.org>.
- ⁴⁴ For a more complete discussion on the limitations of Article 11 of the TBT Agreement, see Rotherham (2002).
- ⁴⁵ It needs to be borne in mind that the coverage of the TBT Agreement goes far beyond the issue of ERHRs. Furthermore, the disciplines of the TBT Agreement have not yet been sufficiently tested through dispute settlement. Conclusions on the interpretation of the Treaty are therefore preliminary.
- ⁴⁶ This is perhaps due to the fact that the TBT Agreement covers a wide spectrum of mandatory requirements, well beyond the realm of the ERHRs.
- ⁴⁷ The ISO Information Network is an agreement between standardizing bodies to combine their efforts in order to make information on standards, technical regulations and related matters readily available whenever it is required. ISONet is a network comprised of the national standards information centres and it constitutes the links between them. It includes also the ISO/IEC Information Centre in Geneva and a few international members that have similar responsibilities for providing information at international level. (For more information, see: www.wssn.net/WSSN/RefDocs/isonetdir/ISOIEC.html).
- ⁴⁸ By way of illustration, the report on the recently completed Third Triennial Review of the TBT Agreement (WTO document G/TBT/13) highlights that “improvements are needed in complying with notification obligations, in particular with respect to the timing of notifications, so that these are made early enough for other Members to comment on”. In this regard, the document makes a number of recommendations, many of them, however, only resulting in “best endeavour” measures.
- ⁴⁹ In the case of these two directives, the EU gave 30 and 41 months, respectively, between their publication and entry into force, whereas the TBT Committee has recommended only 60 days (WTO document WT/CTE/W/239).
- ⁵⁰ Interestingly, it is not the body of the TBT Agreement but Annex 3 that stipulates in Article J that “standardizing bodies shall publish (at least every six months) the standards it is currently preparing”. Environmental dialogues (bilateral, regional or multilateral), complemented by trade dialogues between developed and developing countries, could also play a useful role in promoting transparency on planned environmental regulation and its trade effects (Graff, 2004).
- ⁵¹ At a national UNCTAD workshop in the Philippines, a recent Japanese notification (G/SPS/N/JPN/104 of 11 July 2003) on stricter maximum residue levels for a large number of pesticides and products was cited as an example of not being very clear for exporters. For more information, see UNCTAD/PhilExport/DTI/PBE National Policy Dialogue on Environmental and Health-related Requirements for Horticultural Products, Manila,

2-3 December 2004, accessible at: www.unctad.org/trade_env/test1/meetings/manila2.htm.

- ⁵² Some more advanced developing countries such as Brazil, India or South Africa actively participate in debates on notified regulations.
- ⁵³ Harmonization can be defined as the “process” by which technical regulations (and also standards) and conformity assessment applied to “like products” approved by different bodies establishes interchangeability of products and processes. It is also important to note that harmonization aims at the application of identical technical regulations (or standards), but also includes mutual recognition and determination of equivalence. This was the working definition discussed at the 4th meeting of the UNCTAD/FAO/IFOAM International Task Force on Harmonization and Equivalence in Organic Agriculture, Nuremberg, 28 February 2005. For further information on the ITF definitions, see UNCTAD/FAO/IFOAM (2005), *Strategy on Solutions for Harmonizing International Regulation of Organic Agriculture. Harmonization and Equivalence in Organic Agriculture*, Vol.2, Background papers of the International Task Force on Harmonization and Equivalence in Organic Agriculture. (UNCTAD/DITC/TED/2005/15), Geneva, UNCTAD, FAO, IFOAM.
- ⁵⁴ Mutual recognition is a tool by which conformity assessment results against one standard are recognized as being comparable to those against another standard. There is no attempt to converge the standards against which products are judged.
- ⁵⁵ Equivalence is the acceptance that different standards or technical regulations on the same subject fulfil common objectives. The term “equivalence” is mostly used for mandatory technical regulation, whereas “benchmarking” is used to denote technical equivalence between voluntary standards.
- ⁵⁶ In many cases, proposals for new international standards must be accompanied by a commitment from a country to provide secretarial support services; this has financial and human resource implications. In addition, the proposal must frequently include initial background information, such as information on existing standards, as well as technical analysis and scientific reports supporting the proposal to develop an international standard. This requires a high degree of technical capacity. (For more information, see Henson, Preibisch and Masakure, 2001).
- ⁵⁷ The Codex Alimentarius Trust Fund is a good example, which facilitates participation of developing countries in Codex meetings.
- ⁵⁸ Both these sets of standards provide frameworks or templates; they do not contain a fixed list of specifications, but provide guidelines that different countries can follow in crafting their own, locally defined, specifications. (For more information, see Westermayer and Geier, 2003).
- ⁵⁹ For more information, see: www.unctad.org/trade_env/test1/projects/ifoam2.htm.
- ⁶⁰ A recent series of country case studies of the World Bank on the challenge of standards in food markets has identified the absence of national strategies and haphazard allocation of priorities in exporting developing countries among key weaknesses (van der Meer, 2004).
- ⁶¹ Adjustment costs arise at the enterprise and macroeconomic level, including restructuring costs. Macroeconomic costs, in particular for governments, include costs for (i) setting up and running a system of standards, metrology, testing and quality assurance; (ii) establishing physical infrastructure such as laboratory services, educational and research institutions; and (iii) developing institutional capacity for monitoring and follow-up. For more information, see Cerrex Consultancy, 2003; and UNCTAD, 2003b, Country case study for Cambodia, at: www.unctad.org/trade_env/test1/meetings/bangkok6page.htm.
- ⁶² Examples of such an approach can be found in China and Thailand, as elaborated in chapter 2 of this *TER* on environmental requirements affecting electrical and electronic exports from East and South-East Asia.
- ⁶³ See next section on competitiveness for more details.
- ⁶⁴ The concept of competitiveness is discussed in detail in UNCTAD, 2004c.
- ⁶⁵ By way of illustration, large electronic companies, such as Sony, IBM and Hewlett Packard, have taken steps to accelerate the phasing out of heavy metal use in their products and significantly improve the energy performance of their goods.
- ⁶⁶ In recycling of used lead-acid batteries, for instance, pollution-control, water treatment and waste disposal costs account for about 10 per cent of total production costs. However, this figure does not include the depreciation costs of “clean” capital equipment (Parker, 1998).
- ⁶⁷ Over three years, Philippine Recyclers Inc. (PRI), a battery recycling company, systematically improved its environmental performance and invested some \$80,000 (not counting capital equipment) in achieving ISO 14001 certification in 2001. The environmental improvements resulted in net economic benefits through significant savings in resource use and environmental management costs, in the following order: fuel consumption: 17 per cent; power consumption: 21 per cent; waste generation: 19 per cent; environmental management costs: 20 per cent (Guerrero, 2001).
- ⁶⁸ For example, bans on certain substances and (eco-)labelling. Management systems primarily aimed at controlling food safety risks (such as HACCP) may also refer to certain environmental issues.

- ⁶⁹ Environmental requirements relating to forestry products (including paper) comprise environment-related technical regulations (e.g. restricting the use of bleach in paper, the use of formaldehyde glues in wood panels), recycled content in pulp and paper products, and regulations on recycling and recovery of packaging waste. There are also voluntary instruments such as eco-labelling.
- ⁷⁰ Such as product content requirements and bans on certain substances.
- ⁷¹ Such as bans on the use of certain substances and packaging requirements. Voluntary measures include eco-labelling. In certain cases buyer requirements and private-sector initiatives focus on environmental impacts throughout the supply chain.
- ⁷² See examples for electrical appliances and electronic equipment mentioned in the previous section.
- ⁷³ Even in a rapidly industrializing country such as Thailand, SMEs account for 85 per cent of all manufacturers in an industry as modern as electrical and electronic goods (Hengrasmee, 2004).
- ⁷⁴ This may also apply to standards set by MEAs, such as the Montreal Protocol. In this case, however, the Multilateral Fund of the Protocol covers costs for technology transfer or domestic development of ODS substitutes, the necessary equipment and its installation costs, and training.
- ⁷⁵ The report of the Expert Meeting is available at: www.unctad.org/en/docs/c1em19d3_en.pdf. Subsequently, the Trade Commission of UNCTAD, in February 2003, reached agreed recommendations based on the outcome of the Expert Meeting. The report of the Commission is accessible at: www.unctad.org/en/docs/c1d58_en.pdf.
- ⁷⁶ The CTF was launched at the UNCTAD/Inmetro Workshop on Environmental Requirements and Market Access for Developing Countries, Pre-UNCTAD XI Trade Week, Rio de Janeiro, 7-8 June 2004 (see www.unctad.org/trade_env/test1/projects/taskforce.htm).
- ⁷⁷ The inaugural meeting of the CTF pointed out that its activities are not intended to “second-guess” the legitimacy and objectives of environmental requirements, or to develop guidelines for good regulatory practice.
- ⁷⁸ The exploratory work will clarify data gathering, legal and maintenance issues before launching pilot activities on the “portal”.

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COMMENTARIES

Tjalling Dijkstra

Senior Policy Adviser, Policy Coherence Unit, Ministry of Foreign Affairs, The Netherlands¹

The chapter by Hoffmann and Rotherham deals with an important and challenging topic. Consumers and pressure groups in developed countries are increasingly demanding that agricultural and industrial products be completely safe, and that they be produced under sustainable conditions, taking account of the environment, social issues (such as child labour) and animal welfare. In response to these concerns, product and process standards² and compliance procedures, as formulated and implemented by both government regulators and the private sector, are becoming more and more stringent. Other factors that have furthered this trend include a number of recent crises in the food and feed industry, growing scientific evidence of the adverse effects of certain materials and substances on health and the environment, increasing awareness of the need for sustainable development in developing countries (including environmental protection), improved testing equipment that is able to detect minute residues, competitive industrial strategies, and growing international trade, which inevitably increases the potential risks.

The WTO's *World Trade Report 2005: Exploring the Links Between Trade, Standards and the WTO*, uses the Perinorm database to illustrate the magnitude of the challenge or – if you like – problem. At present this database contains as many as 650,000 standards from 21 primarily developed countries, including public and private, mandatory and voluntary standards. Though it does not give figures, the WTO report observes, like the chapter by Hoffmann and Rotherham, that a growing number of these standards are environment-related product and process standards, set by both governments and the private sector.

When developing countries are given the time to gradually adopt stricter standards that are in line with their level of development, they will also improve their own health, social and environmental conditions. Securing or maintaining access to export markets may, however, require them to accelerate the pace of adjustment. It may oblige many developing countries to use scarce resources to make the required investments or face a loss of market share, even though other development priorities could be more pressing, as Hoffmann and Rotherham correctly observe. Strict product and process standards in developed countries could thus have an unintended negative impact on exports from developing countries. Many countries face serious deficiencies in their national regulatory and supply capacity: shortages of skilled staff, no internationally recognized testing laboratories, inadequate physical infrastructure, lack of awareness among domestic producers, and poor dissemination of information about standards in export markets. At the same time, it is acknowledged internationally that developing countries need more support for participating in the development of international standards and for domestic implementation of standards.

The Netherlands is a member of the EU, where most mandatory standards are set at the Community level and no longer by individual member States. Policy coherence for development has become an important concept in the setting of these standards. It is both a legal obligation and a political priority.³ It means that the European Community and its member States should work to ensure that the objectives and results of their development policies are not undermined by other policies which may have an impact on developing countries, and that these other policies should support development objectives where feasible. A new trend is emerging in relation to standards. First, one of the elements taken into account when drafting and implementing mandatory standards and regulations is their possible impact on developing countries. Second, it is increasingly recognized that developing countries should be offered financial and technical assistance so that they are in a better position to comply with these standards. The Netherlands refers to this as the “two-track approach”.

First track

The two-track approach is also reflected in the chapter by Hoffmann and Rotherham. As part of the first track, the authors mention two important mechanisms to make standard-setting more inclusive, more transparent and more compatible with policy coherence for development: stakeholder consultations and *ex-ante* impact assessments. The EU has recent experience with both mechanisms. The authors also mention the internet-based consultation by the European Commission on its draft REACH directive. The response was overwhelming: more than 6,400 contributions from governments, industry associations and individual firms. Despite its success, the consultation does raise a question. The EU imports chemical substances from as many as 99 different developing countries, including 48 low-income countries. However, only 11 developing countries participated in the internet consultation, including one low-income country (India). Why did governments or industries in the other developing countries not do so? Was it a lack of institutional capacity to understand fully the implications of REACH? Did these governments have other priorities, or were their industries not affected? Or did they think that the major chemical producers, such as China, India, Brazil and South Africa, would also take care of their interests? I do not have a definitive answer, but given the complexity of REACH, the lack of institutional capacity may have been a major reason for not participating. This suggests that developing countries, especially low-income and least developed countries (LDCs), may need technical assistance not only to implement standards, but also to participate in consultation processes during standards-setting. This would require that the “active outreach by developed countries to developing countries” as advocated in this *TER* chapter be taken a step further.

In addition to improved stakeholder consultations, the EU has developed a consolidated impact assessment method. The method allows for an extended assessment of the impact on developing countries if such countries are considered to be major interested parties. An example is the extended impact assessment for the African, Caribbean and Pacific (ACP) group of countries performed for the Regulation on Official Feed and Food Controls (effective as of January 2006). The assessment not only concluded that ACP countries may be severely affected by the Regulation, but also estimated the amount of aid required to help them strengthen their basic capacity to meet the new EU requirements. In phase II of the impact assessment the required capacity building will be further specified. Thus the first and second tracks of the two-track approach have been explicitly linked: when considering the impact on developing countries, the required technical assistance and capacity building is already specified. This linkage is new, even in the EU, and it is recommended that it become standard practice. The results can also be used when giving notification of SPS measures in the WTO, in line with two notification improvements adopted by the SPS Committee over the past few years: the recommended procedure that requests identification of members or regions that may be particularly affected by the measure in question (G/SPS/7/Rev.2 of 2002), and the revised procedure to enhance the transparency of special and differential (S&D) treatment and technical assistance (G/SPS/33 of 2004), as discussed by Hoffmann and Rotherham.

The EU Regulation on Official Feed and Food Controls included an interesting new form of S&D treatment. The chapter by Hoffmann and Rotherham correctly refers to Article 12 of the TBT Agreement and Article 10 of the SPS Agreement as expressions of the relevant international obligation. It does not, however, mention an important and underutilized S&D tool, namely longer transition periods if the required level of protection of public health and safety or the environment necessitates this. Article 50 of the Regulation on official feed and food controls, on *Support for developing countries*, contains three elements: (i) the EU may offer technical assistance to developing countries on request; (ii) the EU shall provide aid to developing countries for building the required institutional capacity; and (iii) developing countries may request a phased introduction of the EU regulation’s import conditions, taking into account the progress made in building institutional capacity through the EU’s aid programmes. This explicit linkage between a longer transition period, the EU’s support for capacity building and its impact on the ground is unprecedented, and could be regarded as a more advanced and valuable form of S&D. The proof of the pudding

will of course be in the implementation of Article 50, which will be quite a challenge. Developing countries must be fully aware of the alternatives on offer. They will have to request phased introduction and concrete support, while the Commission and member States must deliver on the requested aid. While waiting for the “eating of the pudding”, we may conclude for now that the principle is valuable and worthy of recommendation from the perspective of policy coherence for development.

REACH and Official Food and Feed Controls are public, mandatory standards set by government regulators that have to be met in order to enter the market. Hoffmann and Rotherham stress that we should also focus on private, voluntary standards. Many health and environmental standards are set by industry and are voluntary. This does not make them any less of a concern as potential barriers to trade. The inclusiveness and transparency of the private standard-setting process can be at least as problematic as that of public standards, but without the multilateral guarantees of the SPS and TBT Agreements. The initial EurepGAP protocol, for example, was imposed on developing-country suppliers without any prior consultation or impact assessment. On the other hand, the EurepGAP example shows that private standards can also evolve more quickly than public standards. The EurepGAP protocol of 2004 for fruit and vegetables is less Eurocentric than the earlier version of 2001. Moreover, EurepGAP allows benchmarking of national GAP protocols of exporting countries against EurepGAP (e.g. KenyaGAP). Whereas mutual recognition agreements and technical equivalence agreements for public standards are not common, the benchmarking of private standards is becoming a regular practice. Even donors have discovered benchmarking as an interesting area for development cooperation.

Second track

This brings us to the second track of the two-track approach on standards: offering financial and technical assistance to better enable developing countries to comply with public and private standards. One aspect of this technical assistance is improving access to relevant market information on standards for exporters. The Dutch Centre for the Promotion of Imports from Developing Countries (CBI) has a fair amount of experience in this area. Having published trade manuals on specific product groups for 20 years, the Centre started an online database on EU environmental requirements in the early 1990s. This database was then gradually broadened to cover consumer health and safety, occupational health and safety, and quality aspects of products and production processes (including codes of conduct for corporate social responsibility). The current Access Guide covers all public and relevant private standards for selected product groups on the EU market. There were two reasons for the gradual broadening of the database. First, as also mentioned by Hoffmann and Rotherham, an increasing number of standards are multidimensional. Second, exporters in developing countries are looking for a one-stop source of information that covers all aspects relating to their product and the targeted market. They want the full picture, which is something to keep in mind when developing a new portal on standards (as UNCTAD is currently working towards within the framework of the Consultative Task Force on Environmental Requirements and Market Access for Developing Countries).

The CBI has also found that targeting exporters in developing countries through national industry associations, export promotion boards or chambers of commerce is not always effective. Many of these institutions are weak and may, for instance, not reach local SMEs. However, for foreign information providers like the CBI it is difficult to reach SMEs directly. Part of the longer term solution will therefore be to assist developing countries in strengthening their industry associations, export promotion boards and chambers of commerce (part of the “enabling environment”). In addition, the functioning of TBT and SPS enquiry points could be further improved, and the format of TBT and SPS notifications made more user-friendly. However, this only improves the transparency of public standards. One of the flaws in the present system is that notification of private standards is not compulsory, since the TBT Agreement only binds national governments and not industries or private standard-setting organizations.⁴

Technical assistance and capacity building cover a broad spectrum of activities, as shown in box 3 of this *TER* chapter. The authors call for all this assistance to be better coordinated on the basis of published registers of trade-related projects. This is a valuable recommendation. However, experience with existing registers, such as the joint WTO/OECD Trade Capacity Building Data Base, shows that we have to solve another problem first, namely the quality of reporting. Many donors underreport because some of the projects and programmes that are trade-related are classified differently in their national databases (e.g. under health, education or environment). In the case of reported projects and programmes, often only the project title, budget total and a one-sentence description appear in the register, which, in multi-dimensional projects does not provide sufficient information on the trade components. The sub-classification of projects into SPS, TBT, and trade and environment is often done in a haphazard way. Thus, since coordination on the basis of published registers is inefficient, donors should do their homework first and improve their notification procedures.

Hoffmann and Rotherham rightly mention the reactive nature of much of the assistance provided. In the case of public standards this relates to: (i) the reluctance of policy-makers to start discussing technical assistance while the standard-setting process is ongoing; (ii) the limited transition period between the approval of a new standard and its entry into force; (iii) the release of funds for technical assistance only after the regulation has been approved; and (iv) the information gap which leads exporters or their governments to request assistance only after they experience compliance problems.

Obstacles may even be faced in the delivery of reactive technical assistance if, for instance, such assistance was not foreseen at the time donors and recipient countries adopted multi-annual development cooperation plans as part of national development and poverty reduction strategies. To solve this problem and reduce the time required between identification of technical assistance needs and actual delivery, the European Commission is developing technical assistance instruments in the SPS and TBT fields that can be rapidly mobilized or adapted to changing situations.⁵

Problems may also be faced in the precise formulation of the technical assistance and capacity building required. Like all development cooperation, trade-related assistance should be demand-driven, but drafting a project proposal on standards requires specialized knowledge that may not be readily available in the recipient country. The Standards and Trade Development Facility of the WTO, World Bank, FAO, WHO and OIE, which focuses specifically on SPS standards, has solved this problem by providing project preparation grants. These grants bridge the gap between identified needs (e.g. in the Poverty Reduction Strategy Papers or the action matrices for least developed countries within the Integrated Framework) and their precise articulation.

The need for increased, improved and better coordinated trade-related technical assistance and capacity building features prominently on the international agenda. Trade-related assistance is one of the indicators used to monitor progress on the eighth Millennium Development Goal: Developing a global partnership for development. The outcome document of the UN High-Level Meeting of the General Assembly of 14-16 September 2005 mentions the need for increased aid to build the productive and trade capacities of developing countries, and asks for further steps in this regard. Aid for trade is also an important topic in the Doha Round negotiations. Hoffmann and Rotherham point out that such aid should also target standards.

All in all, this chapter has succeeded in drawing an interesting picture of the development aspects of standard-setting and compliance procedures, especially in the area of environmental and related requirements. More international discussions and actions in this area are needed. To this end UNCTAD could play an important facilitating role through the Consultative Task Force and other vehicles.

Paulo Ferracioli

Head of International Affairs, National Institute of Metrology, Standardisation and Industrial Quality (Inmetro), Brazil

UNCTAD's discussions on existing conflicts between the promotion of economic and social development through trade and environmental protection have made significant contributions to the understanding of complex topics, such as the one between environmental requirements and market access for developing countries. This increased understanding has, in turn, paved the way for policy proposals and actions aiming, as far as possible, at a harmonious attainment of both objectives. The chapter by Hoffmann and Rotherham is fully aligned with this effort, and makes a valuable contribution to the discussion.

At first sight, the title of the paper may raise eyebrows among those who think of trade as the way to the development necessary for improving standards of living in developing countries. Moreover, previous experience espouses the idea of promoting environmental protection through the use of a growing number of environmental and related health requirements (ERHRs). However, these have become more and more stringent and complex to deal with, particularly for developing-country exporters. More often than not, these ERHRs, which have a profound impact on trade, are seldom adequately evaluated, thus fuelling suspicion that they have been implemented for market, rather than environmental, protection.

As pointed out by Hoffmann and Rotherham, these resentful feelings are "unlikely to fade away as long there are no clear criteria that distinguish environment-protective from trade-protective ERHRs". The authors correctly suggest that ERHRs may be applied to protect markets in the same way as other standards and regulations, underlining that "this is why the impression arises that ERHRs are erring a bit too much on the mere technical exigencies, and too little on development issues". The recognition that this reflects real difficulties for developing countries logically leads the authors to place their analysis of ERHRs in the development context.

Another important topic presented in the paper concerns the different contexts found in developed and developing countries, and the consequent discrepancies in the setting of priorities. Environment and health protection are considered extremely relevant for both developed and developing countries. In Brazil, as in other countries, ERHRs are growing in number and increasing in stringency as a result of the political desire of the majority of the population. But it cannot be denied that the required resources to meet such requirements compete with other urgent needs, such as the improvement of education, sanitation, research, transportation and overall infrastructure.

In this context it is not easy for developing countries to invest in the strengthening of the institutions needed to deal with ERHRs, such as early warning systems, standards bodies, expert consultants, testing and metrology labs and accreditation agencies, as Hoffmann and Rotherham correctly stress. One effective avenue for addressing developing countries' difficulties in meeting stringent ERHRs in export markets is the development and implementation of comprehensive and well-coordinated technical assistance and capacity-building (TA&CB) programmes. Inmetro, a key institution to help Brazilian exporters cope with the ERHRs of other countries, is an example of what can be achieved through a well planned and implemented TA/CB programme.

It is interesting to point out that this was possible because donor institutions, such as the German Physikalisch-Technische Bundesanstalt, were prepared to discuss and understand the real needs in Brazil, and did not try to implement a donor-driven programme. This, together with the awareness of Brazilian companies on the importance of such a programme, was fundamental for establishing a genuine commitment to its objectives and activities. Such a commitment helped create the necessary political conditions for the provision of adequate Brazilian counterpart funding.

Inmetro has also been involved in other TA/CB programmes the results of which have fallen far short of the initially stated objectives. Certainly, a number of internal constraints contributed to the failures, but it is also a fact that a lack of flexibility among donors or a clear bias to develop such programmes based exclusively on donor interests, instead of a mutually agreed outcome, caused the poor eventual performance. Summing up, TA/CB programmes will have a greater chance of achieving their objectives if donors discuss them with developing countries with an open-minded approach, effectively trying to help them access the benefits from participation in international trade.

It is also worth mentioning that developing countries' enormous efforts to improve vital technical infrastructure will not have a positive impact on exports if developed countries hinder the effective use of their newly achieved supply capacity. Many ERHRs require tests that can be done in laboratories in developing countries, but more often than desirable authorities of importing developed countries do not recognize the validity of their testing results and require re-testing in local labs. These concerns were articulated during the WTO TBT's Third Triennial Review, and will certainly also figure prominently in the Fourth Review next year.

Inmetro has recently launched or participated in a number of proactive initiatives to adjust to ERHRs in export markets and facilitate market access. These are discussed below.

Inmetro-Fiesp Agreement

Inmetro has recently signed a cooperation agreement with the Federation of Industries of the state of São Paulo (Fiesp), which aims at collaborating to identify and monitor technical barriers to trade. The agreement envisages the following activities: follow-up and analysis of notifications issued by member countries to the TBT Committee; exchange of information on technical barriers to trade between the two institutions; strategic monitoring of tendencies and best practices in selected countries on standardization and regulatory regimes; and dissemination of information of interest to Brazilian exporters in the fields of standardization, metrology, conformity assessment and technical barriers to trade.

Alerta Exportador for member countries of the Southern Common Market (MERCOSUR)

In December 2003, a technical cooperation agreement was signed involving the national metrology institutes of the four MERCOSUR countries: Argentina, Brazil, Paraguay and Uruguay. By enabling the use of Inmetro's Alerta Exportador! (early warning system for exporters) by the national metrology institutes of Paraguay, Argentina and Uruguay, this initiative provides the exporters of all four countries with valuable information for meeting technical requirements and enhancing market access overseas.

Brazilian comments on the Azo Dyes Directive

Inmetro, through the TBT Inquiry Point, has coordinated Brazilian efforts to establish its position with regard to EU Directive 2004/21/EC, relating to restrictions on the marketing and use of "azo colourants". Consultations with the major stakeholders were held, which resulted in comments sent to the EC Inquiry Point that reflected concerns expressed by both the Brazilian Association of Chemical Industries and the Brazilian Association of Textile Industries.

Brazilian Case-Study on Formaldehyde Emissions Restrictions

Inmetro has recently been requested to contribute to a research project of the Organisation for Economic Co-operation and Development (OECD), which aims at producing empirical evidence for the identification of trade concerns arising from conformity assessment procedures. The project will be implemented through case studies, which will document the experiences of developing

countries' exporters in facing and addressing technical requirements. It thereby hopes to shed light on how such requirements can constitute technical barriers to market access. According to OECD, the findings of this research will be made available to participants, thus providing input for the discussions and work in the OECD, WTO and other international forums concerned with market access facilitation. The Brazilian case study focuses on the problems faced by the wood and furniture sector for meeting formaldehyde emission restrictions in targeted export markets, particularly the EU.

Another concern expressed by developing countries has to do with the progress, or rather lack of it, during WTO discussions, on the issue of non-product-related process and production methods. For years this issue has been part of the agenda of the WTO's TBT Committee, but no agreement has been reached so far, because of different opinions about its legitimacy. The subject was discussed at length during the Uruguay Round⁶ and the results contributed to the agreements reached.

According to Annex I of the TBT Agreement, only product-related mandatory technical requirements fall under its scope. Such a provision aims at preventing member countries from raising technical barriers to trade using the excuse of environmental protection to deny entry to those products whose production method, due to technological imbalance between importing and exporting countries, may prove to be harmful to the environment.

Along with the provisions, stated in Article 11 of the TBT Agreement for technical assistance between member countries, through which capacity building and investments on technological infrastructure may be implemented, a possible solution to the debate on non-product-related process and production methods could be envisaged through voluntary certification programmes. A significant number of developed countries support such programmes, which involve establishing appropriate criteria, provided they are based on mutually agreed certification rules. This points to the importance of fostering and facilitating the establishment of mutual recognition agreements between official accreditation bodies of member countries.

It is also important to point out that although developing countries recognize the benefits such voluntary certification programmes may bring in terms of reducing technical barriers to trade derived from non-product-related process and production methods, the following concerns on possible market access restrictions still remain: (i) insufficient number of internationally agreed testing procedures, which may raise market entry barriers for developing countries' products; (ii) high compliance costs; and (iii) inclusion of labelling requirements involving criteria on labour and other social issues.

It is hoped that these comments point to possible implications of environmental and related health requirements for developing countries. They aim to draw attention to the urgent need to extend the debate beyond WTO rules and disciplines, particularly concerning issues related to non-product-related process and production methods. It is believed that UNCTAD's new Consultative Task Force on Environmental Requirements and Market Access for Developing Countries can play a fundamental role in pushing such discussions forward in a way that would enable a win-win balance between trade promotion and environmental protection.

Jan Kees Vis

Sustainable Agriculture Manager, Unilever N.V., Rotterdam, The Netherlands

Introduction

The authors suggest in the introduction that there is a trend amongst consumers in OECD countries to “want the goods and services they purchase protected by environmental and related health requirements” (ERHRs). They suggest that this is an explicit or implicit need of consumers, thus making consumer preference the driving force of this development. Governments react as governments are supposed to, by developing regulations; NGOs embark on standard-setting and companies start imposing strict requirements on their suppliers.

I am not so sure that this is a fully adequate description of drivers and roles in this process. Consumer preference plays a role, for sure, but my feeling is that in some – perhaps many – cases, NGO agendas are the real driving force. In view of the inability of governments, intergovernmental organizations, international agreements and others to address the real and pressing needs of the planet (hunger, poverty, illness, environmental degradation, and in fact all the Millennium Development Goals), it is often NGOs who alert consumers to these issues and propel them to act. The resulting reality, namely a proliferation of ERHRs, remains the same, regardless of what the driver is and the effect this has on trade. A more thorough analysis of what the driving forces are might eventually lead to different conclusions and recommendations.

An interesting phenomenon is of course that the impact of the desire of OECD consumers to protect their consumption by ERHRs is mostly felt in developing countries. The authors do not address the question as to whether national governments in OECD countries have a responsibility to educate their citizens about the effects of their consumption. I understand it is beyond the scope of chapter 1 of this *TER* to ask this question, yet people I deal with in developing countries on a regular basis pose this question to me all the time.

Scope and trends of ERHRs

It is indeed important to recognize that the objective of ERHRs is to change production and trade patterns by altering market conditions, as discussed early in the chapter. Yet in the remainder of the chapter, the authors refer more to market distortion than to “altering market conditions”. Alteration or distortion, the distinction is a matter of perspective. It is appropriate to acknowledge that not only are the requirements of ERHRs relevant, but also the procedures by which they are developed, adopted and applied. Equally, not only are product properties relevant, but also the way in which products have been produced (currently not possible in WTO trade nomenclature, as discussed in the chapter in relation to coping with ERHRs).

It is obviously true that ERHRs are becoming more stringent, complex and multi-dimensional. In essence, that *is* the problem, rather than just an aspect of the problem. The least of the problems, in my view, is that the current trade agreements find it difficult to classify them as a result. Classifications usually follow developments in the market, not the other way around.

The authors identify a shifting emphasis away from risk management to risk avoidance, and illustrate this with food safety. Since I work for a food producer, I am constantly aware of the fact that food safety now is better than ever before. Yet food scares seem more frequent than, say, 10 years ago, and these scares communicate to the general audience a different message. It might well be that ever stricter food safety regulations make it increasingly attractive for certain suppliers or producers to break the rules through fraudulent actions (e.g. animal feed problems). The situation that results is that, although overall safety of food is excellent indeed, the perception of the consumer is a different one, influenced as it is by high-impact incidents. Everybody in food production knows there is no such thing as zero risk; food handling and preparation requires some level

of skill and attention, also in the consumer's home. When general rules about food hygiene, handling and storage are followed, the risks are negligible and acceptable, but one should never suggest that there are none.

Regarding the supply-chain-driven nature of ERHRs, clearly, voluntary, private-sector-driven ERHRs have a different impact than regulatory ones, and they are usually initiated for different reasons. Companies may want to protect the resource base on which their business relies (e.g. Marine Stewardship Council), or they may want to capture market share with consumers who have strong beliefs about helping disadvantaged producers (e.g. Fair Trade). There is, however, a common element that runs through almost all private-sector-driven ERHRs. All of them have compliance with local laws as the starting point. Invariably these initiatives find that developing countries have excellent laws in areas such as protection of the environment, safety and health at work, and child labour. Invariably they also find that implementation and enforcement of these laws is weak, insufficient or simply absent. De facto, this results in a situation where private sector initiatives (e.g. the Ethical Trading Initiative in the United Kingdom) become a mechanism for ensuring implementation of national legal requirements in producing countries (often developing countries).

In their summary, the authors suggest that ERHRs "seek to restrict trade in goods and services that have *relatively* worse environmental and related health impacts". One might also state of course, that ERHRs seek to *promote* trade in goods and services that have superior environmental and health impacts, which makes them promoters of trade.

Coping with ERHRs

This section of the chapter deals with the challenges developing countries face. Clearly, these are many, and equally clearly the challenges they face in coping with ERHRs are the same as those they face in general. Lack of institutional capacity, resources, trained personnel, and transparent and inclusive policy-making are all problems that are not exclusive to coping with ERHRs. It is also clear from this chapter that many good initiatives are under way to assist developing countries in dealing with these challenges.

Regarding the discussion on the complicated issue of technical assistance and capacity building, here again a picture emerges which, in my view, is not specifically linked to the issue of trade and ERHRs. It is a general picture of a free market in development, in which parties are trying to find their way. Personally, I believe that the successful players in this market will be the ones who understand that interdependency is the key to success. Once there is an understanding that the capacity to manage complex supply networks is crucial to growth, it will become clear that technical assistance and capacity building are part and parcel of what modern industrial development is all about.

The authors, who are far more experienced in this area than I am, are not impressed with how developed countries have organized coordination between, for example, trade ministries and development ministries. I can only agree, be it from limited personal experience.

The authors make a good assessment of the limits of the WTO with regard to regulating voluntary ERHRs (e.g. through the WTO Agreements on Sanitary and Phytosanitary measures and Technical Barriers to Trade). It is also made clear that certain overarching guidelines on how to proceed when producing ERHRs can help, such as notification and transparency requirements. My feeling is that with voluntary private sector initiatives, this advice will be taken to heart. Production companies do rely on suppliers being able to comply with their requirements. Thus prior notification to the supply market about changes in those requirements will be in the interest of the production company.

The suggestion that there is a need for an international framework to facilitate the development of technical equivalence agreements is well supported by arguments, but does not address the fact

that such an institution would add another layer to the ever growing ERHR development process. One can expect that all problems identified in the chapter about the lack of participation of developing countries in ERHR-setting processes, will equally apply to this international framework. Perhaps it would be better to take another look at the principles underlying ERHRs (e.g. to protect the environment, improve safety and health) and assess whether existing and new ERHRs actually contribute to these principles. How many ERHRs that have been implemented can actually show improvement on the ground? The authors argue that developing countries should pay more attention to the potential benefits of adopting and implementing ERHRs, and I can only agree. But what evidence can we offer that this is actually the case?

Hoffmann and Rotherham suggest that the onus is on developing countries to come up with a more proactive and strategic policy approach towards ERHRs. In my view, again, if this is to be sold as part of “shared responsibility”, then it should indeed be a responsibility shared. The consumption patterns that lie at the root of trade developments cannot be ignored: developed countries must better organize participatory processes and developed-country ministries must better coordinate links between, for example, changes in trade agreements and aid budgets available for institutional capacity building.

UNCTAD Consultative Task Force

The UNCTAD Consultative Task Force on Environmental Requirements and Market Access for Developing Countries (CTF) was created in the light of the emerging ERHR issue. The authors agree that even if the CTF were as successful as it could be, it would still be able to address the problems created by a proliferation of ERHRs only to a limited extent.

Conclusions

Where governments do not act, others will. That in itself is not a bad thing, but governments should not be surprised about it. There is currently a proliferation of ERHRs in the market, and an inequitable participation of developed and developing countries in the process of setting up, implementing and benefiting from those ERHRs. This is seen by many developing countries as imposing restrictions on their potential for economic growth.

If the inhabitants of this planet have a shared goal (to sustain life, to sustain humanity, to sustain quality of life), and if we agree that this goal can be reached through sustainable development, then trade will have to adjust to the rules of the sustainability game, whatever they are. The onus for achieving this cannot be on developing countries alone. Trade feeds markets, and markets respond to consumption patterns. If trade adjustment is being shaped through ERHRs, then it is a shared responsibility of all trade partners to make ERHRs work (i.e. in their objective to improve environmental and health-related impacts). And the fact that trade is being adjusted does not deny the fact that the unwanted environmental impacts of trade are often caused by unsustainable consumption patterns in developed countries.

The aim of ERHRs goes well beyond the intended one of curbing unwanted environmental and related health effects. There are other elements such as technology exchange, capacity building and enforcing the rule of law, which are perhaps not intended or anticipated but simply come with the process of developing, implementing and enforcing ERHRs. If well conceived, ERHRs should have a beneficial effect, mostly of course in the countries where they are being implemented. After all, that is why they were created in the first place. But in order to make this clear, and to be able to use these beneficial effects in order to persuade developing countries to implement them, ERHRs should be equipped with clear tools to help focus them on the most important impacts and to measure the mitigating effects they have on these key impacts.

The market reality is that in many sectors products are being distinguished from others on the basis of how they were produced (e.g. through one of many eco-labels). Trade organizations would

be well advised to accept this market reality. By the same token, the emergence of ERHRs is caused by a trend that goes beyond the world of trade. Therefore, I completely agree with Hoffmann and Rotherham when they point out that problems experienced with development, implementation and enforcement of ERHRs cannot be solved through trade instruments alone.

Nigel Garbutt
Chairman, EurepGAP

Hoffmann and Rotherham's paper correctly highlights the increasing stringency, complexity and multi-dimensionality of food production standards both public and private, combined with a shift to consumer protection and risk reduction. In addition, private environmental and health-related requirements have become more and more important in the market place and often take the form of value chains as part of a quality management system. Chain governance is the process of specifying, communicating and ensuring compliance with key product and process parameters along the value chain. Undoubtedly, this requires increasing supplier competence and a pro-active approach to dynamically adjust to new requirements.

The EurepGAP standard has been prominently mentioned in the paper to illustrate some of the salient trends in value chain management. I agree with the broad conclusions of the paper, but particularly appreciate the opportunities presented in this Review and in the context of UNCTAD's new Consultative Task Force on Environmental Requirements and Market Access for Developing Countries for a closer dialogue between public and private sector standard setters and verifiers. The rationale is compelling as both have some mutual complimentary aspects; particularly consumer protection and the desire to see trade on a transparent basis. As the paper underscores, the EurepGAP control points and compliance criteria incorporate mandatory food safety requirements (including traceability, HACCP, and meeting maximum residue levels for pesticides), but go beyond them by including criteria that assure consistently high standards of agricultural production. In this regard, EurepGAP criteria embed environmental and certain social requirements as they relate to intrinsic food quality. Against this background, there are opportunities for cost sharing between public and private sector in respect of compliance testing and verification. Transparency and a participatory approach to standard setting as aimed for in EurepGAP and between commercial players can do much to facilitate trade between developed and developing countries (as demonstrated by the expansion of trade between Kenya and Europe over the last two years).

The experience on implementing EurepGAP, but also other food safety and quality standards such as Safe Quality Food 2000, British Retailers Consortium or International Food Safety Standard, suggests that demonstrable and transparent quality assurance is an increasing necessity for success in global markets. But this requires a constantly increasing competence of suppliers. A key concern in many developing countries in this regard is the lack of underpinning support for the implementation of Good Agricultural Practices, because of the erosion of official agricultural extension services. This seems at odds with the desire of Governments to involve increasing numbers of small rural communities into sophisticated export supply chains. It is unlikely that the market mechanisms alone would be sufficient to bear all the one-off costs of training and capital investment that are required to bring all these smallholders into high value chains. In this regard, the role of development partners in providing technical assistance has been, and continues to be, crucial. It is hoped that Government Agricultural Policies could take account of these emerging factors including a more central role for extension services.

The greater the degree of vertical coordination within value chains, and the higher the required competence level of suppliers, the greater the tendency to rely on a small number of dedicated suppliers for globally acting supermarkets. Importantly it has been demonstrated that small producers in developing countries can be integrated into export markets through compliance with certification requirements. EurepGAP has responded to these challenges by evaluating mechanisms for involving smallholders in certification systems, notably its group certification option. The quoted study does not altogether take into account the actual situation whereby large exporters already incorporate small producers into their chains; they would not do this if it were not cost effective. This remains an area for further research. Smallholders bring as (yet formally unquantified) benefits in terms of continuity of supply and extrinsic product quality for labour intensive horticultural crops.

Practical examples however show that small producers can be organized into efficient groups, which can be certified enabling them to be integrated into high value supply chains. To get there requires initiatives on two fronts: (i) establishing effective producer organizations; and (ii) developing a national code on Good Agricultural Practice for a specific product group, which reflects national circumstances and certain development priorities aimed at being benchmarked to EurepGAP.

Many experts point to the importance of establishing horizontal linkages among producers, such as producer organizations, to mediate the relationship between small-scale producers and large buyers. Such organization is necessary to consolidate a required volume of product and improve supply, distribution and management. Much attention needs to be paid to capacities within those organizations to implement systems of supply-chain management and meet required market standards, including the capacity to design and finance investment, administration, technical support and strong organizational structure.⁷

EurepGAP provides farmers the opportunity to certify their products in a group. This has the effect of catalyzing the development of strong and viable groups of smallholder farmers that can compete more effectively in a global marketplace. However, group certification requires the existence of centralized quality management systems, e.g. a national code on Good Agricultural Practice or a producer group driven code and most importantly an implementation system. The application of Good Agricultural Practices (GAP) in smallholder agriculture, stemming from an export requirement, also brings key food safety and environmental gains to developing national markets and this is gaining in appreciation by governments and policy makers.

A national standard on GAP, privately owned by a group such as exporters or possibly a government, has the benefit for producers to certify their products under a locally developed standard that has been recognized as equivalent to EurepGAP. The applicant standard goes through a series of review processes by independent reviewers as well as a peer review of EurepGAP members. When such a standard has been found equivalent in terms of the operations of the standard and the technical criteria, farmers have the benefits of certifying their products under a single standard that has international buyer recognition.

A benchmarked national standard on GAP benefits from local stakeholder participation and is cognizant of local criteria whether these are regulatory, agronomic or social. This has the tendency to make implementation more successful, widespread and cost effective. A national standard can also provide the opportunity for marketplace branding and advertising although this would normally be part of a wider promotional programme with sustained funding.

Where there is an absence of supporting local public and private organisational structures involved in export horticulture, or they are in formative stages of development, it is unlikely that the moderation of a national GAP standard would achieve a viable critical mass of producer member support. Operators in this context could seek to “piggy back” onto initiatives in neighboring countries or opt for certification against the EurepGAP protocol directly. Significant opportunities exist to share best practice on a coordinated regional basis to enable the integration of small-scale farmers into high value markets.

Following a decision by the first substantive meeting of UNCTAD’s Consultative Task Force on Environmental Requirements and Market Access for Developing Countries, FoodPlus GmbH, the not for profit secretariat of EurepGAP, is teaming up with the UNCTAD secretariat in conducting a series of stakeholder dialogues in Central and Southern America, East Africa, and South-East Asia on the benchmarking option under EurepGAP. The objective of these dialogues is to raise the awareness on the benchmarking option and its requirements and to discuss ways and means of reflecting national circumstances and development priorities in the national GAP.

Sanjay Kumar

Director, Trade Policy Division, Ministry of Commerce and Industry, Government of India.

Rise in environmental and health requirements

As the liberalization of tariffs and quantitative restrictions on trade in agricultural and food products progresses, more attention is being paid to measures such as food safety regulations, labelling requirements and quality standards. Many developing countries find that environmental requirements which can potentially affect market access are proliferating and becoming more stringent and complex. They are also concerned that some of the standards fixed by developed countries are higher than international standards. Although the WTO Agreement on Sanitary and Phytosanitary (SPS) measures tries to bring about a harmonization of standards by pegging them to international standards for food safety and health of plants and animals in order to protect consumers, these requirements are becoming increasingly complex and multidimensional, which places an enormous burden on developing countries. Besides, these multiple requirements keep changing, and quite rapidly. An analysis of WTO TBT notifications from January 2000 to December 2003 shows that 30 per cent of the notifications were environment and health related. Further categorization reveals that these TBT notifications related to human health (18 per cent), consumer safety (11 per cent), environment and health protection (22 per cent), labelling (16 per cent), consumer protection (23 per cent) and consumer information (10 per cent). The analysis also shows that the distinction between environmental standards and health and quality standards is gradually becoming blurred, as also indicated by Hoffmann and Rotherham. The domains are not easily delineable and they simultaneously serve different policy objectives.

Although the WTO and Rio Principle 11 recognize the diversity of environmental standards across countries, they also note that the standards should reflect the environmental and development context in which they are applied. The WTO preamble endorses the fact that environmental policies must be designed to take into account the situation of each member, in terms of both actual needs and economic means. The principle of special and differential treatment for developing and least developed countries has also been recognized so as to avoid inappropriate or unwarranted economic and social costs to these countries. While the need for standards is acknowledged, there is also general agreement that member countries should be allowed some latitude in meeting sanitary and phytosanitary requirements provided certain conditions are met. The WTO Appellate Body does not stand in the way of environmental protection and is willing to uphold unilateral trade measures that have this objective. Given the above, we need to ask ourselves whether the objectives of free trade are being achieved in the context of the growing number of regulations.

Role of standards

The social welfare function, which reflects the trade-off between income and environmental quality, depends on the stage of economic, social and political development of a country. The variation in environmental standards across countries can be justified, but it is imperative to recognize other factors as well. The environmental Kuznet's curve postulates that as income increases environmental quality worsens up to a point, after which it improves. Trade liberalization that results in an increase in income can generate more resources for improving environmental quality. But the role of institutional and democratic reforms should not be ignored as they are necessary for the people to articulate their preferences for environmental quality and thereby influence the political decision-making process.

Environmental standards *per se* do not hamper trade creation; standards are needed to reduce risk to health or life of plants, animals and humans. Standards are also necessary for the smooth functioning of anonymous exchanges as they help provide information for the efficient function-

ing of markets. International standards also lead to technical compatibility across countries and convey information to consumers about products that have been produced abroad or processes that took place in some other country. Thus, besides reinforcing consumer confidence, international standards reduce transaction costs and facilitate international trade. In fact, the WTO's *World Trade Report 2005* states that standards tend to address three issues: networking externalities, information externalities – mainly for consumer safety – and environmental externalities. As regards the latter, some standards lead to partial internalization of unaccounted environmental costs. If well designed, environmental standards should encourage sustainable production and consumption patterns and methods. It is through the sharing of common standards that anonymous partners in a market can communicate, have common expectations on the performance of each other's products and trust the compatibility of joint production.

Foreign standards can sometimes also lead to exporters cleaning up their production processes. An interesting case is that of South Africa's citrus industry, which made significant changes in its production process in response to strict United States and EU environmental and health-related standards for imported citrus fruit. Positive outcomes from such changes included decreased pesticide use (due to a move towards integrated pest management) and better working conditions (in part from less exposure to pesticides).

But the danger is that often these standards are adopted so as to exclude, rather than include, products from other countries. For example, EU standards on aflatoxin levels in peanuts – which exceed the norms set by the Codex Alimentarius, the international standard-setting body for food-related standards – engender disproportionate costs, and may be designed to serve protectionist ends. Another example of trade restriction is the ban in many countries on the use of pentachlorophenol – a fungicide used in leather tanning. This ban benefited United States companies which manufacture the only viable alternatives. Another example is limits set by some developed countries on the use of formaldehyde, glyoxal and PCP residues in textiles, driven, at least in part, by the fact that they would benefit Western holders of patents on the only known substitutes.

Compliance costs

It has been seen that a large number of regulatory measures are related to supply chains. Firms in developing countries are required constantly to adjust their production processes in response to the changing environmental regulations in their export markets that are largely in developed countries. These measures impede developing countries' trade. Studies have shown that compliance with external eco-standards often necessitates the import of inputs and technology, which raises the costs of production and the prices of outputs.⁸ An econometric study using firm-level data generated from 16 developing countries suggests that standards increase short-term production costs by requiring additional labour and capital. It also suggests that a one per cent increase in investment to meet compliance costs raises variable production costs by a multiplier of between 0.06 and 0.13 per cent, a statistically significant increase.⁹ While the impact is small as a share of production costs, it implies an absolute increase of a similar magnitude to the compliance cost itself.

Some examples of costs of compliance can be helpful in this regard. EU standards for the production and processing of shrimp (HACCP requirements) specify certain management and processing practices with a focus on micro-biological hazards, as well as chemical and physical hazards. For each stage of production and processing, there is a required monitoring regime to ensure compliance with these standards. The World Conservation Union – IUCN found that in Bangladesh, where shrimp is the second largest export item, to meet the standards, processors would have to spend close to \$2.2 million per year, with annual government spending on monitoring and certifying compliance amounting to an additional \$225,000. Another example concerns the use of azo dyes used in the leather and textile sectors in many developing countries. After certain azo dyes were found to be carcinogenic, several European countries enacted legislation

prohibiting their use in consumer goods, and these restrictions were subsequently extended across the EU. This had a significant impact on a large number of developing-country manufacturers: by September 1997 in China alone, 1,167 small town and village cluster enterprises had closed operations following the imposition of regulations. Yet another example concerns Chile, where it was found that the fixed cost involved in obtaining organic certification for wine production had significantly different impacts on small and large producers: certification costs amounted to 5 per cent of the operating cost for those with vineyards of 50 hectares, while it was 25 per cent for those with vineyards of 10 hectares.

The issue, therefore, is whether standards relating to environmental and health regulations are in effect impeding trade. Again taking the case of small-scale farmers in Bangladesh, for example, for whom shrimp cultivation is one source of income, these producers are largely unaware of HACCP requirements, and, even if they were, they would be unable to implement the stringent and expensive monitoring systems required; the monitoring systems become affordable only at a certain scale of operation. Such regulations therefore have the effect of pushing small-scale producers out of the system in favour of large producers, leading to negative impacts on sustainable development of large numbers of fishing families. While the governments in these developing countries sometimes try and help these small producers to meet the requirements of the developed countries, more often than not the developing countries lack the appropriate scientific and technical expertise to deal with the standards. They are also strapped for cash, often with large fiscal deficits, so that they are unable to give any meaningful help, technical or financial, to address such foreign regulations on a sustainable basis.

It may be argued that the fact that adjustment costs are relatively high is not by itself the most important consideration; rather, it is the benefits that can be derived from meeting new requirements which are important, and the monetary value of those benefits needs to be taken into account. However, in order to obtain benefits, huge investments become necessary. Further, there is no guarantee that once suitable changes in the production processes have been made the goods will get continued or enhanced market access, as buyers do not give any such guarantee upfront. A concomitant problem is that of shifting standards. As the exporters/producers get ready to meet a particular standard, developed countries might move to a different standard, which may be only slightly different from the earlier one, and adjusting once again to these can involve huge costs for the producers. Sometimes incremental higher standards or regulations entail a higher share of costs in total production costs, making low-value products relatively more vulnerable, and often forcing producers out of business.

Other constraints

Sometimes developing country firms also find it difficult to understand the regulatory structures of developed countries. They face capacity constraints and structural problems in this respect. The capacity constraints can include difficulties in identifying relevant ERHRs, implementing the necessary technical, institutional and procedural changes, and demonstrating compliance in a credible way. Structural problems can include lack of awareness and management of information, poor institutional capacity, weak infrastructure, a dominance of small and medium-sized enterprises in the export sector, lack of finance and insufficient access to technology. In many instances developing country firms are incompatible with the prevailing systems of production and marketing in the developed countries. Lack of infrastructure and monitoring facilities, limited technology choices and inadequate access to environmentally-friendly raw materials and information are also constraints for developing countries' firms. Removing these constraints can be financially burdensome. Moreover, the costs tend to be more formidable for small and medium-sized enterprises than for large enterprises.

Developing national strategies

No doubt the regulations that are designed to protect consumer health and the environment can have a negative impact on exporting countries, but it is neither appropriate nor effective to try to reject them. The right approach would be to analyse them (including their scientific justification), adapt to them and create conditions to meet those requirements in a way that maximizes the developmental and environmental benefits, while minimizing the adjustment costs. It is not that environmental and related health concerns are not legitimate, but regulations and standards need to be carefully designed in order to minimize their negative impacts on developing countries. There is no doubt that a proactive response to them will be important; rejecting them is not a solution, except for the limited number that can be contested under trade law. A recent World Bank report¹⁰ identifies three types of strategies for developing countries to address evolving food safety and agricultural health standards. They are:

- Exit, which implies switching from certain markets, products or buyers to those whose standards could be more cost-effectively met;
- Voice, whereby developing countries seek to influence standards through negotiations or through formal complaints; and
- Compliance, whereby a set of legal, administrative, technical and organizational steps can be taken to conform to product or process requirements.

An “exit” strategy may not be an affordable option, given the increasing number of standards introduced by both developed and developing countries, and the fact that trade promotes development. It can be a short-term strategy, but not a sustainable one. “Voice” can be an important strategy but that also needs to be dovetailed into a proactive “compliance” strategy, which is a key strategy for most developing countries. This option seeks to provide a long-term solution to overcoming supply-side constraints by putting an appropriate structure in place.

Since most developing countries have limited resources, it is important for them not to spread their valuable resources too thin by tackling the problem on all exportable items in the “compliance” strategy. Instead, they should identify, as a starting point, some commodities that are of key actual or potential export value, and concentrate efforts on them. The idea is to turn environmental standards into opportunities. An active governmental role is an important part of this adjustment strategy. There is a need to establish a mechanism for getting the information on foreign environmental standards and releasing this in a timely manner to industry through industry associations. It is also important for developing countries to be able to participate in consultations held in export markets in the development phase of new standards. To succeed, exporters need knowledge of markets and marketing channels, and the ability to mount strong marketing efforts. They also need appropriate support from their governments, which should not be limited to financial support alone. Success will also depend on the ability to overcome obstacles in the form of differing standards in different markets, costs and difficulties in conformity assessment, and structural problems in supply chains.

In sum, a possible strategy for national governments could contain the following elements:

- Effect appropriate changes in the regulatory set-up for collective and collaborative actions to turn the challenges into competitive opportunities;
- Modify firm- and farm-level production, post-harvest processing and treatment technologies in some key sectors or for the main commodities;
- Seek appropriate mentoring partners in these identified sectors or commodities;
- Strengthen information management systems to keep up-to-date on new requirements and develop a system for information dissemination to exporters and other stakeholders;
- Participate in international standards-setting bodies, develop national standards and strengthen accreditation and certification systems;
- Invest in physical infrastructure to build capacity for compliance, including testing facilities, risk analysis and assessments;

- Build information and skill capacity for influencing standards developments in key export markets through active participation in pre-standard-setting consultations;
- Improve coordination between industry and standards institutes so as to encourage industry to carry out research and analysis to support standardization activities;
- Push for mutual recognition agreements with trading partners based on the principle of equivalence.

Developing countries can also formulate strategies for developing or facilitating access to alternative regional markets. South-South trade is a growing area, and these countries are increasingly forming different trade partnerships. Developing countries should consider accessing each other's markets, rather than only concentrating on exports to developed countries.

In addition, it is well worth exploring a novel feature that has recently been introduced by the European Commission in the new Regulation on Official Food and Feed Controls. Article 50 of this Regulation – *Support for developing countries* – contains three elements:

- The EU may offer technical assistance to developing countries on request;
- The EU shall provide aid to support developing countries in building the required institutional capacity; and
- Developing countries may request a phased introduction of the EU regulation's import conditions, taking into account the progress made in building institutional capacity through the EU's aid programmes.

This explicit linkage between a longer transition period, the EU's support for institutional capacity building and its impact on the ground could be regarded as a more advanced and valuable form of S&D treatment. This trend is encouraging, as Article 50 was created as a result of an ex-ante impact assessment of the new regulation on exporting developing countries. This underlines the importance of such assessments, and that developing countries need to insist on their preparation.

Do environmental and health requirements undermine free trade objectives?

The key question, therefore, is whether environmental and health requirements undermine free trade objectives. Certainly, they have the potential of being turned into non-tariff barriers. On the other hand, if there is collaboration and cooperation in realizing the free trade objective through active participation in pre-regulation and pre-standard-setting consultations, harmonization and equivalence, support by developed countries to adjustments in developing countries, and an emphasis on providing technical assistance for capacity building in developing countries, the free trade objective can definitely be achieved. In that case, ERHRs will not be considered as impeding trade. Indeed, as Hoffmann and Rotherham contend, in the short run the application of the ERHRs may be trade distortive, but in the long run it may actually lead to more trade. In fact it has been suggested that the adoption of ERHRs will in the long run lead to sustainable development and benefits to the national economy in terms of enhanced resource efficiency, lower pollution intensity and higher occupational safety, among others. Diversity of standards cannot be a ground for complaints of unfairness. In fact governments are free to set appropriate public policy objectives and compete for investments in a world of mobile and scarce capital. Ex-ante assessments of the impacts of ERHRs through a largely consultative process between developing-country representatives and developed countries' industries is a good suggestion, as improved product safety, reduced environmental harm and better public health are both a national and an international public good.

Patrick Mallet

Executive Director, International Social and Environmental Accreditation and Labelling (ISEAL) Alliance

Developing-country producers often lack an adequate framework and infrastructure to support their participation in the development and implementation of voluntary environmental requirements. As Hoffmann and Rotherham indicate in their chapter, “there are no clear rules of process that have to be followed in their development and implementation [of voluntary Environmental and Related Health Requirements (ERHRs)]” and “as they can emanate from a multitude of sources, they are much harder to track and harmonize.” One of the primary objectives of the ISEAL Alliance is to support the development of this framework in order to ensure credibility and accessibility in voluntary standards and labelling instruments.

This commentary focuses on emerging responses to the need for a framework and supporting infrastructure, specifically for *voluntary* instruments. While the mechanisms for engaging stakeholders in the development of *mandatory* standards are weak and not fully realized, at least there is an existing framework for them within the WTO that could be strengthened. The same is not true for voluntary standards and, as the authors state, “not only are voluntary requirements growing in number and evolving quickly, if they become integrated into supply chains... they can become commercial imperatives for certain markets.”

Hoffmann and Rotherham clearly make the case for the need for more action and better coordination to enable developing-country producers to take greater advantage of the opportunities created by ERHRs. With the increasing belief that traditional mechanisms for addressing these issues, such as those of the WTO, have been ineffective, has come a growing recognition of the necessity for other forums and mechanisms to fill this role. The UNCTAD Consultative Task Force (CTF) on Environmental Requirements and Market Access for Developing Countries is a useful response. Among its strengths is its ability to convene key stakeholders from both the regulatory and voluntary standards sectors to work together to coordinate action in these areas. The participation of the ISEAL Alliance in this forum is a reflection of our members’ desire to find mechanisms to promote credible and accessible voluntary certification as a legitimate market tool for socially and environmentally beneficial production.

In terms of addressing the constraints, the authors suggest that developed-country actors should assume a major share of the responsibility. Since many developing countries lack the appropriate infrastructure to benefit from new ERHRs, these ERHRs “will have a proportionally greater impact on the competitiveness of companies in developing countries than on those in [developed countries’] own jurisdictions. This implies a responsibility for developed countries to undertake all reasonable efforts to reduce the [negative] impact of ERHRs...” Actions need to be taken at different stages in the development and implementation of voluntary standards. Among the most important actions highlighted in the chapter are the need for transparency, stakeholder consultations, ex-ante impact assessment and technical assistance for capacity building. Specifically for voluntary ERHRs, the lack of action (or ability) within the WTO to address concerns about these instruments “heightens the need to consider other mechanisms for ensuring that voluntary ERHRs are not inappropriately prepared, adopted and implemented.”

Transparency and stakeholder consultation are central elements in the standard-setting practices of ISEAL Alliance members. The member organizations subscribe to the ISEAL Alliance Code of Good Practice for Setting Social and Environmental Standards, which has been widely recognized as a useful international reference document for voluntary standard-setting practices. As part of compliance with the Code, standard-setting organizations are required to engage in an open and transparent process that seeks to achieve consensus among a balance of interested parties. The stakeholder consultation practices of ISEAL member organizations are among the most

comprehensive undertaken by voluntary standard-setting organizations. They are guided by the underlying principles that the standards should reflect the interests and priorities of those stakeholders that will be affected by implementation of those standards, and that the standards need to be locally applicable wherever they are implemented.

While the ISEAL Alliance seeks to promote transparent and balanced stakeholder consultation as part of credible standard-setting practices, it is often difficult for voluntary standard-setting organizations working at an international level to reach potential stakeholder groups. One reason is that voluntary instruments lack formal mechanisms which could enhance their credibility. Technical regulations, on the other hand, can be notified to TBT enquiry points and ISO national information points. One question that requires further consideration is whether this could be an option also for voluntary standards, as a mechanism for increasing awareness about new standards and participation in the standard-setting process. At present, voluntary standard-setting bodies are reticent to notify TBT enquiry points, given the prevailing uncertainty concerning the legitimacy of voluntary process and production method (PPM) standards in the WTO and under the TBT Agreement. While it is now generally recognized that voluntary instruments fall outside the purview of the TBT Agreement, certain actions, such as reference to voluntary instruments in public procurement and, potentially, notification to the TBT enquiry points, could bring these voluntary standards more within the scope of the Agreement. However, uncertainty over how voluntary PPM standards would be treated within the WTO framework makes it unlikely that voluntary standard-setting organizations will gear up to face this challenge. In this context, the UNCTAD CTF provides a useful forum for voluntary standard-setting organizations and national governments to discuss these outstanding uncertainties and reach agreements that will enable standard-setting bodies to further improve the breadth and effectiveness of their transparency and stakeholder consultation practices.

In the absence of absolute knowledge about how voluntary standards would be interpreted under TBT Agreement provisions, ISEAL member organizations have sought to be as compliant as possible with the relevant provisions in the Agreement, namely its Annex III. The ISEAL Code of Good Practice is based in large part on Annex III, but is adapted to make it more appropriate for voluntary social and environmental standards. The underlying principles of openness and transparency remain central features of the Code. One important element of the TBT Agreement that is more explicitly defined in the ISEAL Code is the obligation that measures “not be more trade-restrictive than necessary to fulfill a legitimate objective” of the standard. This is a complex notion that underlies one of the primary objectives of both the TBT Agreement and the UNCTAD Consultative Task Force, namely to reduce the potential barriers to market access caused by environmental and health-related requirements. As Hoffmann and Rotherham state, “there are no specific benchmarks or criteria in [the TBT] Agreement for justifying the need for ERHRs per se” and that developing countries “assert that the ‘legitimate objective’ notion of the TBT Agreement is too vague”

In the Guidance to the ISEAL Code, legitimate objectives include “environmental protection, human health or safety, animal or plant life or health, labour and social welfare, and cultural considerations.” This language is similar to that used in the main text of the TBT Agreement and goes beyond the shorter text of its Annex III. Of the objectives listed in the ISEAL Code, labour and social welfare, and cultural considerations do not appear in the TBT Agreement. Additionally, the Code states, “The standard-setting organization is ultimately responsible for determining whether an objective is legitimate...” This places the onus on the standard-setting body to justify the legitimacy of the objectives of its standard. Perhaps more importantly, it emphasizes the need for an effective stakeholder consultation mechanism to ensure that the objectives are desirable and appropriate to those stakeholders that could be affected. This is a participatory approach to standard-setting that moves the discussion beyond which types of objectives are legitimate to the process by which the legitimacy of objectives is determined. I believe that this is a helpful method by which to reconcile social and environmental objectives with trade objectives.

Compliance with standards that are appropriate to the local context should not be more onerous for developing-country producers than for their developed-country counterparts. However, there is an inherent level of support that is required for all entities seeking certification – support that is often absent in developing countries. Moreover, it is commonly the case that small and medium-sized enterprises face greater relative costs in coming into compliance with certification requirements. One of the most widespread constraints to accessing the benefits of voluntary certification remains the lack of producers' knowledge about applicable standards and their organizational capacity to meet the requirements of a standard and the accompanying auditing process. As Hoffmann and Rotherham note, technical assistance for capacity building needs to address “an inability to identify the requirements, access or afford required technology, make changes to production techniques, or demonstrate compliance in a credible way.” In addition, and probably as important, is the lack of institutional capacity within many developing countries to deliver certification services and the infrastructure necessary to assist producers to become compliant. Both of these realities suggest a need for institutionalization of support for technical assistance and capacity building.

What remains unclear, and could potentially be addressed through the UNCTAD CTF, is how to further institutionalize this support. One of the major constraints of voluntary instruments is the lack of clarity surrounding who is ultimately responsible for delivering technical assistance related to certification. While it is a conflict of interest for certification systems to engage in capacity building of entities that will later seek certification, there is often no other organized framework through which to deliver this assistance. As suggested in the paper, the CTF could serve as a useful forum for “exchanging national experiences on the development of holistic, proactive strategies in developing countries that effectively respond to ERHRs in key export markets”.

Beyond this, however, it is necessary to examine the actual delivery mechanisms for technical assistance, and to find ways of improving both the coordination and the institutionalization of this assistance. To date, much of the assistance has been delivered by NGOs and development agencies of developed-country governments, supported by foundations and national governments. However, private companies are also beginning to deliver technical support in the context of their supply chains. Significant drawbacks of this approach are the lack of coordination between these various mechanisms and their limited scale. The support is not nearly comprehensive enough to lift developing countries and small and medium-sized enterprises up to a level playing field. It will be important for the CTF to find ways of increasing this technical assistance to support compliance, not only with technical regulations but also with voluntary standards that are becoming influential market requirements. Ideally, assistance would be coordinated through an intergovernmental body that has the capacity and resources to ensure widespread implementation.

The UNCTAD Consultative Task Force has the potential to support a new kind of dialogue on both voluntary standards and technical regulations that engages actors who have not previously had a forum for such discussions. The paper by Hoffmann and Rotherham clearly identifies a number of factors that need attention in this new dialogue. The value and importance of voluntary ERHR instruments in the global economy is set to continue to increase in the coming years and the ISEAL Alliance will continue to engage in actions to address the accessibility and credibility of these voluntary instruments. In this context, the UNCTAD CTF is a valuable forum.

Gareth Steel and Julius Langendorff
European Commission

The chapter by Ulrich Hoffmann and Tom Rotherham makes an important contribution to our understanding of the challenges facing producers and exporters in developing countries. They bring off what is not easy: a broad and balanced analysis of both the regulatory and the non-regulatory aspects of EHRHs. Furthermore, the possible solutions they propose have the merit of being based on dialogue and cooperation rather than confrontation. In analysing the current situation and trends, and then pointing (explicitly or implicitly) to what needs to be done, and what is being done, they suggest a new direction for future work.

Broad and balanced analysis

Starting with the general analysis in the chapter, we particularly welcome the way the writers use real world trends to examine how trade interacts with the pursuit of sustainable development. They make three vital points. Firstly, that imposing ERHRs is increasingly not simply a governmental process, but one involving others acting in and on the supply chain. These include non-governmental bodies and companies that do not just place orders but also make stipulations about production conditions. Secondly, that it is mostly inaccurate to see ERHRs as trade protectionism, as in the vast majority of cases such requirements respond to genuine environmental and public health concerns and preferences on the part of public authorities and consumers. And thirdly, that developing-country exporters are faced with increasing complexity as “new regulations and standards often deal with health, food safety and environmental (increasingly also supplemented by social) requirements at the same time”. Let us comment in a little more detail on these three points.

The supply chain is today more than ever linked to the actions of and reactions to consumers in the marketplace. These consumers may have a better or less well-informed perception of what extra value they are securing through supporting certain “voluntary” standards. Thus there is a role for governments and public bodies to take an interest in the efficiency and honesty of that process. What is said elsewhere in the chapter about the need to involve a wide range of stakeholders, especially developing-country stakeholders, in the elaboration of governmental standards also applies to this role of the authorities in developed countries. A wide range of stakeholders needs to be drawn into the process of helping consumers see the reality of what lies behind the various claims made about products. Transparency in the marketplace in the North should in turn lead to greater predictability and stability of requirements for producers in the South.

It is gratifying to see that the authors do not – as sometimes happens in debates of this nature – lose perspective and depict EHRHs mainly as attempts to protect domestic markets. Although they refer to “concerns” and “suspicion” on the part of developing countries’ exporters that ERHRs may be misused to protect domestic markets, the chapter does not dwell too much on such suspicions. In reality, the overwhelming majority of EHRHs are introduced in response to genuine environmental and related health concerns; and the issue at stake is often a serious one. The often quoted EU WEEE and RoHS Directives are a case in point: they are designed to tackle the very rapidly increasing waste stream of electrical and electronic equipment in Europe (currently more than eight million tonnes a year) and to prevent the spread of hazardous substances such as various heavy metals (lead, mercury, cadmium and hexavalent chromium) and brominated flame retardants. It is worth noting that these and other environmental problems are not exclusive to developed countries: developing countries are also becoming increasingly aware of the fact that for development problems to be solved and economic growth to last, such growth must be environmentally sustainable. For instance, as is highlighted in chapter 2 of this *TER* by Vossenaar et al., policy-makers in rapidly industrializing Asian countries such as China, Malaysia, the Philippines and Thailand face increasing amounts of *domestic* EEE waste, and realize that this problem needs to be adequately addressed.

Whilst chapter 1 of this *TER* highlights the increasing complexity of regulations and standards, the analysis remains confined to “environment and related health requirements”. Not only may this term convey a slightly misleading message, given that the bulk of EHRs are actually not environment-related (at least not in the conventional sense of the word), it also fails to reflect other key components of sustainable development such as labour standards or human rights issues. In reality, the complexity of aspects addressed by regulatory standards is at least matched and probably exceeded by the full range of aspects of sustainability – social, environmental and economic – that fall within the ambitions of “private” certification and labelling schemes. What began as the issue of “environment-protective” (as opposed to “trade-protective”) EHRs should perhaps rather be seen as that of “sustainability assurance claim schemes”, since the common thread that links the different activities is that of a product which asserts a claim on the marketplace about one or several characteristics having to do with the consumer’s or the producer’s sustainable development.

Cooperative and holistic solutions

Turning now to the solutions suggested by the authors, the positive and cooperative approach they take to these issues is certainly to be welcomed. Given the vital need to protect key public policy interests, the EC’s position is that, as it argued in its October 2004 submission on environmental measures and market access to the WTO, “the answer to concerns about reduced market access is not to weaken such standards but rather to enable exporters to meet them”.¹¹ Against this background, we also welcome the mandate of UNCTAD’s Consultative Taskforce on Environmental Requirements and Market Access for Developing Countries, according to which “its activities are not intended to “second-guess” the legitimacy and objectives of environmental requirements, nor to develop guidelines for good regulatory practice”.

Of course, the above should in no way be read to imply that trade and development considerations should not be given due attention when ERHR legislation is being developed.¹² In this connection, the European Commission’s Better Regulation package, introduced in 2001, can play a useful role, as it requires, among other things, the systematic use of stakeholder consultation and the ex-ante assessment of economic, social and environmental impacts. In carrying out such pre-legislative work, it is naturally important to ensure that account is taken of impacts on third countries, alongside effects on actors within the EU that often attract the most attention. In recognition of this, the Commission’s recently revised guidelines on ex-ante impact assessment now refer more explicitly to the need to pay attention to the effects of EU legislation on developing countries.

While such pre-legislative work is important, continuous efforts must also be made to feed the results of ex-ante (“upstream”) analysis into ex-post (“downstream”) activities, for instance in the form of trade-related technical assistance and capacity-building. Another challenge is to ensure sufficient coordination between related TA & CB activities so that limited resources yield the most value added. In all these – and many other – respects, Hoffmann and Rotherham raise important issues that merit further reflection and discussion.

Unresolved issues

It is not surprising that in this complex area the paper raises some issues along the way which do not appear to be fully resolved. The concluding section of the analysis of where we are now is surely right to argue that ERHRs, especially but not exclusively private voluntary ones, are now largely supply-chain-driven. But earlier, and perhaps in the underlying premise of the chapter, there is a suggestion that we need to be able to tell whether a standard is trade protectionist or environment-protective. The conclusion about the supply chain driving the whole process (and, in turn, the underlying role of the consumer in the market place behind that) could be taken further to argue that the “*procès d’intentions*” – the search for clarity on whether the true motivation and

intention behind a particular development was environment protective or trade protectionist – is increasingly irrelevant. The reality is that private actors are translating the needs of the marketplace, and the issue is quite simply how to make it easier for developing-country suppliers to participate in that market.

Thus in some ways this chapter is important both for what it says and for what it does not say. What it does say very clearly, and this should be welcomed, is that voluntary standards can have the effect of mandatory standards, and that government and international responses therefore need to take their existence into account. But it does not pose the question of how governments can do that: how they can move from a position of pulling levers in their own domain – of regulation, financial assistance, institution-building – to one of interacting successfully with private actors and actions in the supply chain and in the marketplace. The only pattern that is contemplated is that of forcing supply-chain issues into an “intergovernmental setting”, rather than asking governments to consider how best they can cooperate with, interact with and influence, the non-governmental setting.

Fortunately, the section on UNCTAD’s Consultative Task Force on Environmental Requirements and Market Access for Developing Countries does show how the mould of purely intergovernmental thinking is being broken, using for example the idea of developing regional codes of good practice to feed into the EurepGAP initiative, or using an Internet portal to organize and make transparent the requirements of the different systems. These pointers strike an optimistic note for future developments.

NOTES TO COMMENTARIES

- ¹ The author would like to thank Otto Genee and Bert Vermaat of the Netherlands Ministry of Foreign Affairs and Ariane van Beuzekom of the Dutch Centre for the Promotion of Imports from Developing Countries (CBI) for their comments on an earlier draft of this commentary.
- ² The term ‘standard’ in this commentary is used to cover both voluntary standards developed by international, national or private standard-setting bodies and mandatory regulations set by government regulators. The same applies to conformity assessment procedures to establish compliance with a certain standard or regulation.
- ³ Legal obligation: Article 178 of the EC Treaty: “The EU shall take account of the objectives [of its development policy] in the policies that it implements which are likely to affect developing countries.” <http://europa.eu.int/eur-lex/lex/en/treaties/dat/12002E/htm/12002E.html>. Political priority: Communication from the Commission to the Council, the European Parliament and the European Economic and Social Committee (COM(2005) 134 final) *Policy Coherence for Development: Accelerating Progress Towards Attaining the Millennium Development Goals*, http://europa.eu.int/comm/development/body/communications/docs/communication_134_en.pdf and the Conclusions of the General Affairs and External Relations Council.
- ⁴ The Code of Good Practice in annex 3 of the TBT Agreement offers private standards bodies guidance on the standard-setting process, but on a voluntary basis. Such bodies are only expected to publish their work programme twice a year.
- ⁵ An example is the Asia Trade-related Technical Assistance Trust Fund, established in 2004, co-financed by the Commission and managed by the International Trade Centre in Geneva. It is a flexible instrument that can deliver short-term expertise, upon request, within two months. Its communication on Policy Coherence for Development (see above) mentions the intention to develop a rapid intervention facility to deal specifically with SPS problems in developing countries.
- ⁶ See: Negotiating history of the coverage of the Agreement on Technical Barriers to Trade with regard to labelling requirements, voluntary standards, and processes and production methods unrelated to product characteristics (G/TBT/W/11, 29 August 1995).
- ⁷ Humphrey, J. and Schmitz, H., Governance in global value chains, in H. Schmitz (ed.), *Local Enterprises in the Global Economy*, Cheltenham, Edward Elgar, 2004, pp 95-109.
- ⁸ Final summary of the Re-governing Markets E-Conference, accessible at: www.regoverningmarkets.org/discussions.html.
- ⁹ Bharucha V, The impact of environmental standards and regulations set in foreign markets on India’s exports, in: Jha V, Hewison G and Udenhills M, eds., *Trade, Environment and Sustainable Development: A South Asia Perspective*, London, Macmillan Press, 2000.
- ¹⁰ Maskus KE et al., The costs of complying with foreign product standards for firms in developing countries: an econometric study, Washington, DC, World Bank, 2004.
- ¹¹ World Bank, Food safety and agricultural health standards: challenges and opportunities for developing country exports, Washington, DC, 2005.
- ¹² WT/CTE/W/239 of 12 October 2004, point 3.
- ¹³ An overview of how the European Commission and the EU Member States try to address these concerns is given in two EC submissions to the WTO (CTE), of 5 September 2003 (WT/CTE/W/231) and 12 October 2004 (WT/CTE/W239).

2

Chapter

ENVIRONMENTAL REQUIREMENTS AND MARKET ACCESS FOR DEVELOPING COUNTRIES: THE CASE OF ELECTRICAL AND ELECTRONIC EQUIPMENT

René Vossenaar (formerly with the UNCTAD secretariat)

Lorenzo Santucci (UNESCAP)

Nudjarin Ramungul (National Metal and Materials Technology Center, Thailand)

A. Introduction

Concern over growing volumes of post-consumer waste and associated environmental and health-related problems has triggered significant developments in environmental policies in many countries. Of particular relevance, both in developed countries and in several rapidly industrializing developing countries, is waste from electrical and electronic equipment (EEE). First, the volume of EEE waste is growing rapidly as a result of technological innovation (leading to products being replaced after a short period of time) and market expansion. Second, EEE waste may contain hazardous substances, such as heavy metals, that complicate recycling. Comprehensive new environmental legislation has been introduced in Japan and European countries with an increased emphasis on the prevention, reuse, recycling and recovery of EEE waste, including through the application of the principle of *producer responsibility*. Other countries, including some developing countries, have introduced regulations containing take-back obligations. In addition, a large number of initiatives by businesses and non-governmental organizations (NGOs) aim at promoting recycling, in particular of electronic waste. Company-specific efforts to meet corporate environmental goals and develop more environment-friendly products as part of strategic marketing initiatives are also a driver of change. Some industry initiatives have been taken with a view to strengthening competitive positions (one example being a voluntary agreement by the Japanese electronics industry to develop lead-free products ahead of the introduction of new legislation).¹

As a result of new legislation in the European Union (EU) and Japan, businesses are expected to incorporate waste management considerations (such as the use of easily recyclable/recoverable materials, the control of hazardous substances, and the use, where feasible, of recycled materials and of common coding standards for components and materials) into the design and production of EEE. Since the production of EEE components has been increasingly outsourced to developing countries, in particular those in East and South-East Asia, such developments have significant implications for manufacturers and assemblers in these countries. They will need to find substitutes for heavy metals such as mercury, lead and cadmium, as well as respond to the requirements of importers and customers downstream in the supply chain, which would also involve design for recycling and associated material selection. Governments and companies in these countries need to promote proactive policies with regard to information gathering and management (including enhancing understanding of new requirements), and product engineering and design in order to compete successfully in international markets and, at the same time, address problems related to growing volumes of their own EEE waste.

This chapter reviews recent developments in regulatory and other policy instruments concerning EEE waste in major markets and their implications for producers in developing countries. It focuses on the EU, Japan and Switzerland because of their comprehensive legislation, which contains mandatory requirements, in particular the Waste Electrical and Electronic Equipment (WEEE) Directive and the Restriction of certain Hazardous Substances in electrical and electronic equipment (RoHS) Directive of the EU, the Home Appliances Recycling Law (HARL) of Japan, and the Ordinance on the Return, Take-back and Disposal of Electrical and Electronic Appliances (ORDEA) of Switzerland. The chapter pays particular attention to the experiences of China, the Philippines and Thailand, building on work carried out within the framework of the project, Building Capacity for Improved Policy-Making and Negotiation on Key Trade and Environment Issues, undertaken jointly by UNCTAD and the Foundation for International Environmental Law and Development (FIELD), and funded by the United Kingdom's Department for International Development (DFID). These three countries accounted for almost one third of the value of all EEE imports (excluding intra-EU trade) into major developed-country markets in 2003. The United States constitutes the largest market for EEE, including EEE from developing countries (see annex 2 for further details). The main focus is nevertheless on the EU, because of important recent developments in the area of environmental legislation in that market.

This chapter aims to draw lessons, based on the study of a specific sector – the EEE sector – which may help developing countries enhance their understanding of emerging environmental requirements

in international markets and strengthen their capacities to respond to such requirements, taking into account their own environmental and developmental conditions and needs. Key areas covered include:

- Salient environmental policy developments in key markets;
- Implications for exporting developing countries;
- Lessons that can be learned from national and regional (EU-level) stakeholder consultations in countries that introduce new environmental regulations, as well as consultations with third countries;
- Awareness and understanding of these new environmental requirements and adjustment approaches in concerned developing countries; and
- Strategies to address problems related to the growing volumes of waste from EEE in developing countries.

By addressing such issues, the chapter also aims to provide inputs to the work of UNCTAD's Consultative Task Force on Environmental Requirements and Market Access for Developing Countries (CTF), in particular with regard to:

- Communication and consultative processes with developing countries;
- Information gathering and dissemination by developing countries;
- Proactive adjustment policies in developing countries; and
- Capacity-building requirements and approaches.

This chapter is organized as follows: section B describes the developments in policies dealing with EEE waste in major developed-country markets. Section C examines possible implications of such policies for domestic industries as well as for international trade, in particular for exports from developing countries. Section D, seeks to draw possible lessons from experiences with stakeholder consultations during the process of designing and implementing legislation or other measures. Sections C and D are largely based on the EU experience, for which information and analyses are readily available. Section E describes the level of awareness and preparedness as well as the adjustment processes in China, the Philippines and Thailand. The conclusions and recommendations are contained in section F. Finally, annex 2 contains information on and an analysis of EEE waste and the Basel Convention.

B. Policy Developments Concerning Waste From EEE

EEE waste is growing faster than other waste streams. In the EU, for example, EEE waste has been growing three times faster than other municipal waste.² This fast growth is attributed to developments in technology, leading to products being replaced after a relatively short period of use,³ and market expansion. Imports of used EEE and possible illegal trade in EEE waste have triggered the introduction of legislation (e.g. in China and Thailand) to regulate imports of second-hand equipment.

EEE waste may contain toxic and hazardous substances. For example, many electronic devices contain individual components made with hazardous substances, primarily heavy metals.⁴ Cathode ray tubes found in colour television sets and colour computer monitors contain significant amounts of lead. Printed circuit boards found in computers and other electronic devices may contain lead and chromium. Some older computers contain mercury switches, and many kinds of electronic devices work on batteries containing nickel cadmium, nickel metal hydride, lithium or sealed lead acid (Colorado Department of Public Health and the Environment, 2003). The presence of such substances complicates the recycling and disposal of EEE waste from a technical, environmental and economic point of view.

Waste management policies have been put in place to address these concerns. These range from policies exclusively based on recycling to broader policies emphasizing the so-called 3Rs (reduce,⁵ reuse, recycle) or 4Rs (which also refer explicitly to recovery of materials and/or energy).⁶ The product coverage, choice of policy instruments and stringency of measures (including with regard to threshold levels and exemptions for hazardous substances) vary widely from coun-

try to country (and at times within the same country). The EU, Japan and Switzerland have introduced comprehensive legislative measures at the regional and national levels respectively. Other countries, in particular the United States, emphasize industry-led initiatives and have some guidelines for government procurement. In addition, in the United States and Canada a number of laws have been implemented or proposed at the local, state and/or provincial level. China and Thailand are implementing legislation to deal with their own problems related to waste from EEE, and are seeking to enhance the preparedness of industry to respond to the requirements of international markets.

Policies in several countries are, to different degrees, based on *producer responsibility*. The EU's WEEE Directive is based on *individual* responsibility, making producers accountable for the end-of-life management of their brand products.⁷ Legislation in most other countries is based on *collective responsibility*, with producers sharing the costs of managing end-of-life products, regardless of the brand name, based on market shares. It is assumed that individual responsibility provides stronger incentives for clean product design as companies reap the benefits of lower recycling costs. Canada and the United States use the term *product stewardship*.

Government regulations aimed at phasing out hazardous substances are the most significant from a trade point of view. Product standards fall under the discipline of the WTO Agreement on Technical Barriers to Trade (TBT) and its notification provisions. The case of EEE clearly illustrates that product standards to address local environmental concerns in major markets can have significant implications for process and production methods in other countries. Finding substitutes and making the adjustments needed to manufacture components that work with such substitutes often require large investments of time, financial resources and technical skills. Because of globalization of international trade and investment flows, standards in major markets have a significant impact on standards and regulations in other countries.⁸ Moreover, requirements imposed principally through the supply chain may have important implications for companies in developing countries, particularly small and medium-sized enterprises (SMEs).

Emerging requirements in the EEE sector also illustrate the importance of product design. It has been argued that over 80 per cent of the costs of complying with environmental requirements tend to occur at the design stage.⁹

An analysis in the EU context seems to indicate that there are relatively extensive and reasonably transparent processes of multi-stakeholder consultations on environmental policies at both the Community and member State levels. However, trade implications seem to receive little attention either in these processes or in regulatory impact assessments.¹⁰ Whereas major trading partners have provided comments on new regulations from the early stages of their development, developing countries with a key export interest in EEE, and often providing a significant share of the total EEE supply, have not participated to the same extent. In fact, the values of EEE imports from developing countries into major developed-country markets are several times higher than those of imports from other developed countries (excluding intra-EU). For example, the value of EU imports of EEE from developing countries in 2003 was \$98 billion, twice as high as those from developed countries (\$49 billion). In Japan, nearly 80 per cent of EEE imports by value originated in developing countries (annex 2, table 3).

1. European Union: the WEEE and RoHS Directives

In 1996, the European Parliament adopted a Resolution asking the European Commission to present proposals for Directives on a number of priority waste streams, including EEE waste, and to base such proposals on the principle of producer responsibility. A key concern was to harmonize national approaches to EEE waste, as several EU member States had introduced national legislation.

The purpose of the WEEE Directive (2002/96/EC) is, as a first priority, the prevention of EEE waste, and, in addition, the reuse, recycling and other forms of recovery of such wastes so as to

reduce the amount disposed of.¹¹ The Directive also seeks to improve the environmental performance of all economic operators involved in the life cycle of EEE and, in particular, operators directly involved in the treatment of EEE waste. It requires the EU-25 member States to set up collection and financing systems for EEE waste by August 2005 and to meet collection and recovery targets by December 2006 (see annex 1 below). The RoHS Directive 2002/95/EC, on the other hand, aims to eliminate hazardous materials from waste streams by prescribing that, as of 1 July 2006, new EEE put on the market may not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers (PBDE),¹² with certain exceptions.¹³

The Commission had originally started to prepare a single Directive. However, the complexity of the issues and controversy over whether to strive for minimum standards (EEE waste management) or harmonization (for hazardous substances) prompted it in 2000 to develop two directives:

The WEEE Directive is an “environmental Directive” (with a legal basis in Article 175 of the Treaty establishing the European Community), which allows member States to use the principle of *subsidiarity* in transposition into national law. This gives member States a degree of discretion in establishing national systems to implement the Directive as long as they ensure that its objectives are achieved. Basically, it means that there will be different WEEE regimes, with the EU setting minimum standards and some countries setting higher targets (e.g. for recycling rates).

The RoHS Directive is a “single-market directive” (with a legal basis in Article 95 of the Treaty establishing the European Community) aimed at providing a “level playing field” by setting the same standards across all member States.

The WEEE Directive applies to 10 categories of EEE (see annex 1). From a trade point of view, IT and telecommunications is by far the most important category, representing an import value of \$112.8 billion (excluding intra-EU trade) in 2003, of which \$68.4 billion originated in developing countries (\$58.5 billion in East and South-East Asia¹⁴) (annex 2, table 2).

At the time of writing, many issues were still to be decided upon or open to interpretation.¹⁵ Some of these may be left for member States to decide in the process of transposition into national legislation, in particular in the case of the WEEE Directive. A Technical Adaptation Committee (TAC), comprised of member State officials and chaired by the Directorate General, Environment, is in charge of the amendments needed in order to adapt the Annex to the Directive to scientific and technical progress. These amendments include fixing of maximum concentration values, exemption of certain materials for which substitution is technically or scientifically impracticable, and a review of each exemption every four years.

The two Directives were to be transposed into national legislation by 13 August 2004. However, only Greece met this deadline (European Commission, 2004). By March 2005, Austria, Belgium (partially), the Czech Republic, Cyprus, Estonia, Finland, Latvia, Lithuania, Luxembourg, Hungary, the Netherlands, Portugal, Slovenia, Slovakia and Spain had also implemented national measures transposing the WEEE Directive.

Producer responsibility

The WEEE Directive is based on the principle of *producer responsibility*. In the case of individual responsibility, this is one of the means of encouraging the design and production of EEE in a manner that facilitates its repair, possible upgrading, reuse, disassembly and recycling. Producer responsibility began to be applied at the EU level with the implementation of the 1994 Packaging Directive (Enhesa-Environmental Policy Centre, 2003). Measures adopted in 2000 with respect to end-of-life vehicles further expanded the regime of producer responsibility.

Box 1. Existing or proposed EU legislation establishing producer responsibility

The Packaging and Packaging Waste Directive (94/62/EC) aims to harmonize national measures in order to prevent or reduce the impact of packaging and packaging waste on the environment and to ensure the functioning of the internal market.^a It contains provisions on the prevention, reuse, recovery and recycling of packaging waste. Several member States use producer responsibility regulations to implement this Directive. The amendment to the Directive (Directive 2004/12/EC, February 2004) includes more stringent targets for recovery and recycling.

The End-of-Life Vehicles (ELV) Directive (2000/53/EC) came into force on 21 October 2000. The Directive includes: (a) new regulatory controls on the treatment (scrapping) of ELVs; (b) an obligation for producers (manufacturers and importers) to pay "all or a significant part" of the costs of take-back and treatment of ELVs from January 2007; (c) reuse, recycling and recovery targets; and (d) reduction of the amount of hazardous material in vehicles (including a restriction on the use of heavy metals in new vehicles from July 2003).

Batteries Directive. On 24 November 2003, the European Commission adopted a proposal for a new Directive on batteries and accumulators and spent batteries and accumulators (COM (2003)723final). Producers must arrange financing for the collection, treatment, recycling and sound disposal of all types of collected spent batteries. The cost of collecting portable batteries may be shared among producers and national, regional and local authorities. The proposed directive would apply to all types of batteries regardless of their chemical composition.^b

Eco-design of Energy-using Products (EuP) Directive.^c The European Commission has been developing framework legislation that would define the general policy and principles to be followed in developing specific implementing measures relating to eco-design in energy-using products. The stated objectives are: (a) ensuring the free movement of energy-using products within the EU; (b) improving the overall environmental performance of these products (e.g. in terms of energy consumption and related contributions to climate change, consumption of materials and natural resources, waste generation and release of hazardous substances); (c) contributing to the security of the energy supply and enhancing the competitiveness of the EU economy; and (d) preserving the interests of both producers and consumers. The European Parliament and the Council adopted a final text in July 2005.^d

An important driver behind the EuP Directive is the commitment of the EU to the Kyoto Protocol targets for reducing greenhouse gas emissions by 2012. According to some, in terms of its potential impact, this is one of the most significant environmental directives proposed by the Commission. As a framework directive, it sets the context, scope and legal framework for achieving the above-mentioned objectives but does not in itself impose obligations or requirements directly on manufacturers - only on member States. It is the implementing measures that will establish eco-design requirements for particular aspects and products. The Framework Directive was, in principle, intended to apply to any product that uses energy. However, the Commission stated that it did not intend to produce a large number of implementing measures. Product coverage and conformity assessment procedures nevertheless remain among the open questions.

^a http://www.europa.eu.int/comm/environment/waste/packaging_index.htm.

^b The previous battery directives only applied to an estimated 7 per cent of all portable batteries placed on the EU market annually with certain mercury, lead and cadmium content. According to DTI, the legislation failed to provide a framework for battery collection and recycling (http://www.dti.gov.uk/sustainability/ep/batteries.htm#Current_legislation).

^c http://europa.eu.int/comm/enterprise/eco_design/.

^d Directive 2005/32/EC of the European Parliament and of the Council of 6 July 2005 establishing a frame.

2. Japan

In July 1999, the Industrial Structure Council predicted severe pressures on landfill and recommended working towards the vision of a recycling-oriented economy. Japanese industry has been active in developing lead-free products (e.g. through a voluntary agreement). Although lead-free initiatives started long before any industry regulation was introduced, in 1998 the electronics assembly industry began to aggressively pursue the removal of lead from the manufacturing proc-

ess. The Japanese Electronic Industry and Technology Association (JEITA) has been working to eradicate lead from EEE. It has played a lead role in the development, jointly with representative organizations of the United States and Europe, of the Roadmap for Commercialization of Lead-Free Solder. According to the most recent version of the Roadmap, companies in the electronics industry should stop using lead soldering materials by 2005.

Since 2000, various laws relating to waste management and recycling have been enacted or amended (Charter, et al., 2002). These fall into four main categories:

- *Basic framework laws.* These include the *Fundamental Law for the Creation of a Sound Material-Cycle Society*, approved in 2000;
- *Laws for proper waste management and recycling.* This includes the *Law for the Promotion and Effective Utilization of Resources* (LPEUR), which promotes the 3Rs (reduce, reuse, recycle). In accordance with LPEUR, the competent minister should promote: (a) reduced generation of used products and by-products; and (b) effective utilization of recycled resources and reusable parts. The law prescribes shared responsibilities and 3R measures, including through eco-design.¹⁶ Companies have to submit their planning report to the Ministry of Economy, Trade and Industry (METI) for approval. In March 2001, the law's coverage was increased to 10 sectors and 69 products. LPEUR effectively makes eco-design obligatory for electronic products. It imposes an obligation on manufacturers and importers to collect and recycle resources. New legislation concerning recycling of personal computers (PCs) became effective in October 2003; it makes PC computer manufacturers liable for their collection and recycling;¹⁷
- *Laws for promoting specific waste recycling.* Effective as of 1 April 2001, the *Home Appliances Recycling Law* (HARL) requires the manufacturers and importers of air conditioners, televisions, electric refrigerators and electric washing machines to take back the end-of-life equipment and recycle it. Freezers were added in April 2004. The scope of HARL is smaller than that of the EU's WEEE and RoHS Directives. It has been estimated that HARL accounts for 80 per cent of EEE waste in Japan (Toshihiko Fujii, 2002). The Law also promotes research, development and testing of recycling technologies and the manufacture of products using recycled materials; and
- *A law for promoting greater utilization of recycled materials.* The *Green Purchasing Law* requires government bodies to take a lead in procuring "environment-friendly" products and materials.¹⁸ In addition to government regulations, many companies have established green procurement guidelines and have disseminated those to suppliers. Some have also formed alliances with suppliers in other countries. This effectively has created a green market for many products procured by the public sector, which has stimulated industry to produce environment-friendly products ahead of competitors in Europe and the United States.

Producer responsibility

Japanese EEE waste regulations incorporate the principle of producer responsibility.¹⁹ HARL specifies that manufacturers have obligation to collect their own products. However, with regard to financing, HARL relies on end-of-life recycling and collection fees paid by consumers. In practice these fees cover only part of the costs and manufacturers have to pay the rest (INFORM, 2003).

3. United States

In the United States, federal initiatives to address EEE waste problems include, for example, voluntary programmes, multi-stakeholder initiatives and green purchasing.²⁰ There is no federal EEE waste legislation. However, an increasing number of state and local governments are implementing legislation for managing end-of-life electronic equipment.²¹ In some cases, the product coverage is limited to hazardous EEE, but the restrictions on the use of hazardous substances can be as stringent as in the EU's RoHS (e.g. in California). An additional, trade-related concern is the export of EEE waste to developing countries, in particular to those of South-East Asia.

In the state of California, the *Electronic Waste Recycling Act of 2003* (SB 20)²² inter alia establishes a funding system for the collection and recycling of hazardous electronic wastes.²³ The California Department of Toxic Substances Control (DTSC) is to adopt regulations (similar to the EU RoHS) establishing deadlines and procedures for the phase-out of hazardous materials used in the manufacture of devices sold in California no later than 1 January 2007. The California Integrated Waste Management Board must annually establish, and update as necessary, state-wide recycling goals for the electronic waste covered by the Electronic Waste Recycling Act, but there are no goals for individual producers. Other states (e.g. Massachusetts, Washington and Maine) have introduced or passed similar waste-management and material-restriction legislation.

Trade considerations (i.e. the potentially adverse environmental and health effects of exports of used EEE, and possibly illegal shipments of EEE waste, to developing countries, particularly to those in South-East Asia) play a role in legislative measures and other initiatives in the United States. The California Act requires anyone who intends to export EEE waste covered by the Act to notify the DTSC and to demonstrate that the covered waste will be handled properly.²⁴

The United States Environmental Protection Agency (EPA) manages a product-stewardship website²⁵ that provides information on developments concerning initiatives in the United States (and elsewhere). The National Electronics Product Stewardship Initiative (NEPSI),²⁶ for example, is a multi-stakeholder dialogue aimed at developing a national financing system to help maximize the reuse and recycling of used televisions and PCs. It includes representatives from electronics manufacturers, retailers, state and local governments, recyclers, environmental groups and others. While agreement has recently been reached on many principles to be incorporated into a national electronics management system, there are important issues, including details of the financing mechanism, which have yet to be finalized (NEPSI, 2004). One example of a federal initiative is "Energy Star", a voluntary partnership between EPA, the Department of Energy, manufacturers, local utilities and retailers.²⁷ Partners promote energy-efficient products by labelling them with the Energy Star logo and educating consumers about the benefits of energy efficiency. There are also a large number of industry initiatives.²⁸

4. Canada

In Canada, EEE waste policies focus on product stewardship. The federal Government, provinces, territories and the Canadian electronics industry are working together to support the development of product stewardship programmes for electronic waste across the country. The Canadian Council of Ministers of the Environment (CCME) has endorsed National Principles for Electronics Product Stewardship²⁹ to help encourage and facilitate the delivery of provincial and territorial programmes that are consistent nation-wide.³⁰ To ensure a level playing field for industry, a number of provinces have developed or are developing regulations requiring producers (or first importers) to take part in a stewardship programme for EEE waste.

In addition, 16 leading electronics manufacturers established a not-for-profit industry association, known as Electronics Product Stewardship Canada (EPS Canada),³¹ to work with Canadian provincial governments and other stakeholders in support of efforts to harmonize approaches for managing electronic waste and to promote the concept of extended producer responsibility (EPR) for electronic products.³² Initially, EPS Canada will focus on personal computers, monitors, televisions, laptop computers and printers. Additional electronic materials will be added as the programme develops.

A general view is that recycling legislation should be the responsibility of the provinces and territories, and not that of the federal Government. Certain provinces have developed or are developing legislation concerning the collection and management of WEEE.³³ For example, the province of Alberta adopted the first provincial recycling legislation in Canada.³⁴

5. Switzerland

In Switzerland, national legislation has been in force since 1 July 1998. The *Ordinance on the Return, Take-back and Disposal of Electrical and Electronic Appliances* (ORDEA) covers household appliances, consumer electronics, office, IT and communications equipment, and other components of EEE waste. Manufacturers or importers have to take back appliances of their own brand or of the brand they sell. Retailers must take back all appliances³⁵ similar to those they sell.³⁶ ORDEA has achieved good results: collected WEEE in Switzerland was 8.5 kilograms per capita in 2002. More than 75 per cent of end-of-life equipment is recycled, approximately 20 per cent is incinerated, and three per cent ends up in landfills.³⁷

In addition, two voluntary schemes have been introduced: the Swiss Association for Information, Communications and Organisational Technology (SWICO),³⁸ which has been dealing with “office equipment” and consumer electronics since 1994, and the Foundation for Disposal in Switzerland (S.EN.S),³⁹ set up in 1991, which deals with waste refrigerators and freezers, washing machines, dryers, dishwashers, ovens, stoves, electric heaters and small household appliances. Also, manufacturers have established a Convention for Recycling and Disposal that obliges participants to impose an advanced recycling fee on the sale of new equipment. Manufacturers transfer their fee to a recycling account held by SWICO or S.EN.S. The fee covers about two thirds of recycling costs, and sales proceeds from recovered secondary materials cover the rest.

C. Implications

Potential environmental benefits of the policies described in section B include: reduced amounts of waste sent to landfill, improvements in air and water quality, and improved resource productivity. The main benefits from restrictions on the use of hazardous substances (e.g. through RoHS) should derive from reduced harm to human health and the environment (in terms of risks to biodiversity and animal life). In the case of developing countries, benefits may be significant where the levels of concentration of hazardous substances are relatively high, and control of landfills and recycling activities weak or not well enforced. The policies analysed in section B also imply costs to governments and the private sector. This section focuses on the implications of EU legislation for producers. This example has been chosen because of the lead role the EU has been playing in introducing mandatory requirements and owing to easy access to information about the EU legislation.

1. Implications for producers

The United Kingdom’s Departments of Trade and Industry (DTI), and Environment, Food and Rural Affairs (DEFRA) (2003) tried to assess the costs and benefits of the two Directives for the country. The total costs to British companies were estimated at:

- £120 million (approximately \$216 million⁴⁰) per annum, annualized over 10 years for capital costs and research and development (R&D) costs, to comply with RoHS;
- £55–£96 million (approximately \$99–\$173 million) per annum for increased operating costs from using alternative substances, to comply with RoHS post-2006; and
- £217–£455 (approximately \$391–\$819 million) per annum to comply with the WEEE Directive.⁴¹

Of particular interest are lessons that can be learned from DTI’s partial regulatory impact assessments, especially with regard to the methodologies used. In the case of RoHS, DTI expects that the business sectors that could be affected either directly or indirectly will include component suppliers, product assemblers and manufacturers (DTI, 2003).⁴² In the domestic or EU context, it believes that component suppliers are likely to bear most of the costs in the short term, but that in the long term they are likely to pass on these additional costs to the assemblers and/or manufacturers. The magnitude of this will depend on the relevant market structure.⁴³ DTI notes that the

majority of components used in the United Kingdom are imported, and thus the final impact on the country's industry will derive generally from the proportion of the additional costs that are passed on to the final assemblers/manufacturers in the United Kingdom.

The Department recognizes that it is difficult to quantify the precise costs of the Directive, given its complexity and the scope of its impact. In particular, there is currently little information about the costs of substituting controlled substances. In order to comply with the RoHS Directive, manufacturers will have to sustain costs of redesigning manufacturing machinery, general R&D costs to find and test alternative substances, and, at least in the short or medium term, higher operating costs. DTI estimates that annual operating costs will be higher in general than those incurred in using the banned substances for the following reasons:⁴⁴

- Increased costs of substances and components: substitutes of lead, cadmium, and in some cases brominated flame retardants, are generally more expensive;
- Increased costs of energy (alternative processes may require more energy to perform the same procedure): lead-free soldering, chromium passivation and brominated flame retardants use more energy;
- The need to use a greater quantity of material (alternative processes need more material to achieve the same results), particularly for hexavalent chromium and cadmium; and
- Reduction in throughput on soldering machines and increase in waste from lead-free soldering machines.

DTI recognizes that RoHS could disproportionately affect SMEs that may not have the financial resources to undertake R&D to develop substitutes. If the time to redesign components is limited, component manufacturers may concentrate on redesigning those components that go into high volume products. This may affect the supply of components to smaller companies that specialize in products with low sales volumes. During the negotiations on the WEEE Directive, the Government of the United Kingdom attempted, unsuccessfully, to gain a five-year exemption from its requirements for SMEs.⁴⁵ On the other hand, some argue that SMEs may actually move faster in making adjustment than large companies due to their size and decision-making structure.

2. Implications for companies in third countries

Companies in the EEE sector may have to (a) meet their own legal obligations (in certain cases, see below) under the WEEE and RoHS Directives with regard to the products they place on the market of any EU member State, and/or (b) assure customers downstream in the industry that their inputs do not compromise the obligations of those customers vis-à-vis the Directives. For companies in developing countries, the legal obligations inherent in the WEEE and RoHS Directives are manifested in requirements imposed through the supply chain. For example, suppliers are being asked to certify that their products do not contain restricted substances and to provide information on the composition of their components.

In accordance with the definition of "producer" in Article 3 of both the WEEE and RoHS Directives, the manufacturer or the importer is legally responsible for compliance with the Directives.⁴⁶ It should be noted, however, that suppliers or manufacturers of individual components, sub-assemblies or consumables are not considered "producers" for the purposes of the Directives. Considering that authorities would normally hold only one "producer" responsible, in the case of EEE exported from non-EU countries to the EU as a final product, it would appear that:

- Where the manufacturer sells the EEE in the EU under its own brand it would be legally responsible for compliance with the Directives;⁴⁷
- Where the EEE is exported to the EU under the brand of another company established in the EU, that other company is legally responsible.⁴⁸ Developing-country companies often sell under the brand names of EU companies, and are thus not directly responsible for legal compliance;⁴⁹ and
- Where the manufacturer is not established in the EU and has no authorized representative there, the EU importer is responsible for compliance with the Directives.

EU importers that are responsible for compliance of a product imported from a third (non-EU) country need to ensure that exporters provide certain information. Under the WEEE Directive this concerns, in particular, information to be provided under Articles 10 (information for users), and that on reuse and treatment for each type of new EEE put on the market under Article 11 (information for treatment facilities). For example, EU customers have reportedly already been asking producers in Thailand to provide such information. The importer will also need information from the supplier concerning hazardous substances to ensure compliance of the final product with RoHS. It is still not entirely clear how compliance will be enforced. This seems to be an issue of major concern in South-East Asia. Eventually this will depend on the implementation of the Directives at national level. Harmonization of compliance will be important from a single-market as well as a trade point of view.

Box 2. Supplier requirements

Many customers in the EEE sector are demanding information from suppliers in order to have a greater degree of assurance that products are in compliance with RoHS (see also box 7). Typically, this may be through supplier material declarations, a document that discloses the part per million (ppm) levels of substances in a product. Such declarations are not required by legislation, and there is currently no industry standard that defines what a material disclosure should include. A variety of material declarations for suppliers are being developed by industry. Demands from customers vary in terms of scope, content, type and format of material disclosures. While some customers are requesting material declarations of only the six RoHS restricted substances, others are requiring disclosure beyond RoHS-banned substances.^a

According to Motorola, in order to meet reporting requirements for original equipment manufacturers (OEM)^b the entire supply chain must be engaged.^c With a view to assuring compliance with legislation and managing risks, Motorola requires its suppliers to provide information on structure, materials and substances of concern for all production, services and parts, using a data collection tool called Compliance Connect™ (developed for the automobile industry). Suppliers need to consult the Motorola Controlled and Reportable Materials Disclosure Specification to determine how and what substances need to be reported, if they are contained in suppliers' components or products. Suppliers are also responsible for cascading the requirements in the Specification to sub-tier suppliers, as sub-tier supplier data are needed for a complete material and substance data determination.

^a Tyco Electronics, TE Material Declaration Strategy, 20 September 2004 (see their website at: http://www.tycoelectronics.com/environment/pdf/te_rohscompliance_material_decl_position2007_20_2004.pdf).

^b These are companies that build products or components used in products sold by another company. Originally, OEM was used to describe a company that produced hardware to be marketed under another company's brand.

^c http://www.motorola.com/mot/doc/1/1502_MotDoc.pdf.

Of the two EU Directives, the RoHS Directive has the most significant effects on EEE manufacturers in developing countries. RoHS requirements potentially affect all manufacturers throughout the supply chain, including manufacturers of individual components. They will have to make sure that their components do not contain (or do not exceed the threshold values for) restricted hazardous substances and they in turn will have to require their suppliers of sub-components not to use them.

The need to find substitutes for restricted substances may pose difficulties for developing countries for several reasons:

- Lack of institutional and financial capacity in areas such as R&D and product design;
- Insufficient bargaining power to force large suppliers of commodities or other bulk inputs to develop substitutes;
- Difficulties in finding competent suppliers and in establishing cost-effective material-control programmes (see box 7);

- Uncertainty about the precise implementation of regulations concerning hazardous substances;
- Substitutes that are subject to intellectual property rights (IPR) protection may be expensive;⁵⁰
- SMEs may face difficulties in providing product information; and
- Lack of capacity to influence decision-making in importing countries.

As mentioned earlier, there is concern that with increasingly stringent technical and product information requirements, many SMEs may be crowded out. To reduce the risk of non-compliance and the high costs incurred in demonstrating compliance, large companies may be inclined to harmonize and reduce the number of components and also the number of suppliers, in particular SMEs. To address this risk SMEs should seek to create alliances (Lutz-Günther Scheidt, Citraya Industries Ltd., personal communication).

D. Consultations

Consultations with stakeholders and trading partners with an export interest in the products that may be affected by standards and regulations is an important means of designing and implementing effective environmental policies while avoiding unnecessary adverse effects on trade.⁵¹ In some cases, regulations themselves include mandatory provisions for stakeholder consultations. In the EU, for example, Article 5 of the RoHS Directive explicitly mentions that the Commission shall, *inter alia*, consult producers of EEE, recyclers, and environmental and consumer organizations before any amendments to the Annex (exemptions) can be made.⁵² This section describes some experiences with regard to consultations, including efforts by the European Commission and some EU member States to promote bilateral consultations with key developing countries.

1. National or regional consultations

In the EU, the preparation of the WEEE and RoHS Directives has followed a process of EU-wide stakeholder consultations.⁵³ In addition, the process of transposition into national legislation has been subject to further consultations. For example, detailed information on stakeholder consultations and a partial regulatory impact assessment (RIA) of the United Kingdom's implementation of the WEEE and RoHS Directives are available on the DTI website. A consultation paper issued in July 2004 constituted the third and final phase of the United Kingdom Government's consultation process for implementation planning of these two Directives.

2. Consultations with third countries

From the early stages of developing the EU Directives, key trading partners, in particular Japan and the United States, as well as business associations, provided comments on the different drafts.⁵⁴ Common issues raised included the need to carry out appropriate risk assessments, the identification of hazardous substances to be exempted from RoHS and compliance costs (in particular with regard to historic waste before the amendment of Article 9 of the WEEE Directive). Bilateral consultations between United States and EU industries were held in 1999 under the auspices of the Transatlantic Economic Partnership Dialogue.⁵⁵ The biannual EU-Japan Regulatory Reform Dialogue in March 2003 was an opportunity for the Commission and member States to provide detailed information about the WEEE, RoHS and Registration, Evaluation and Authorisation of Chemicals (REACH) Directives, in response to Japanese requests.⁵⁶

The American Chamber of Commerce to the EU (AmCham EU),⁵⁷ the American Electronics Association (AeA), the Electronic Industries Alliance (EIA), the National Electrical Manufacturers Association (NEMA) and the Semiconductor Industry Association (SIA) were also active in providing comments.⁵⁸ Similarly, the Japanese Business Council of Europe (JBCE) regularly gave detailed comments on the draft WEEE and RoHS Directives, including through position papers

and letters to the Technical Adaptation Committee and to governments of member States (concerning transposition into national law).⁵⁹ In addition, a number of Japanese and United States industry associations have contributed to recent stakeholder consultations on possible amendments to the Annex of the RoHS Directive.⁶⁰

Developing countries, in general, have not been proactive, or have faced difficulties, in providing comments. China recently submitted a comment proposing amendments to the Annex to the RoHS Directive.⁶¹ The EU and some member States have made efforts to assist developing countries in enhancing their understanding of the Directives.⁶² For example, the Commission (Directorates General for Trade and for Environment) has organized bilateral meetings with China to present and explain the Directives. On 29 January 2004, the Delegation of the European Commission to Thailand and the Thai Industrial Standards Institute, with the support of the Federation of Thai Industries, organized a seminar on Waste Management Regulations: Implications to Electrical and Electronic Industries in Thailand. Other expert meetings have been planned for 2005 for experts from the EU and the Association of South-East Asian Nations (ASEAN) under the Trans-Regional EU-ASEAN Trade Initiative (TREATI). The United Kingdom has been active in trying to raise awareness of the impact of these two Directives in the areas of consumer electronics and IT manufacturing throughout the world. DTI officials have participated in a series of seminars, workshops and meetings with specific companies in China. Industry associations, including those outside the EU, such as the AeA, have also been assisting the Chinese Government and industry in complying with environmental requirements.⁶³

Technical cooperation is also being provided. For example, the EU-Thailand Economic Cooperation Small Projects Facility (SPF), a three-year programme, was launched on 11 January 2005 with an EC contribution of 5 million euros.⁶⁴

The draft EU Directives and some Japanese draft legislation were notified to the WTO in July 2000 (well before their publication in the *Official Journal of the European Communities*)⁶⁵ and discussed in the TBT Committee in 2001.

E. Adjustment in Processes in Selected Developing Countries.

This section reviews the experiences of China, the Philippines and Thailand in addressing emerging environmental requirements for EEE, based on work carried out within the framework of the UNCTAD/FIELD project, Building Capacity for Improved Policy-Making and Negotiation on Key Trade and Environment Issues (see also chapter 4 of this *TER*). In particular, it presents the main findings of country case studies⁶⁶ prepared under the project, analysing the interface between environmental requirements, market access/entry and export competitiveness in the EEE sector.

The main objectives of these country case studies were to examine the following: (a) the level of awareness among national producers, especially SMEs, of environmental and health requirements in key export markets; (b) the gathering, analysis and dissemination of information on environmental requirements; (c) current adjustment measures and proposals for proactive policies to effectively respond to new environmental requirements (in particular experiences with regard to national standards-setting, implementation of foreign standards and compliance assessment procedures); and (d) capacity-building needs.

1. China⁶⁷

The share of technology-intensive products (primarily electronics) in China's total exports has increased dramatically, from 3 per cent in 1985 to 22 per cent in 2000 (in value terms), making China the largest exporter of such products in the developing world. In 2003, the value of EEE exported by China reached \$160.9 billion: electronic equipment represented 57 per cent of its total

EEE exports (annex 2, table 1), while EEE represented 36.7 per cent of China's total exports in 2003. The largest share of China's EEE exports went to the United States (24.7 per cent), followed by the EU (21.7 per cent) and Japan (10.8 per cent) (annex 2, table 4).

China is implementing proactive adjustment policies to address domestic EEE waste problems as well as the challenges posed by new and more stringent environmental requirements in international markets. The Government is working towards developing an appropriate legislative framework. In addition, efforts are under way to improve the level of awareness on environmental and health issues, for example through the promotion of environmental management and certification.

In the past, apart from requirements in the area of waste management, EEE producers, in particular those with an export interest, have had to make adjustments to comply with mandatory environmental requirements such as obligations under the Montreal Protocol (for refrigerators), use of the EU/CE conformity mark⁶⁸ and the mandatory energy-efficiency labels for certain EEE in the EU. They have also become familiar with certain voluntary labels such as the United States-based Energy Star. Some steps taken to respond to these requirements include: information management, the introduction of the China Compulsory Certification ("3C") scheme, export permission to ensure that certain technical requirements are met, eco-labelling, certification of the International Organization for Standardization (ISO), clean production centres, and participation in the development of international standards. However, additional steps are needed to respond to external market requirements and to tackle domestic problems in the area of waste from EEE (Chamber of Commerce for Import and Export of Machinery and Electronic Products, China 2004).

Level of awareness of environmental and health issues

To assess the level of awareness among Chinese producers of environmental and health requirements in export markets, it is useful to make a distinction between (a) large manufacturers, (b) foreign-owned and export-oriented enterprises, and (c) SMEs. The level of awareness in large manufacturers is relatively high, although no formal channel for retrieving and analysing information has been developed. According to a study by Yang Changju (2004), several large manufacturers are now aware of the opportunities arising from preferences for more environment-friendly products, and are therefore making efforts to respond to both domestic and international environmental requirements. For example, Haier Co., China's leading manufacturer of electric household appliances, was one of the first enterprises in China to obtain ISO 14001 certification, and is interested in competing in green markets. The level of awareness in⁷ foreign-owned and export-oriented enterprises is also relatively high. For example, three out of four factories of Sony China Co. have obtained ISO 14001 certification, and Sony's Beijing Suohong Electronics Co. was the first communication terminals manufacturer to acquire this certification in China. Most foreign investment in the EE industry in China goes into export-oriented ventures. However, SMEs (which constitute the largest proportion of the current 11,700 EEE producers in China) know little about relevant environmental and health issues in key international markets.

There are various channels through which Chinese enterprises can obtain information on environmental and health requirements for EE products in international markets, including government departments and organizations, industry associations and information networks of the electronics industry, WTO enquiry points, and some university research centres. At the government level, there is no formal and coordinated mechanism for the collection and dissemination of information on environmental requirements for EEE in export markets. Some departments have been taking initiatives on an ad hoc basis. In February 2003 the Department of Science and Technological Development published a Chinese translation of the WEEE and RoHS Directives, and commissioned a study to assess the impact of the two Directives on EEE exports from China to the EU. Industry associations supplement government efforts concerning information management, but their services are usually available only to members. Moreover, these associations know little about environmental and health requirements in the key international markets, and the informa-

tion they publish is limited to short announcements about standards and legislation adopted by foreign governments. They also transmit through their networks the information published by government departments.

The TBT/SPS Enquiry Point of the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) and the TBT/SPS Consultation Centre of the Ministry of Commerce are the national official consultation and information collection centres that analyse and disseminate information on TBT and SPS measures. Besides the official channels, quite a number of TBT consultation centres have recently been established. However, some of these are not yet functioning effectively. There are also other networks that promote dissemination of information among Chinese enterprises, including a number of research institutions that conduct activities aimed at promoting an understanding of WTO disciplines and the capability to profit from them.

A number of early-warning mechanisms dealing with the environmental and health requirements imposed in key export markets have been set up, but they are still in their infancy and are not yet functioning effectively. Examples are the early warning system set up in 2003 by the Guangdong Quality Supervision Bureau and International Business and Economics Bureau in Guangzhou province, and another recently established by the local government in Wuxi City. The Ningbo Consultation Centre on Technical Barriers to Trade in the province of Zhejiang is also planning to establish a database on relevant technical regulations, standards (notified to the WTO) and other market-access conditions.

In February 2005, the AQSIQ, on behalf of the Chinese Government, related enterprises and industrial organizations, submitted a Chinese Stakeholder's response to the third EC Stakeholder consultation on a possible amendment to the annex of the RoHS. According to AQSIQ, hardly any enterprises had a clear idea on how to meet the requirements of RoHS, and some companies had little knowledge of that Directive.⁶⁹

General adjustment approach

In order to supplement environmental legislation and stimulate market-driven environmental improvement, the Chinese Government has developed a national eco-labelling scheme. The programme is managed by the Chinese Certification Committee for Environmental Labelling (CCEL), which was established by the State Environmental Protection Administration (SEPA) in 1994. To date the programme covers 46 product categories, including 11 electromechanical categories.⁷⁰ According to CCEL, in 2002 40 manufacturers of electromechanical products had obtained the environmental label. However, a number of enterprises failed to sustain compliance with the requirements, resulting in the suspension of their eco-label award.

China has also taken steps to improve domestic safety and quality standards. Effective August 2003, the China Compulsory Certification Mark (CCC Mark) is required for a wide range of manufactured products before they can be marketed, imported or sold in China. The CCC Mark is a compulsory quality and safety mark that replaces two previous compulsory inspection systems. It applies to products related to human, animal and plant life and health, environmental protection and national security. To date it is required for 19 product groups (formed from 132 product categories), including a number of electrical and electronic products.⁷¹ In addition, China's Development Research Centre under the State Council is exploring a new energy policy strategy; it aims to increase energy efficiency through the adoption of new technologies and the provision of economic incentives for energy conservation and for the application of clean energy. In particular, standards have been developed for water-saving washing machines and energy-saving refrigerators. Another initiative is that of SEPA, which recently adopted Technical Policies for the Prevention and Control of Pollution of Waste Batteries to regulate the take-back and collection of waste batteries and establish a policy framework for their disposal and recycling.

Standardization in China is gradually changing, from being an exclusively government function to a cooperative process also involving non-governmental stakeholders, especially after China's accession to the WTO. With the expansion of exports and a growing number of external market requirements, the Chinese Government has become increasingly aware of the importance of active participation in international standards-setting. Both the Government and the enterprise sector are involved in this process. Indeed, in recent years, China has contributed to the development of a number of international standards.

In order to reduce the cost of compliance with technical barriers to trade and benefit from the opportunities arising from green consumerism, Chinese government departments are cooperating in a programme that aims at building technical capacity. To that end, they have formed a task force for overcoming problems related to standards and regulations. In 2003, in order to promote the export of electrical equipment, in accordance with the tenth five-year plan, the Ministry of International Economy and Trade and the General Administration of Quality Supervision, Inspection and Quarantine issued a note on creating favourable conditions for promoting the export of electrical and electronic products.⁷²

Plans and legislation in the area of EEE waste

China has been developing legislation aimed at addressing the environmental implications of its rapidly expanding domestic production and imports of second-hand EEE, and at enhancing preparedness to respond to requirements for EEE in export markets. A SEPA draft white paper for the Policy on Technologies for the Prevention of Pollution Caused by Waste Electrical and Electronic Products proposed requiring producers of televisions, refrigerators, washing machines, air-conditioners, and computers to collect, recycle, and dispose of waste equipment in an environmentally friendly manner.⁷³ Shared responsibility would be allocated to producers, retailers and consumers for the take-back and safe disposal of electronic waste. Such a scheme would be financed by a special fund through the introduction of an environmental tax.

With a view to addressing problems related to the growing volumes of waste from EEE, the tenth five-year plan (2001-2005) on household electrical appliances (HEAs) aims to:

- Implement a recycling scheme for HEAs by the year 2005;
- Make the main components of HEAs recyclable; and
- Create a network of take-back and collection centres before 2020.

At present the following activities are being undertaken in China:

- Development of a work plan for creating a take-back and reuse system for waste HEAs;
- Creation of a recycling task force with representatives of the Ministry of Commerce, the Ministry of Finance, the State Administration of Taxation, the General Administration of Quality Supervision, Inspection and Quarantine, the Ministry of Science and Technology, the MII, the Ministry of Construction and SEPA;
- Drafting of administrative measures on recycling of waste HEAs and principles for the reuse of HEAs;
- Review of collection and recycling systems for HEAs in other countries; and
- Review and development of suitable HEA recycling technology adapted to Chinese conditions. This covers technical and economic aspects, including efficiency elements.

In 2003, the Chinese Government initiated major environment policy initiatives that affect the energy efficiency, hazardous material content, and end-of-life disposition of high-tech products, as well as the collection and recycling of spent batteries. In this context, China has been developing legislation that is similar in objectives, modalities and time frames to Japan's HARL on recycling regulations and the EU RoHS Directive on the elimination of hazardous substances (see below).

The Ministry of Information Industry (MII) has developed a draft regulation entitled Management Methods for the Prevention and Control of Pollution from Electronics Information Products. It separates the restricted substances component (“Chinese RoHS”) from the recycling component, which has been transferred to the National Development and Reform Commission (NDRC). The NDRC has been given the responsibility to develop a recycling law similar to Japan’s HARL, with the same product coverage (air conditioners, refrigerators, televisions and washing machines) but with the addition of computers. These categories have been chosen on the basis of the high volume and heavy weight of the products. The “Chinese RoHS” covers the same six chemicals as the EU Directive and has the same implementation date – 1 July 2006 (pushed back from 1 January 2006, as originally proposed). The legislation is being developed as a framework law for electronic information products, but at the time of writing the target sectors had not been announced. MII is working with industry to develop a catalogue of covered products for which to set “standards” for maximum tolerated thresholds of the banned substances. Among the products currently listed are: communication equipment, broadcasting/video equipment, computers, household electronic appliances and electronic components. In addition, China has introduced legislation to control imports of EEE waste and second-hand EEE.

Recommendations

Yang Changju’s study highlights four priority areas to facilitate compliance with environmental requirements and promote Chinese electronics exports:

- Develop a joint programme between the relevant government institutions and industry associations that would activate the drivers for change (legislation and supply chain management) to move the industry from present levels of basic awareness on environmental management, product legislation and codes, to intermediate and advanced levels. In addition, it is recommended to move away from a reactive to a more proactive approach;
- Investigate the size and potential of the national recycling, reconditioning and reuse market for electrical and electronic products. In addition gain a detailed understanding of the business and environmental pros and cons of take-back models at the company level, and of producer responsibility legislation (or product stewardship) and collection models at the macro level. The relevant industry associations and government departments should participate jointly in this initiative;
- Implement a comprehensive eco-design training programme for product and industrial designers. This programme should focus on real business and environmental issues and opportunities resulting from products that have been developed and designed to take account of life cycle assessment. The tools used in such a programme should be practical, usable and cost-effective, bearing in mind the EuP Directive of the European Union; and
- Strengthen R&D in the environmental area (see also box 3).

2. The Philippines⁷⁴

The electronics industry in the Philippines has seen spectacular growth since the early 1990s. EEE exports accounted for as much as 70 per cent of the Philippines’ total export revenues in 2003 (annex 2 table 1),⁷⁵ up from about 25 per cent in 1990. The value of EEE exports amounted to \$25.5 billion in 2003, with electronic equipment accounting for 97 per cent of total EEE exports (annex 2, tables 3 and 4). The electronics industry comprises about 800 electronics and related companies, 72 per cent of which are foreign-owned.⁷⁶ The number of workers – mostly operators, managers, technicians and engineers – employed in the industry was 250,000 in 1998, increasing to 335,000 in 2002.⁷⁷ There are two major segments: the finished electronic products sector and the electronic components sector. Companies in the finished electronic products sector consist of subsidiaries of TNCs and Filipino-owned SMEs. This sector produces goods that are mostly absorbed by the domestic market, and hence export revenues are small.

Much of the vitality of the electronics industry is due to the impressive performance of semiconductor manufacturing, which accounts for nearly all of the country’s electronics exports and

Box 3. Other relevant recommendations

Strengthen environmental standards and requirements and establish environmental indicators for EEE.

China should gradually upgrade its environmental standards for EEE and improve the environmental performance/image of enterprises, especially SMEs. The country should draw lessons from its key export markets and put in place internationally accepted standards and regulations. In doing so, domestic environmental and developmental conditions, as well as institutional capacity and available environmental infrastructure should be taken into account.

Strengthen environmental management of enterprises to ensure their competitive advantages.

Strengthening environmental performance and environmental management is fundamental for enhancing the international competitiveness of Chinese EEE manufacturers. There is a need to promote ISO 14001 certification and to make Chinese eco-labelling programmes in the area of EEE consistent with those of key international markets as well as to promote mutual recognition.

Undertake technology innovation, expand FDI and actively develop domestic environment-friendly substitutes for hazardous or environment/health-affecting substances.

The development of domestic substitutes is of key importance for maintaining and expanding China's electronics exports in the long run. There is a need to strengthen R&D to produce environment-friendly substitutes. Financial support and investment incentives as well as strengthened cooperation with foreign institutions are essential. Special emphasis should be placed on encouraging transfer of technology and know-how relating to environment-friendly products and technologies through FDI, including joint ventures.

Establish a mechanism to monitor and disseminate relevant information, create an "early-warning system" for exporters, and strengthen international information exchange and cooperation on new and forthcoming environmental and health requirements in key export markets.

There is a need to strengthen TBT notification and enquiry organizations with a view to disseminating information and analysis on standards and regulations to Chinese exporters in a timely manner, through the Internet or other channels. Active participation in pre-standard-setting consultations should also be promoted. China should participate as much as possible in international coordination and negotiations aimed at harmonizing environmental standards and obtaining mutual recognition of conformity assessment methods on standards and eco-labelling schemes for EEE.

Source: Yang Changju (2004)

for more than half the value of its total exports. It involves mainly assembly and product testing, both labour-intensive activities that have been largely outsourced to developing countries.⁷⁸ There are two kinds of firms in semiconductor manufacturing in the Philippines: (a) contract manufacturers and (b) in-house manufacturers. Contract manufacturers are responsible for the assembly of integrated circuits used in the products of various end-user customers. They compete in the open market for orders for customer-designed circuits. Examples of large contract manufacturers include Amkor/ANAM and Hyundai of the Republic of South Korea and ASE (Advanced Semiconductor Engineering) of Taiwan Province of China. In-house manufacturers produce integrated circuits for use in the companies' own products, and include such firms as Intel, Motorola, Texas Instruments and National Semiconductor. Increasing demand for their products has led these in-house manufacturers to outsource assembly and product-testing tasks to contract manufacturers. While TNCs' subsidiaries are engaged in both in-house and contract manufacturing, Filipino-owned companies are mainly involved in subcontracted activities.

As the semiconductor industry in the Philippines has remained largely confined to assembly and product-testing activities, most of its inputs (about 95 per cent) are imported, mainly from the parent company. This is because the local companies do not have the technology to produce inputs that meet the industry's quality requirements. Only some imported inputs are sourced from foreign

suppliers on an open-account basis. Thus there is little value added in the exports of semiconductor devices. However, there are indications that the country is now moving beyond simply assembling and testing. Several semiconductor companies have already set up R&D facilities, for example for computer-aided design and computer hardware design. Others are moving towards backward integration. For example, Intel Philippines has begun producing the Pentium microprocessor in the country, while Cypress Philippines and Gateway Electronics Corporation have included wafer back grinding in their domestic production.

Information management

In the case of TNCs' subsidiary companies, parent companies provide their Philippine subsidiaries with regular information on international environmental laws and standards and on how to respond to them. Subsidiary companies provide employees with seminars and training to familiarize the engineers and operators with new requirements. Many electronics companies are now increasing their efforts in supply chain environmental management (SCEM).

Filipino-owned electronics companies obtain information on local and external legislation from government agencies, industry groups and professional organizations. Companies that are members of business networks get training and information through consultations and conferences. The Philippine Business for Social Progress and the Philippine Business for the Environment are two major organizations that provide training and support to companies.

Industry associations, in particular the Semiconductor and Electronics Industries in the Philippines, Inc. (SEIPI), also play a key role in providing relevant information and in upgrading workers' skills. With 192 members, it is the leading organization of electronics companies in the country, and serves as the information centre for the country's semiconductor and electronics industry.

The Government monitors relevant information on new and forthcoming environmental and health requirements through its overseas offices. The trade officers of the Department of Trade and Industry report major issues, relevant data and concerns to the Bureau of International Trade Relations (BITR). After making a preliminary assessment of major concerns relating to new directives, the BITR relays the information to the relevant government agencies and industry organizations. It then requests industry to provide a written position on the new directives. To obtain additional feedback from the industry, the Board of Investment conducts various interagency consultations. The Bureau of Export Trade Promotions disseminates specific information affecting export industries.

Another means of retrieving information is through the Bureau of Product Standards (BPS), the country's national standardization body. BPS is a member of the International Organization for Standardization (ISO) and the International Electro-technical Commission (IEC), and participates in many of their technical committees. It is also active in regional standardization efforts, taking part in the activities of the Asia-Pacific Economic Cooperation (APEC) Sub-committee on Standards and Conformance and of the Pacific Area Standards Congress, a forum that strengthens and supports the international programmes of ISO and IEC. However, there appears to be no active participation of BPS in pre-standard-setting consultations. One reason is its lack of technical capability (e.g. testing laboratories and scientific equipment) to provide informed input on new standards.

Adjustment approach

As previously described, there are two types of firms operating in the electronics (mainly semiconductor) industry in the Philippines: (a) contract manufacturers and (b) in-house manufacturers (i.e. TNCs' subsidiaries). Pressures to meet environmental standards and the adjustment process to those requirements differ between these two categories of firms. In the case of TNCs' subsidiaries, adjustments depend largely on those adopted by the parent company; they tend to apply the same policies as the parent companies, and any change in the policies and production

processes of the parent companies, as a result of environmental legislation, will almost automatically also be applied by the subsidiaries. Parent companies provide the necessary training and technical and technological capacity.

The case of contract manufacturers, where suppliers and users do not belong to the same corporation, is different. The pressure on contract manufacturers to comply with environmental requirements in export markets comes from buyers. Producers of finished goods that need to comply with environmental requirements in domestic and export markets will expect their suppliers to meet the same requirements. Therefore contract manufacturers will be asked to make timely and adequate adjustments to allow downstream customers to comply with the new requirements. The majority of contract manufacturers in the Philippines, however, do not face major difficulties, because many of them use imported components and most of them are large companies with sufficient resources. They also tend to have close relationships with their buyers. In fact, several enterprises invest in training programmes to improve the environmental performance of their suppliers. Suppliers are regularly invited to consultations and meetings and receive continuous updates on new technologies.⁷⁹ The subsidiary of Texas Instruments in the Philippines, for example, closely monitors its suppliers and assists them in complying with new standards. In addition, SEIPI plays an important role in coordinating the adjustment process among all actors in the EEE industry.

Environmental legislation

The Philippines has introduced environmental legislation that is relevant for the EEE sector, even though no specific legislation has been developed or is being drafted to address EEE waste. The Department of Environment and Natural Resources (DENR), through its Environmental Management Bureau (EMB), is the agency in charge of implementing national environmental laws.

A number of Acts adopted by the Government and aimed at addressing environmental problems are relevant for the electrical and electronic industry. The Toxic Substances and Hazardous and Nuclear Wastes Control Act (No. 6969) of 1990 covers the importation, manufacture, processing, handling, storage, transportation, sale, distribution, use and disposal of all unregulated chemical substances and mixtures in the Philippines, including even those in transit. Several requirements and procedures must be met before undertaking any of the above activities: entities must register and secure a licence from the EMB; quarterly reports on the activities and transactions involving any of these substances have to be submitted to the EMB; containers should be corrosion-resistant and strong enough to withstand breakage during normal handling, transport and storage, and be properly labelled; and a management plan must be submitted to the EMB.

The Ecological Solid Waste Management Act (Republic Act No. 9003) aims to transform and improve the country's solid waste management through: source reduction and waste minimization measures, including composting, recycling, reuse and recovery before collection treatment and disposal in appropriate and environmentally sound solid waste management facilities. The Act empowers the local governments with responsibility primarily for the implementation and enforcement of their solid waste management systems. Local governments are required to: (a) establish city-level solid waste management boards; (b) develop and implement 10-year solid waste management plans; and (c) serve as members on the Metro Manila Board. The solid waste management plan focuses on source reduction through reuse, recycling and composting. The Act stipulates that local governments must divert 25 per cent of all solid waste through reuse, recycling and composting by 2006. They are also required to establish reclamation programmes and buy-back centres for recyclable and toxic materials. Collected toxic materials are sent to appropriate hazardous waste treatment and disposal facilities that meet the provisions of the Republic Act No. 6969.

Recycling and imports of used computers

In the Philippines, used EEE may be imported subject to compliance with quality and safety standards (Cagatan, 2005). These standards do not include criteria based on useful life, and no

attempts have been made so far to classify used EEE as either second-hand EEE or waste. Guidelines for the Importation of Recyclable Materials Containing Hazardous Substances have been issued through Department Administrative Order No. 28. These guidelines are based on the Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990. Imports of recyclable materials containing hazardous substances are allowed only with a permit from the DENR through the Environmental Management Bureau. The Import Commodity Clearance Certification Scheme is required to ensure that imported products comply with the Philippine National Standards. Most standards are set by the Bureau of Product Standards, while the National Telecommunications Commission is responsible for standard-setting and regulation of telecommunications equipment (new and second-hand). An NTC Task Force has been created to set standards for mobile phone imports, and it may also consider “useful life” criteria.

Other initiatives

The Philippines established an Eco-labelling Programme in March 2001, with the Bureau of Product Standards BPS-DTI and EMB-DENR serving as heads of the Programme.⁸⁰ With the aim of supporting industry self-regulation as an approach for improving the environmental performance of businesses, the Department of Environment and Natural Resources launched the Philippine Environmental Partnership Program (PEPP) in 2003. The programme specifically aims to establish and facilitate cooperation among environmental regulators and industry sectors in the formulation of a gradual approach to higher environmental standards. However, in practice, the level of participation of industries appears to be relatively low.

Recommendations

The considerable importance of the electronics industry in the Philippines requires a proactive approach to addressing domestic production-related environmental problems and the emerging requirements of international markets. With regard to the latter, Parayno (2004) concludes that the electronics and semiconductor industry in the Philippines faces a number of challenges, in particular with regard to information-sharing on environmental requirements, participation in pre-standard setting consultations, coordinated government efforts to assess implications of new environmental/health requirements, and the need to improve domestic infrastructure for waste management as well as the enforcement of environmental regulations.

The Philippines needs to improve its waste-management infrastructure and strengthen the enforcement of its environmental regulations with a view to continuing to attract FDI in the EEE sector and reducing costs to small-scale contractors. While environmental factors play a limited

Box 4. Required capacity-building efforts in the Philippines

- Comprehensive understanding of the environmental and health requirements in key export markets;
- Technical studies to analyse the implications of new environmental and health requirements;
- Improvement in information flow and dissemination;
- Enhancement of information sharing among relevant government agencies, the business community and NGOs;
- Involvement in pre-standards-setting consultations on new regulations that have significant implications for EEE exports of the country;
- Effective management of a take-back system for wastes from EEE following a study of systems used in developed and other developing countries;
- Effective hazardous waste management that meets international standards; and
- Ways to enhance the capabilities of SMEs to adopt environmental management systems (EMS).

role in investment location decisions, TNCs may find it more attractive to invest in countries that provide appropriate infrastructure for waste management, notably IT production waste.

3. Thailand

According to the Electrical and Electronics Institute (EEI) of Thailand, the value of Thailand's EEE exports (including parts) totalled \$33 billion in 2004 (or more than 40 per cent of the total exports of the country), of which electronic equipment represented 59.3 per cent.

The main destinations of the country's EEE exports (using an adjusted definition, see annex 2) were the United States (17.6 per cent), the EU (16.3 per cent) and Japan (13.9 per cent). EEE exports to other countries, principally developing countries, accounted for 50 per cent (annex 2, table 4).

According to a recent EEI survey, 2,317 enterprises operate in the EE industry in Thailand, of which 1,898 are SMEs. Of these enterprises, 77 per cent are mainly parts suppliers and 23 per cent mainly assemblers. In foreign-owned enterprises and joint ventures the shares are 57 per cent assemblers and 40 per cent parts suppliers.

Thailand has taken several steps to adjust to external environmental requirements as well as to domestic challenges in the EEE sector. This section describes its proactive adjustment strategies. Some early initiatives include the establishment of a Subcommittee for Impact, Follow-up and Thailand Policy Determination to the EU Directives on WEEE and RoHS; the launch of a comprehensive study on environmental issues in the EEE sector (concerning, among others, legislation, economic impacts, life cycle analysis (LCA), eco-design and EEE waste management); a survey carried out by the National Metal and Materials Technology Centre (MTEC), which contributed significantly to the launch of the Thai RoHS Alliance (see below); a study tour (covering such aspects as recycling plants, EEE waste management, laboratories and RoHS reporting); a special meeting convened by the Prime Minister to address the need to update legislation, including to regulate imports of second-hand EEE. The establishment of the Office of Import Policy Administration was instrumental in the preparation of legislation to control imports of second-hand EEE. Thailand is now implementing a range of pilot projects and feasibility studies in the area of waste management (covering, for example, mobile phones, batteries, cathode ray tubes and fluorescent lamps), including improvement of its recycling infrastructure. An important ongoing initiative is the Green Productivity Movement Project (also known as "Green Camp") of the National Economic and Social Development Board (NESDB) and the EEI.⁸¹

Table 1. Structure of the electrical and electronics industry in Thailand

	Small	Medium	Large	Other	Total
Number of enterprises	1 576	322	240	179	2 317
	Total	Foreign and joint ventures		Local	
Assemblers	533	303		230	
Parts suppliers	1 784	714		1 070	

Source: Electrical and Electronics Institute, Thailand

Assessing potential implications of environmental requirements

The level of awareness of environmental and health requirements among enterprises in the Thai EE industry varies according to the size of enterprises and the subsector in which they operate. When Thailand first analysed the specific requirements of the WEEE and RoHS Directives and their effects on its industry in 2002, their implications were not fully understood, especially concerning the RoHS Directive. Since then a number of research efforts and consultations have been initiated to assess the impacts of these Directives and discuss possible strategies to enable compliance with them.

The Ministry of Foreign Affairs of Thailand convened a number of meetings between Thai institutions and government departments, and submitted comments to EU officials during the stakeholder consultations via the representation of the European Commission in Thailand. The comments cover a number of recommendations on WEEE and RoHS Directives, including the following:

- The Directives pose special challenges to producers in developing countries, and an extended transition period would be required to achieve compliance;
- Developing countries have relatively low capacity as regards technology for developing the necessary substitutes for controlled substances and materials to comply with the requirements of the RoHS Directive, and would thus need assistance in terms of technology transfer and R&D;
- The broad coverage of EEE, irrespective of the recycling and reuse capabilities for each product, poses problems in terms of operational costs and management of their recycling and reuse. The Directives ought to have concentrated on those goods, such as large household appliances, that account for the largest volume of EEE waste; and
- The restrictions of the RoHS Directive should have been based on an appropriate risk assessment.

The Ministry of Industry set up a working group to keep track of the process and prepare action plans to cope with the WEEE and RoHS Directives, and domestic waste problems. Key areas of intervention identified included: (a) support for technology development and production process improvement, and (b) development and improvement of national legislation and standards.

The National Metal and Materials Technology Center (MTEC) carried out a research project aimed at assessing the EE industries in terms of their use of materials, substitution plans, and problems in switching to greener production. Activities carried out during the period February to August 2002 included an industry survey and a bill of materials assessment.⁸² The results obtained from the survey were verified through factory visits to interview managers, study manufacturing processes, assess technical adjustment capability and observe company environmental practices. Since only a few companies were aware of the WEEE and RoHS Directives and understood their impacts, MTEC organized two seminars on eco-materials to provide industries with basic information, technical considerations and guidelines to prepare for the adjustment. The project resulted in a set of recommendations to the Government to prepare the country for the emerging environment-related legislation.

Further MTEC surveys were conducted during two eco-materials seminars and workshops organized by MTEC in 2004. Of the 145 companies that responded, 74 per cent said that the RoHS Directive affected them (box 5). More than 50 per cent responded that they were unable (or did not know how) to prove that their products complied with customer requirements.

Among the various problems the EEE industry has encountered so far, the following are the most critical: the costs associated with obtaining and providing “proof of compliance” to meet diverse, and sometimes inconsistent, requirements by different customers; a lack of competent analytical services; and insufficient knowledge of materials used and weak supply chains, especially at the upstream levels. It is generally agreed that all stakeholders must work together to find common

Box 5. MTEC survey

MTEC conducted a survey among producers of the most important categories of EEE exported to the EU market. Out of 100 companies, 69 answered the questionnaire and granted factory visits. The following summarizes the results of this survey:

- **Awareness of the EU WEEE and RoHS Directives:** 16 per cent said they were well aware and followed the development closely, 67 per cent had some awareness, and 19 per cent had no knowledge of the Directives;
- **Impact of the RoHS Directive:** 74 per cent believed the RoHS would have a direct impact on their business, 12 per cent believed it would have an indirect impact and 2 per cent were not certain;
- **Problem substances:** Lead was mentioned by 86 per cent of respondents, polybrominated biphenyls and polybrominated diphenyl ethers by 28 per cent, cadmium by 14 per cent, chromium (VI) by 5 per cent and mercury by 5 per cent;
- **Ability to stop using the restricted substances:** 21 per cent responded that they could stop using them instantly, 65 per cent could not stop for the present, and 12 per cent did not answer;
- **Barriers to adjustment:** cost of the substitute materials was listed by 47 per cent of respondents; lack of information about the substitute materials by 40 per cent; lack of technology by 39 per cent; lack of local suppliers by 37 per cent; lack of supporting infrastructure in the country by 33 per cent; lack of personnel with adequate technical background by 32 per cent; inability to comply without affecting other qualities by 23 per cent; and lack of capital by 18 per cent;
- **Factors that would enable efficient transformation:** respondents listed technology (proper technology, information, technical personnel and specific know-how), infrastructure (structures for proving compliance, efficient materials certification system, tax structure and corporate clustering), and adequate management and well-functioning markets; and
- **Areas that need government assistance:** respondents listed technical aspects (technology transfer, R&D, information) as well as policy aspects (investment promotion via tax incentives, tariff reduction on imported machines for the adjustment of production lines; local market alignment through national RoHS enforcement, and international trade negotiations).

practices and/or solutions that all parties can accept. With a strong corporate alliance, producers can make a smooth and cost-effective transition to renouncing hazardous substances and they can make further improvements to become competitive providers of eco-products. To this end, the “Thai RoHS Alliance” has been established and some initial activities planned (box 6).

Thailand also exports EE products to Japan where stringent environmental legislation, particularly the HARL, has been enacted. Although the ultimate objectives of the European WEEE and RoHS Directives and the Japanese HARL are similar, their approaches are different. Thai producers experience considerably fewer difficulties in complying with the HARL than with the RoHS. The reasons for this could be the following:

Unlike the very broad product coverage of RoHS, the HARL covers only four appliances and does not explicitly prohibit the use of certain hazardous substances; HARL only prohibits their release into the environment.

The responsibility for recycling and properly treating all substances that are toxic to the environment is left to the producer. With years of preparation, the Japanese producers have the necessary infrastructure to retrieve all discarded and hazardous substances used in their products. Under this system, producers can choose the approach that works best for them to comply with the law.

The market for the four appliances is dominated by a limited numbers of “big-brand” companies, all of which are capable of ensuring that their products meet the HARL standards.

Box 6. The Thai RoHS Alliance

The Thai RoHS Alliance (also known as the Thai-RoHS Networking Initiative) groups manufacturers across the EEE supply chain, research institutes, testing laboratories, and private and government organizations. It initially aims at pooling efforts and resources to enable producers in Thailand to comply with the requirements of the RoHS Directive. So far, the efforts of Thai producers to comply with the emerging requirements have not been coordinated and companies have regarded each other more as competitors than allies. The RoHS Alliance seeks to address these difficulties, recognizing the need for a systematic approach and for nationwide collaboration. The Alliance was launched on the occasion of the Fourth Eco-Materials Seminar organized by MTEC in collaboration with the Federation of Thai Industry, the Electrical and Electronics Institute, the Pollution Control Department and the Department of Industrial Works on 16 September 2004. Over 340 participants from 130 companies agreed on the need for all stakeholders to cooperate in establishing necessary structures to enable the country to address new requirements as well as to increase the competitiveness of Thai products. In fact, the aim of the Alliance has gone beyond that; its long-term objective is to enhance the competitiveness of the Thai EEE industry, and in particular to strengthen SMEs, by providing a platform for members to exchange ideas and share experiences. Examples of initial activities include the development of codes of conduct, guidelines and practical test methods. However, still in its infancy, the Thai RoHS Alliance has experienced several difficulties that limit its ability to pursue proactive strategies. Although most participants recognize the mutual benefits it could bring, only a few are in a position to share information and make commitments without first consulting with their headquarters. To be able to move forward, the Alliance needs support and collaboration at the national and international levels.

Information management

In general, information on new and forthcoming environmental and health requirements in export markets is collected and disseminated by governmental institutions to the private sector. The foreign offices of the Ministry of Commerce report relevant information to the capital and the Ministry then circulates draft working papers to concerned government offices, such as the Ministry of Industry, and to industry and professional associations, such as the Federation of Thai Industries, the Thai Medical Equipment Producers and Suppliers Association, or the Thai Computer Association. On major issues, consultations take place among the relevant offices to determinate official positions and to identify and address problems.

Adjustment strategies

During the period 2003–2004, several activities were undertaken aimed at speeding up the industry adjustment process. MTEC, the Federation of Thai Industries, the Thai Electrical and Electronics Institute, the Pollution Control Department, the Department of Industrial Works, the Thai Environment Institute, the foreign offices of the Ministry of Commerce and the National Economic and Social Development Board (NESDB), were among the key players that initiated and supported these activities. The most frequently conducted activities were regular public seminars/workshops, and the most notable actions at the national level were the drafting of the Thai E-waste Control Law by the Pollution Control Department and the draft Thai Green Procurement Initiative of the NESDB.

Actual adjustment processes in the industry to comply with RoHS requirements started around the second half of 2003, when most TNC subsidiaries received management orders from their headquarters. Most TNCs established their own deadline for phasing out restricted hazardous substances, in general no later than mid-2005 (i.e. before the deadline established by the RoHS Directive). In most cases, TNC requirements are stricter than those of the RoHS Directive. Different companies have different approaches, but most companies are required to adjust their materials management system, and to realign/re-qualify all suppliers for proper RoHS compliance. It is

the responsibility of the producers in the supply chain to provide satisfactory proof of compliance. Since there are as yet no official criteria, proof of compliance has become the most troublesome task for both vendors and purchasers. To be able to work under such uncertain circumstances, buyers tend to protect themselves by imposing strict measures while gathering as much information from suppliers as possible. As a result, the suppliers are often overloaded with complex technical questions. In addition, for the maximum concentration limit values (MCV), most purchasing companies use a “safety margin” to make sure that their products meet customers’ requirements. As a result, by the time the order reaches the 3rd, 4th or 5th tiers, of the supply chain there is little or no margin left, with limit values, in many instances, as low as 1 ppm (parts per million). Consequently, often it is the weakest link in the supply chain that is confronted with the greatest challenge.

MTEC supports this adjustment through the establishment of a Trace Element Analysis Lab (TEA-Lab), which serves as a contact point for companies that need technical assistance in substituting banned materials. The TEA-Lab also provides fundamental support for proof-of-compliance tests, which have become the most critical part of the adjustment process. Its primary focus is on materials used in EE products, automobiles and consumer packages. In addition to TEA-Lab, MTEC has published books and organized short courses on materials and impurities in electrical and electronic components. These courses provide basic background information so that industries can pinpoint problem areas and find proper solutions.

Legislation

Thailand has recognized the need to develop national legislation to address domestic environmental concerns over the growing generation and import of waste and second-hand EEE. A coherent domestic legislative framework would also enhance the preparedness of the country to respond to requirements for EEE in export markets. The Thai Government has thus set up a number of working groups to study and draft strategic plans to address the issue of EEE waste.

The Ministry of Industry proposed legislation in 2003 to regulate the import of used EEE. The import of 29 items of used EEE (mainly household appliances) requires permission by the Department of Industrial Works. Criteria for approval include the age of the used equipment, product standards, quality guarantees, the economic feasibility of recycling and disposal and the capabilities of Thailand’s recycling facilities. In addition, the Ministry of Industry has developed a number of directives, including the Directive of Industrial Standards for Separation and Recycling Facilities for Electrical and Electronic Equipment, and the Directive of Industrial Policies on Electrical and Electronic Products. The latter sets minimum levels of recycled inputs that have to be used in the manufacture of EEE, and establishes the obligation to label products with the manufacturing date in order to separate old products from new ones. Moreover, a draft Directive on Types and Quantities of Hazardous Substances in Electrical and Electronic Equipment covers the same substances as the EU’s RoHS Directive, and applies to small and large household appliances, telecommunications equipment, lighting products, electric and electronic tools, toys, sports equipment, and electrical and electronic entertainment equipment.

The Ministry of Natural Resources and Environment, in cooperation with the Ministry of Industry and other relevant government and private agencies, has been developing the National Strategic Plan for the Environmentally Sound Management of E-waste (or waste from electronic equipment). The main objective is to improve the existing separation and collection system of EEE waste and to manage such waste properly. The Strategic Plan is based on the polluter pays principle, allocating shared responsibility to producers, importers and consumers for the environmentally sound management of EEE waste. In the short run, the Plan envisages a pilot project for a collection system for used mobile phones and their batteries, a feasibility study on fluorescent lamp recycling, and a programme to foster public education and R&D. In the long run, the Plan aims at the development of comprehensive legislation and the establishment of a specific fund for

Box 7. Technical issues relating to RoHS adjustment in Thailand

The EE industry needs a variety of materials to produce appliances with cutting-edge performance. Basic materials generally lack the desirable properties and often need to be modified to achieve the required characteristics. Before the announcement of the RoHS Directive, many EE companies in Thailand, particularly producers of components and providers of manufacturing services in the supply chain, used modified materials without knowing their exact content. Even though most EE producers became aware of the RoHS Directive, in general they lacked an understanding of the complexities of the materials they used, and therefore underestimated the implications of the RoHS and, hence, the time required to achieve RoHS compliance. Before suitable material substitution strategies can be formulated, an assessment has to be made of the elemental content of all materials employed in the products, their functions, and the possible impacts of the phase-out of restricted substances. Once restricted substances are removed and control procedures put in place, the product can be certified as RoHS compliant. In practice, however, RoHS adjustments may be more complicated.

Customers that are brand owners usually dictate the product design and/or the choice of key parts to their suppliers. Most SMEs in Thailand receive materials from large producers, either local or overseas. Therefore, the real challenges for most Thai producers are not finding alternative materials but finding competent suppliers, establishing a cost-effective materials control programme, finding ways to verify and guarantee compliance, and building up the experience necessary to master new processes. This requires technical and management skills collaboration throughout the whole supply chain.

Delays in the announcement of how the RoHS Directive would be enforced and compliance shown have complicated the adjustment process. For example, uncertainties about maximum concentration limit values (MCV), standards and analytical tools to be used for determining contamination levels and the data required for the approval and or verification process, have created additional problems for producers in the EE supply chain. To meet the deadline of the RoHS Directive, many materials and parts must be verified no later than mid-2005. Because of the lack of official criteria, many EEE producers would be assuming worst-case scenarios and safeguarding themselves by imposing strict requirements for compliance by suppliers. Most brand owners, particularly TNCs, have set their own standards. These "customer standards" may differ in details, but generally require suppliers to set in place materials and environmental control systems and to provide proof of compliance by means of analytical testing. These requirements mandate materials testing, systematic controls, and business-to-business audits. EE producers with multiple customers will face multiple audits. The adjustment costs arising from these "second-tier" effects can be significant.

Source: Nudjarin Ramungul

EEE waste management. The Ministry has been drafting a Law for the Promotion of Hazardous Waste Management, which includes EEE-waste management. The draft legislation includes product coverage, the introduction of a product charge and the establishment of a specific fund for EEE-waste management and its administrative body, as well as the establishment of a take-back system for a number of end-of-life products. It emphasizes waste minimization, focusing on the 3Rs (reduce, reuse, recycle). Finally, it defines liability and penalties in case of violation.

Other initiatives

Thailand has also developed its own national eco-labelling programme, the Thai Green Label Scheme, which was initiated by the Thailand Business Council for Sustainable Development in October 1993 and formally launched in August 1994 by the Thailand Environment Institute in association with the Ministry of Industry. This initiative was developed with the objectives of generating awareness among consumers and producers alike on environmental impacts that occur during the manufacture, use, consumption and disposal of products, and of creating a market incentive for manufacturers to supply environmentally sound products. The programme thus aims at making tangible progress in materials recovery and resource preservation. Criteria have been developed for 35 product categories, including a number of electrical and electronic products such as refrigerators, washing machines, computers, photocopiers, facsimile machines, mobile phones,

air conditioners, energy-efficient motors, energy-saving fluorescent lamps and electronic ballasts. Criteria for additional product categories are currently being developed, including for television sets. To date, 144 products have been awarded the label, of which 66 are electrical and electronic products.⁸³

Recommendations

The Thai Government and private sector have been working together to be able to meet new environmental requirements for EEE, enhance international competitiveness and maintain export growth. However, as technological progress has been limited, Thailand needs technical assistance and support from developed countries and the EU, especially in the area of environmentally sound technology and eco-design. Developed countries and TNCs should provide their Thai partners with enough tools and technical knowledge to enable them to understand the rationale and essence of the environmental protection measures so that they can implement adjustment measures to protect both the environment and corporate interests. R&D should be strongly supported, especially in the areas of substitute materials for the production of EEE, and design for the dismantling and reuse of equipment and for waste treatment. It is also important to support joint ventures between Thai companies and trade partners to develop and transfer technology for materials substitution and waste treatment.

4. Comparison of adjustment processes in the three developing countries

Differences in the characteristics of the EEE industry in China, the Philippines and Thailand (e.g. in terms of structure, ownership and sales strategies) play an important role in determining the implications of environmental requirements on specific segments of their EEE sectors and the required national adjustment strategy. The EEE industries in China and Thailand use relatively more locally produced parts and components than those in the Philippines and also involve more SMEs. A number of domestic manufacturers in China and Thailand produce not only components but also end products. Until now, Chinese products have been exported under foreign brand names, but some leading companies are starting to sell their own brands.

All three countries are starting to implement proactive policies, but only with regard to information gathering, management and dissemination. However, there is no systematic gathering of relevant information on environmental requirements either by governments or the private sector. Information flow is generally slow, the potential of TBT inquiry centres is poorly exploited, and the communication links between government offices and between these and industry associations are weak. China and Thailand are setting up early warning systems. Some efforts have been made to enhance the level of understanding of the likely implications of new environmental requirements. The Governments of China and Thailand, in close consultation with relevant industry associations, have assessed the impact of the EU's WEEE and RoHS Directives and have also had consultations with the European Commission on these Directives.

In China it is primarily the Government that drives the adjustment process. In Thailand the Government had a key role in initiating the adjustment process, in particular through the creation of a subcommittee. The ongoing adjustment approach is the result of a coordinated effort between government bodies, industry associations and academic institutions, in particular through the Thai RoHS Alliance. In the Philippines, adjustment to external requirements is driven by the subsidiaries of TNCs and by large contract manufacturers.

China and Thailand are implementing legislation to respond to external environment-related requirements as well as to address domestic problems related to EEE waste. China seems to have adopted an ambitious approach; it is developing a legal framework with similar targets and time frames as the EU RoHS Directive. It remains to be seen how the Chinese authorities will be able to effectively enforce such an ambitious regulatory framework and how it will function once implemented. Enhancing the role of and funding for SEPA will be important.

F. Conclusions and Recommendations

1. Specific conclusions concerning the EEE Sector

The following conclusions can be drawn for the EEE sector:

- The EEE industry in general, and the IT industry in particular, is largely based on a global supply chain. Globally implemented supply chain management will have to ensure adjustment to the new environmental requirements. SMEs that provide inputs into manufactures for export are often made part of global supply chains. Increasingly stringent environmental requirements may provide incentives to standardize components (and reduce their number) and cut down on the number of suppliers, which would also affect SME suppliers. SME alliances may help to address this risk;
- Rapidly growing domestically generated EEE waste and imports of second-hand IT equipment threaten to affect human health and the environment in the key IT-exporting developing countries. It is therefore effective and cost-efficient to combine adjustment to external requirements for exported EEE with an adjustment to internal requirements for sound EEE waste collection and management that goes beyond mere recycling;
- There is a need for empirical analysis of the current and potential size of national recycling, reconditioning and reuse markets, and of appropriate policies for stimulating collection, recovery, reuse and recycling of material. Options for subregional cooperation in recycling should also be examined;⁸⁴
- Concerned developing countries cannot simply copy the collection and recycling systems used in developed countries, because of the peculiarities of supply of and demand for waste from EEE. Specifically, (a) in the second-hand market for EEE, product refurbishing/repair play a far more important role (in fact the second-hand market is often much bigger than the original equipment market); (b) SMEs play an important and cost-efficient role in collection and refurbishing/repair of EEE waste; and (c) collection, repair, refurbishing and disassembly can offer ample business opportunities for SMEs;⁸⁵ and
- Concerned developing countries may also exchange national experiences and cooperate in the development of eco-design of EEE manufactured for domestic or regional markets.

2. Trends in environmental policies, and implications for developing countries

The following general trends can be identified from the case study of the EEE sector:

- While growing volumes of waste from EEE and associated environmental and health problems are an issue of concern in many countries, policy responses have varied, particularly in the choice between government regulation versus reliance on private-sector initiatives to achieve environmental objectives;
- Environmental policies are increasingly based on the principle of *producer responsibility*, in particular in dealing with end-of-life environmental impacts;
- The EEE sector illustrates the growing involvement of policy-makers and regulators in innovation and product design. This raises the following issues: (a) the respective roles of government and private-sector initiatives; (b) the need to take into account different conditions and needs of developing countries; and, consequently, (c) the enhanced need for consultation and coordination of key environmental policies; and
- Trade issues do not figure prominently in national discussions and consultations on policies concerning waste from EEE, except for concerns about (a) the functioning of the EU's internal market, and (b) exports of EEE waste to developing countries, in particular from the United States. Ex-ante impact assessments of EEE waste policies, if at all conducted, have seldom, if ever, included developing countries. Also, developing-country exporters have not often been involved in stakeholder discussions.

All this has important implications for developing countries, including the following:

- Product standards and regulations entailing substitution of hazardous substances may re-

quire significant efforts in terms of R&D to identify cost-effective substitutes, as well as long periods to adjust production processes to work with such substitutes. In this regard, it is important to note that material substitution is a complex process that might affect capacity, requires a certain lead time to effectively work with substitutes, and is subject to sourcing limitations in cases where substitutes and/or related processing technology are under patent protection. TBT notification provisions apply across the board and do not adequately reflect the complexity of product and process requirements resulting from stringent environmental standards.⁸⁶ Producers in developing countries will increasingly have to respond to customers' requests for environmental information concerning their products; and

- Large companies may switch to more reliable, large suppliers at the expense of SMEs. For example, increasing demand for "lead-free" supply chains may result in the phasing out from the supply chain of a number of SMEs that are unable to provide lead-free solutions (Kumar and Charter, 2003).

3. Recommendations

A number of recommendations are made at different levels:

Recommendations to regulatory and standards-setting authorities and donors

- Greater efforts should be made to identify, as early as possible, the likely trade, developmental and social implications for developing countries, and to disseminate information on new environmental requirements to key developing-country exporters and their governments;
- There is a need for a user-friendly manual that explains the implications of new environmental regulations for developing countries and provides information about available technical cooperation/capacity-building programmes to assist them in meeting new requirements and implementing domestic standards;
- In their stakeholder consultations and regulatory impact assessments, developed countries need to pay more attention to the trade implications of new environmental regulations and the effects these can have on developing countries, with special attention to SMEs.
- Developed countries should be more proactive in facilitating the participation of significantly affected developing countries in stakeholder consultations; and
- Supportive and flanking policies of governments should pay special attention to addressing constraints and offering opportunities for developing countries.

Recommendations to governments and businesses in developing countries

- Develop coherent and proactive adjustment policies, fully involving all concerned stakeholders, with special attention given to the conditions and needs of SMEs and to promoting cooperation among them. Such adjustment policies are necessary to strengthen their participation in this dynamic sector of international trade, which constantly offers new areas of opportunities;
- Developing countries, in general, have not participated proactively in consultations during the development phase of the EU's WEEE and RoHS Directives. They should now participate in the consultations on the modalities of implementation of both the EU Directives, in particular the RoHS, as China did in February 2005. They also need to participate in consultations relating to Japan's HARL;
- Define and improve the use of national product standards (including consideration of the option of implementing more stringent export standards);
- Implement cost-effective eco-design programmes;
- Establish early-warning mechanisms, at the national level and, where appropriate, the subregional or international level, along with related easing of access to information on new environmental requirements. In addition, assess the likely impacts and adjustments to be made; and
- Strengthen environmental management systems in developing countries, in particular ISO 14001, as a means of improving environmental performance and facilitating compliance

with requirements in domestic and international markets. ISO 14001 registrations should pay more attention to product-related aspects, and should consider eco-design to facilitate compliance with requirements such as RoHS and other, emerging regulations, including those relating to energy-using products.

Recommendations to the international community, including the business sector

- In the TBT notification process, take into account the fact that the time and adjustments required to meet new regulations may vary considerably. For example, the analysis of the EEE sector shows that the phasing out of certain substances requires long adjustment periods as well as precise information on threshold levels and compliance procedures. Further analysis may also be needed of the implications of the obligations inherent in environmental regulations being transmitted to producers in developing countries through the supply chain;
- Benefits might accrue from the exchange of national experiences on adjustment approaches as well as from exploring cooperative subregional approaches to adjustment (including standardization, testing, conformity assessment and information management);
- Promote realistic and cost-effective product design programmes in developing countries, including through South-South cooperation. Access to environmentally sound technologies and material substitutes, and their effective use, play an important role in this regard;
- In the light of the important role of foreign subsidiaries in exports, in particular of electronics products, industry associations can play an effective role in a proactive agenda; and
- Special attention should be given to the conditions and needs of SMEs.

UNCTAD's consultative task force on environmental requirements and market access for developing countries (CTF) and other initiatives can play a useful role in promoting a constructive dialogue between developed and developing countries and in enhancing an understanding of trends in environmental requirements and of appropriate adjustment policies in developing countries.

ANNEX 1

EEE WASTE AND THE BASEL CONVENTION

Constanza Martinez, Secretariat of the Basel Convention

Introduction

The Basel Convention was adopted in 1989 to establish a control system for the transboundary movements of hazardous wastes and standards and to treat waste in a manner that is not harmful to human health and the environment. Whereas developed countries adopted legislation on waste management and disposal a long time ago, many developing countries still have no, or limited, provisions establishing standards. More importantly, even when legislation is in place, many developing countries lack the capacity to effectively implement such legislation. Over time, the treatment and disposal of waste in developed countries have become more costly than in developing countries, thus creating an incentive to ship waste to developing countries.

The Basel Convention seeks to protect human health and the environment from the possible adverse effects of waste by establishing a control system of transboundary movements. Transboundary movements are permitted under the Convention only when there is a guarantee that the waste will be managed and disposed of in an environmentally sound manner. The Convention thus focuses much of its work on increasing the capacity, especially in developing countries, of environmentally sound management of domestic and imported wastes. It also seeks to promote the minimization of waste generation in terms of quantity and hazardousness. In this respect, the Basel Convention takes the life-cycle approach to prevent and minimize the generation of hazardous wastes, and even participates in processes to set specific standards for manufacturing.

With the adoption in developed countries of national legislation setting high environmental standards for the management and disposal of EEE waste, companies have a financial incentive to ship such waste to countries that lack such legislation (or have little of it) and even where legislation is in place, lack the necessary infrastructure to control this waste stream. Often, electrical and electronic products that are near their physical end of life are shipped to developing countries for resale. Without an established international system for sharing the financial burden of treatment and disposal of these products once they become waste, countries with less capacity and inappropriate infrastructure to dispose of such EEE wastes end up bearing the cost of the treatment and ultimate disposal, frequently resulting in adverse effects on human health and the environment.

The Basel Convention today faces the complex challenge of assisting developing countries to establish appropriate national legislation and the necessary infrastructure, and acquire the necessary capacity to treat, manage and dispose of what becomes EEE waste once it is shipped under the label of second-hand products or end-of-life equipment.

Electrical and electronic waste within the scope of the Basel Convention

The Convention regulates wastes that belong to any category listed in Annex I of the Convention, which possess one or more of the characteristics contained in Annex III. Electronic wastes normally contain some of the substances with hazardous characteristics listed in Annex I, depending on the concentration. However, on the occasion of the adoption of an amendment to the Convention that prohibited the transboundary movements of hazardous wastes from member States of the OECD, the EC and Liechtenstein to the remaining Parties, Parties to the Convention felt that the scope of the Convention should be further defined. Two additional annexes, Annex VIII listing categories of wastes considered hazardous under the Basel Convention, and Annex XIX listing those that are not considered hazardous under the Convention, were adopted for ease of practical identification of specific wastes.

Annex VIII lists electrical and electronic waste as item A1180:

“Waste electrical and electronic assemblies or scrap containing components such as accumulators and other batteries included on list A, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or contaminated with Annex I constituents (e.g., cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they possess any of the characteristics contained in Annex III.”

Annex IX (item B1110) mirrors that entry by stating that EEE waste is not considered “hazardous” when it does not possess the components and does not present the characteristics established in A1180.

Components typically used in the production of EEE waste are also included in Annex VIII, such as “glass waste from cathode ray tubes and other activated glasses” (item A2010) and “precious metal ash from incineration of printed circuit boards not included on list B” (item A1150.) Item B1160 in Annex IX “precious metal ash from incineration of printed circuit boards not included on list A” mirrors entry A1150 in Annex VIII.

Information obtained through national reporting seems to indicate that Parties currently prefer to report these types of wastes under other categories, such as part of household waste (e.g. ozone-depleting substances in fridges). In addition, it is important to note that Annexes VIII and XIX are only complementary to Annexes I and III, which are the main sources of information to determine if a substance is subject to the Basel Convention provisions. Furthermore, the headings of Annexes VIII and XIX indicate that Annex III prevails as a source of proof to establish if a substance is hazardous or not.

It is also worth pointing out that the Basel Convention’s control system also applies to waste shipments covering wastes that “are defined as, or are considered to be, hazardous by the domestic legislation” of the exporting, importing or transit country (Article 1.1(b) of the Convention).

In sum, EEE wastes may be subject to the Basel Convention procedures if the above-mentioned criteria are met. In such cases, exporting States are required to ascertain that the importing State has the requisite capacity to dispose of the goods (including recycling) in an environmentally sound manner before they permit EEE wastes to be shipped to that State.

End-of-life equipment

One of the main sources of EEE waste in some developing countries is the import of second-hand products and/or end-of-life equipment. The Basel Convention, according to the integrated life-cycle principle and the polluter pays principle, has a role in carrying out activities aimed at increasing capacity to treat and dispose of EEE waste and reducing its impact on human health and the environment.

To ensure the implementation of a life-cycle approach, and bearing in mind the objective of preventing and reducing the generation of waste, a process of standard-setting at the manufacturing stage seems to be called for. To this end, various developed countries have enacted legislation that regulates manufacturing processes of electrical and electronic products. However this is largely limited to technically and economically easing of dismantling and recycling, rather than enhancing waste minimization, extending product life, and easing repair and reuse. The development and harmonization of legislation in this area among Parties to the Basel Convention is essential, as manufacturers are increasingly establishing themselves in developing countries to, inter alia, avoid restrictions that arise from such standards.

When establishing appropriate legislation, and based on the polluter pays principle, countries need to work together to ensure compatibility among systems in order to distribute the burden of

costs. The question arises as to how to allocate responsibility, or a part thereof, among producers and exporters as well as exporting-country governments for the treatment and disposal of EEE waste when second-hand electrical and electronic products reach the end of their useful life (and become waste requiring disposal) in developing countries or countries that have few restrictions. Some developed countries have enacted legislation to address this issue. It is imperative that developing countries also establish systems to allocate responsibility among the different stakeholders, based on the *principle of producer responsibility* already in force in some countries, and make these systems as compatible as possible with those of other countries, as well as enforceable.

As a first step in the process of consultations among countries and stakeholders aimed at harmonizing legislation and policies, key definitions should be agreed upon. Thailand seems to be a good example of a country that has passed legislation which defines basic elements, such as a legal definition of second-hand IT equipment that reflects real demand and specific conditions for import of second-hand equipment and its handling (physical and moral end-of-life equipment). The Thai example shows that it is pertinent to establish such regulatory systems at national and international levels.

Ideally, definitional and regulatory measures on second-hand equipment should be made an integral part of a holistic national EEE waste management strategy in developing countries. Moreover, these should go beyond an exclusive focus on recycling and include elements such as extension of product life, repair-friendliness, reuse and refurbishment, and they should reflect the specific supply and demand conditions for second-hand equipment and EEE waste in the country. Once again, the Thai example provided in the paper is a step in this direction that ultimately minimizes waste generation.

What can the Basel Convention do?

The Basel Convention is now faced with the challenge of growing international trade in EEE waste and second-hand IT equipment. As the Convention is concerned with the setting of appropriate standards to protect human health and the environment, its work concentrates on capacity-building activities to improve legislative and institutional infrastructure in developing countries and to tackle the issue in a manner that benefits exporters, importers, producers and the civil society as a whole. Social and economic considerations need to be taken into account.

Promotion of consultations among the different stakeholders is essential in order to build a credible system that would not discourage investment or otherwise negatively affect the economies of developing countries in particular.

As a first specific series of activities, the Convention has launched an initiative for a sustainable partnership on environmentally sound management of end-of-life mobile phones. One of the main activities under the initiative is the setting up of a working group composed of mobile phones manufacturers, network operators, experts and Parties. This working group is currently developing a Guidance Document for the Refurbishment of Used Mobile Phones. The group is also in the process of identifying environmentally sound practices for recovery and recycling of mobile phones, for eventual replication in other interested countries. Other activities, such as an analysis of take-back schemes, also figure on the working group's agenda.

Broader in scope, a work plan on cooperation between the industry, the business sector and NGOs was adopted. In this context, the secretariat of the Convention has met with key computer equipment manufacturers in the United States and Japan to ascertain their interest in setting up a partnership programme for end-of-life computing equipment, similar to the partnership programme on mobile phones. The objective of this partnership would be to raise awareness in developing countries of the need to build capacity to refurbish and recycle EEE waste in an environmentally sound manner.

The secretariat of the Basel Convention is also in contact with the United Nations University and the United Nations Environment Programme's Division of Technology, Industry and Economics (UNEP DTIE) to ensure that initiatives launched under the Basel Convention and within the mandate of the Parties are coordinated with the projects developed by these institutions.

In addition, the secretariat of the Basel Convention has submitted a proposal to include electrical and electronic waste, as defined in Annexes VIII and IX, in the World Customs Organisation's Harmonized System. The proposal is currently under consideration for inclusion in the next set of amendments that would be effective from January 2007.

The Basel Convention Regional Centre for Asia, based in China, is playing a major role in implementing a regional project which consists of collecting information on the volume of imports and exports of EEE waste in countries in the region. Based on the information obtained through its first phase, the project will aim at establishing a network at regional and national levels.

ANNEX 2

THE WEEE AND RoHS DIRECTIVES

The WEEE Directive requires the EU-25 member States to set up collection and financing systems for EEE by August 2005. By December 2006, the EU-25 are expected to meet the collection target (Article 5(5)) and recovery targets (Article 7(2)). New member States have been granted two years' extension (one year for Slovenia) for the deadline for meeting both the collection and recovery targets.

Product coverage

The WEEE Directive covers the following 10 product categories:

- Large household appliances;
- Small household appliances;
- IT and telecommunications equipment;
- Consumer equipment;
- Lighting equipment;
- Electrical and electronic tools (with the exception of large-scale stationary industrial tools);
- Toys, leisure and sports equipment;
- Medical devices;
- Monitoring and control instruments; and
- Automatic dispensers.

The RoHS Directive covers the same categories as the WEEE Directive, with the exception of medical devices and monitoring and control instruments. The Commission is to provide proposals for including these two categories in the scope of the RoHS Directive before 13 February 2005.⁸⁷

Legal obligations of producers

Legal obligations under WEEE and RoHS Directives include:

- Compliance with RoHS;
 - From the 1 July 2006, producers will have to demonstrate that their products do not contain more than the maximum permitted levels of restricted substances.
- Compliance with the WEEE Directive;
 - *Financing of WEEE*
 - Financing in respect of WEEE from private households (Article 8). From August 2005, producers have to finance the collection, treatment, recovery and disposal of household WEEE deposited at collection facilities. Producers can choose to meet their obligations either individually or by joining a collective scheme. They also have to guarantee that future costs for the collection and onward treatment, recovery and recycling of household WEEE will be met, even when they may cease to operate. They can do that by participating in an appropriate scheme for financing the management of WEEE, taking out "recycling insurance",⁸⁸ or opening a blocked bank account (where the money deposited is only released to pay for managing WEEE). With regard to "historic waste" (put on the market before August 2005), all producers have shared responsibility for financing the costs of collection and treatment of waste;
 - Financing in respect of WEEE from users other than private households (Article 9).⁸⁹ Producers are responsible for financing the costs of waste management.⁹⁰

Recovery

- Producers (or third parties acting on their behalf) must arrange for meeting targets of reuse, recycling and recovery of WEEE product categories by December 2006 (see table); and

Product marking and disassembly information

- Producers will have to provide information to enable treatment facilities, reuse centres and recycling facilities to disassemble, reuse and recycle their products. They must also provide information on specific components and materials from equipment for separate treatment at end-of-life (such as batteries).

Table A2-1. Minimum end-of-life reuse, recycling and recovery targets set by the WEEE Directive

Product category	Component, material and substance reuse/recycling by average appliance weight (percentage)	Rate of recovery by average appliance weight (percentage)
Large household appliances	75	80
Small household; appliances	50	70
IT and telecommunications equipment	65	75
Consumer equipment	65	75
Lighting equipment	80	Not applicable
Electrical and electronic tools	50	70
Toys, leisure and sports equipment	50	70
Medical equipment systems	Target set by 2008	Target set by 2008
Monitoring and control equipment	50	70
Automatic dispensers	75	80

ANNEX 3

TRADE STATISTICS

This annex provides some trade statistics for the EEE sector. Table 1 shows trade estimates for the EEE sector based on 6-digit codes of the Harmonized System (HS) and using a definition largely employed by the Electrical and Electronics Institute, Thailand. This definition includes most of HS Chapter 85 and parts of Chapter 84 (in particular large household appliances and computers). However, a few products have been added from HS Chapters 90 (some copying equipment), 91 (certain watches) and 95 (certain electrical toys and video games).

Table A3-1. Selected developing countries: Exports of EEE, 2003 (\$ billion)

	Electrical and electronic equipment			Total exports	Share of EEE in total exports (%)
	Total EEE	Electrical equipment	Electronics		
China	160.9	68.5	92.4	438.2	36.7
Philippines	25.5	1.8	23.7	36.2	70.4
Thailand	28.2	10.8	17.4	80.3	35.1
Malaysia	56.9	11.3	45.6	105.0	54.2

Estimates based on an adjusted definition of EEE

The rest of this annex shows the results of trade estimates for a sub-set of products selected on the basis of the list of products included in the annex to the WEEE Directive.⁹¹ This sub-set has been created to enable a better estimate of the composition and direction of international trade flows in EEE products that may, in principle, be affected by the WEEE and/or RoHS Directives. The list excludes a series of products from the above-mentioned definition, such as electrical motors and generators (and their parts), wires and cables, and electrical apparatus for switching or protecting electrical circuits. It includes, for example, IT and telecommunications equipment (such as personal computers and cellular telephones), household appliances (such as air conditioners and microwave ovens) and consumer goods (such as video cameras). It also includes certain parts and components used for this equipment (such as parts and components for electronic equipment) because trade may be indirectly affected by the RoHS Directive and similar requirements of other countries.

The statistics in this annex are presented for purely illustrative purposes, and only in the context of the analysis presented in chapter 2 of this *TER*. It is to be noted that it is not possible to accurately identify EEE covered by the EU Directives in terms of the HS nomenclature. The WEEE Directive defines 10 broad categories of products covered by the Directive (Annex IB), and presents for each category a list of products that shall be taken into account for the purposes of the Directive (Annex IB).⁹² Products that fall into these categories, and are not part of another type of equipment that does not fall into these categories,⁹³ may be covered by the WEEE and/or RoHS Directive. The trade flows shown in this annex may be overestimated to the extent that whether or not specific products are actually covered by the Directives may depend on factors such as size. On the other hand, Annex IB contains indicative, not exhaustive, examples for each of these categories.

In order to facilitate a comparative analysis, the same definitions have been used for other reporters (importing countries).

Table A3-2. Major markets: Imports of EEE by country/region of origin, 2003 (\$ billion)

Importing Region	World	Developed countries	Developing countries				
			All	SE Asia*	China	Philippines	Thailand
World							
All EEE	844.6	273.1	528.8	433.7	169.7	30.3	24.8
Large household appliances	41.4	18.1	19.7	11.1	6.7	..	2.1
Small household appliances	25.3	8.9	15.5	13.6	11.2	0.1	0.4
IT and telecom equipment	602.7	194.7	383.8	325.7	98.5	29.5	17.7
Consumer goods	151.8	43.0	96.1	70.9	42.7	1.1	4.4
Other	23.4	8.3	13.7	12.3	10.6	..	0.2
Developed countries							
All EEE	446.0	124.9	298.7	237.1	107.1	14.0	13.5
Large household appliances	25.6	9.4	13.7	7.8	5.2	..	1.5
Small household appliances	17.4	5.7	11.0	9.5	7.7	0.1	0.3
IT and telecom equipment	300.0	85.0	204.1	168.9	61.5	13.2	8.4
Consumer goods	85.6	19.4	59.1	41.3	24.4	0.6	3.1
Other	17.3	5.3	10.9	9.7	8.4	..	0.1
European Union							
All EEE	165.8	49.3	97.9	81.1	34.1	4.6	4.2
Large household appliances	9.1	2.3	4.5	2.5	1.7	..	0.5
Small household appliances	6.4	1.8	4.0	3.7	2.7	..	0.1
IT and telecom equipment	112.8	36.1	68.4	58.5	19.2	4.5	2.9
Consumer goods	31.6	7.4	17.9	13.4	8.1	0.1	0.8
Other	5.8	1.7	3.1	2.9	2.5	..	0.1
Japan							
All EEE	58.5	12.0	48.3	39.8	17.9	3.3	3.4
Large household appliances	2.2	0.2	2.0	1.8	1.1	..	0.6
Small household appliances	2.0	0.8	1.2	1.2	1.0	..	0.1
IT and telecom equipment	44.0	9.5	34.3	28.8	11.2	2.9	1.9
Consumer goods	9.3	1.1	8.2	7.2	4.1	0.3	0.8
Other	1.1	0.3	0.7	0.7	0.5
United States							
All EEE	172.6	35.7	134.6	100.4	48.1	5.3	4.8
Large household appliances	8.7	2.7	6.0	2.7	2.0	..	0.2
Small household appliances	7.2	2.3	4.9	3.9	3.4	0.1	0.2
IT and telecom equipment	113.3	22.6	84.0	71.1	27.4	5.1	3.0
Consumer goods	35.6	6.6	28.7	17.5	10.7	0.1	1.4
Other	7.7	1.7	6.0	5.1	4.6
Canada							
All EEE	22.9	12.5	9.8	7.2	0.8	0.5	0.4
IT and telecom equipment	13.7	7.0	6.2	4.7	1.9	0.4	0.3
Switzerland							
All EEE	7.5	6.3	1.0	0.8	0.3	..	0.1
IT and telecom equipment	5.1	4.4	0.6	0.5	0.2	..	0.1

Source: UNCTAD, based on UN COMTRADE

*Except the Republic of Korea

Table A3-3. Selected South-East Asian countries: Exports of EEE, 2003 (\$ million)

Selected country	World	Developed countries					Rest of the world
		All	EU	Japan	United States	Other	
China							
All	121 852.0	72 068.9	26 458.1	1 3213.3	30 076.6	2321.9	49 783.1
Household appliances	11 508.7	7 815.4	2 856.6	1 271.2	3 038.9	648.7	3 693.3
IT and telecom equipment	77 513.0	44 235.2	16 467.1	8 556.7	18 969.9	241.5	33 277.8
Consumer goods	26 327.9	15 290.6	4 951.0	3 127.6	6 212.5	999.5	11 037.3
Other	6 502.4	4 727.7	2 183.4	256.8	1 855.3	432.2	1 774.7
Philippines							
All	23 912.8	11 508.4	4 116.9	3 655.5	3 412.7	323.3	12 404.4
Household appliances	2 11.9	169.1	25.3	30.3	105.3	8.2	42.8
IT and telecom equipment	23 157.5	10 991.7	4 042.5	3 470.8	3 193.7	284.7	12 165.8
Consumer goods	5 14.0	328.4	40.4	153.6	104.7	29.7	185.6
Other	29.4	19.2	8.7	0.8	9.0	0.7	10.2
Thailand							
All	22 234.9	11 121.8	3 619.3	3 088.6	3 910.5	503.4	11 113.1
Household appliances	2 262.7	1 247.9	277.9	597	229.6	143.3	1 014.9
IT and telecom equipment	16 354.4	7 478.9	2 785.0	1 985.2	2 514.6	194.1	8 875.5
Consumer goods	3 456.0	2 302.7	518.4	488.6	1 142.0	153.7	1 153.3
Other	161.8	92.4	38.0	17.8	24.3	12.3	69.4

Table A3-4. Selected South-East Asian countries: Structure of EEE exports by destination, 2003 (%)

Selected country	World	Developed countries					Rest of the world
		All	EU	Japan	United States	Other	
China							
All	100.0	59.1	21.7	10.8	24.7	1.9	40.9
IT and telecom equipment	100.0	57.1	21.3	11.0	24.5	0.3	42.9
Philippines							
All	100.0	48.1	17.2	15.3	14.3	1.4	51.9
IT and telecom equipment	100.0	47.5	17.5	15.0	13.8	1.2	52.5
Thailand							
All	100.0	50.0	16.3	13.9	17.6	2.3	50.0
IT and telecom equipment	100.0	45.7	17.0	12.1	15.4	1.2	54.3
Total							
All	100.0	56.4	20.4	11.9	22.3	1.9	43.6
IT and telecom equipment	100.0	53.6	19.9	12.0	21.1	0.6	46.4

NOTES

- ¹ A new corporate social responsibility code for the electronics sector was launched by IBM, Hewlett-Packard and Dell in conjunction with a number of contract manufacturers on 21 October 2004. See www.hp.com/hpinfo/newsroom/press/2004/041021a.html. More information on the code is available at www.hp.com/hpinfo/globalcitizenship/environment/pdf/supcode.pdf. See also the commentary by Martin Charter and Ritu Kumar in this issue of the *Trade and Environment Review*.
- ² In the EU, the total volume of electronic waste is more than eight million tons a year.
- ³ The period is somewhat longer in developing countries. In Thailand, for example, the average time of utilization of EEE is very long (e.g. 18 years for television sets and 7 years for computers) (Teeraporn Wiriwutikorn, 2004).
- ⁴ Hazardous substances in EEE do not pose any specific risk to the consumer, as there is no exposure to these substances during ordinary use. The main source of risk is via the disposal of EEE. Hazardous substances can leach from landfills and contaminate both soil and groundwater, thereby affecting human health through the food chain and drinking water. Landfill gases can also be emitted into the air. Hazardous substances are most dangerous to human health and the environment at high levels of concentration, or at low levels of concentration with prolonged exposure. The dismantling and treatment of waste from EEE may present a hazard to those employed in the waste management sector. Hazardous substances may also affect human health and the environment during the manufacturing of EEE (Department of Trade and Industry (United Kingdom), Explanatory Memorandum on European Community Legislation, at: www.dti.gov.uk/support/finalreport.pdf).
- ⁵ Including reduced toxicity and redesign of products for improved reusability or recyclability.
- ⁶ Policies often include an explicit “waste management hierarchy” as follows: (i) reduce, (ii) reuse, (iii) recycle, and (iv) recover (see also Canadian Council of Ministers of the Environment, 2004).
- ⁷ Individual responsibility may be difficult to implement in the case of highly mixed product waste streams such as packaging waste.
- ⁸ For example, legislation in the state of California includes provisions for hazardous materials that are based on the EU’s RoHS Directive. China is in the process of developing its own RoHS directive.
- ⁹ Tischner et al. (2000), cited in Commission of the European Communities, Proposal for a Directive of the European Parliament and the Council on Establishing a Framework for the Setting of Eco-Design Requirements for Energy-Using Products and Amending Council Directive 92/42/EEC. COM(2003)453 final. Brussels, 1 August 2003: www.energie-cites.org/documents/opinions/proposition_directive_eco-conception_en.pdf.
- ¹⁰ In the case of the EU directives, for example, the focus has been on addressing internal market problems resulting from national approaches to EEE waste. Problems identified in the explanatory memorandum to the WEEE and RoHS Directives (COM (2000)347) include the following: “(a) Different national policies on the management of EEE waste hamper the effectiveness of national recycling policies, as cross-border movements of EEE waste to cheaper waste management systems are likely; (b) different national applications of the principle of producer responsibility lead to substantial disparities in the financial burden for economic operators; and (c) diverging national requirements on the phasing-out of specific substances could have implications for trade in electrical and electronic equipment.” (<http://pc-recycling.co.uk/pdf/weee/pdf>).
- ¹¹ Following concerns raised by the business sector about the potential negative effects of financing rules on historical waste from non-household sources, the European Commission amended Article 9 of the WEEE Directive (Directive 2003/108/EC of December 2003). According to the amendment, the financial responsibility for historical waste should be borne by producers only when they supply new products. Where such waste is not replaced by new products, the responsibility should be borne by users. Member States, producers and users should have the possibility to make alternative arrangements.
- ¹² The RoHS Directive is often described as imposing a total ban on the listed substances. However, the Technical Adaptation Committee intends to establish maximum permitted concentration values for the listed substances in based on scientific and technical review. On 23 September 2004, the European Commission submitted a proposal for a Council decision (COM (2004) 606) to amend the RoHS Directive, setting a limit of 0.1 per cent by weight and per homogeneous material for lead, hexavalent chromium, mercury, PBBs and PBDEs, and 0.01 per cent by weight and homogeneous material for cadmium.
- ¹³ For reasons of proportionality, applications of the targeted substances, where substitution is technically or scientifically impracticable, or where the negative environmental impacts caused by substitution outweigh the possible environmental benefits derived thereof, are exempted from the substitution requirement or could be exempted via a committee procedure.
- ¹⁴ Excluding the Republic of Korea.
- ¹⁵ One such issue is the method to be adopted for producers to demonstrate RoHS compliance. As indicated elsewhere in this chapter, uncertainty surrounding this has been perceived as a major obstacle – for example,

by Thai producers. Recent indications are that self-declaration will be adopted as an efficient and cost-effective method to demonstrate compliance with RoHS, provided that the manufacturer has taken reasonable steps to comply with the legislation. Reasonable steps for RoHS compliance could include testing of materials, monitoring of supply-chain partners, and proper documentation.

- ¹⁶ *Reduce*: design for longer product life and more rational material use (e.g. television sets, refrigerators, washing machines, air conditioners, PCs); *reuse*: design for enhanced reusability (e.g. PCs, copiers); and *recycle*: design for enhanced recyclability (e.g. television sets, refrigerators, washing machines, air conditioners, PCs).
- ¹⁷ To ensure the system is effective, 36 major PC manufacturers have agreed to set up a joint collection system under the JEITA, which will use the national network of some 20,000 post offices in Japan (*Japan Times*, 1 October 2003).
- ¹⁸ In June 1995, the Government adopted the Action Plan for Greening Government Operations. The plan required government activities to become more environmentally friendly through the use of recycled paper and energy-saving equipment, the introduction of lower-emission vehicles, and the reduction of carbon dioxide (CO₂) emissions at all government facilities.
- ¹⁹ www.informinc.org/fact_JapanEPR.pdf.
- ²⁰ www.productstewardship.net/PDFs/productsElectronicsEdesign.pdf.
- ²¹ Information on state legislation and local initiatives can be found, for example, on the National Recycling Coalition Website: www.nrc-recycle.org/resources/electronics/policy.htm. See also: www.computertakeback.com/index.cfm.
- ²² After 1 July 2004, electronic product manufacturers must demonstrate compliance with provisions of the Electronic Waste Recycling Act. Starting 1 July 2005, electronic product manufacturers must report annually to the Board their approximate sales of covered products for the preceding year, the amount of hazardous materials used in manufacturing their products, what they have done to reduce this amount, and efforts undertaken to design more recyclable electronic products.
- ²³ The product coverage is limited to hazardous electronic devices (cathode ray tubes and other video displays); other electronic equipment, such as computers and printers, is not covered.
- ²⁴ www.ciwmb.ca.gov/Electronics/Act2003/Workshops/6Feb2004/ExportFS.doc.
- ²⁵ www.epa.gov/epaoswer/non-hw/reduce/epr/index.htm.
- ²⁶ <http://eerc.ra.utk.edu/clean/nepsi/>.
- ²⁷ www.energystar.gov/.
- ²⁸ Examples can be found on the website of the Electronic Industries Alliance at: www.eia.org/new_policy/environment.phtml.
- ²⁹ www.ccme.ca/initiatives/waste.html.
- ³⁰ The CCME is also in the process of identifying and prioritizing electronic waste for industry product stewardship approaches, and of establishing best environmental/management practices for electronic waste processing.
- ³¹ www.epsc.ca/.
- ³² EPR is an environmental policy approach in which a producer's responsibility, physical and/or financial, for a product is extended to the post-consumer stage of a product's life cycle. It places the onus on the brand owners and initial importers of electronic equipment to collect and properly manage these devices when consumers have finished using them. In Canada, several mandatory and voluntary EPR-style programmes have already been established to address concerns regarding the hazardous nature and/or growing quantities of waste for end-of-life products, including used oil, paint, refrigerants, scrap tyres, batteries and beverage containers.
- ³³ www.epsc.ca/E_News/ENews_Issue5_Oct04.pdf.
- ³⁴ In the initial phase of the programme, televisions, computer monitors, central processing units (CPUs), laptops, electronic notebooks and printers are to be accepted for recycling. Starting in February 2005, an environmental fee, ranging from 5 to 45 Canadian dollars (depending on the item), was to be charged for each product included in the programme.
- ³⁵ This is a more stringent obligation than the EU's WEEE, which stipulates that retailers (manufacturers and distributors) are liable to take back devices only if the consumer buys new equipment.
- ³⁶ Municipalities have no mandatory take-back obligation, and are thus not obliged to provide for separate collection or collection points. For further details on ORDEA, see: www.umwelt-schweiz.ch/buwal/eng/fachgebiete/fg_abfall/abfallwegweiser/e-schrott/index.html.
- ³⁷ As reported by the Association for Cities and Regions for Recycling: www.acrr.org/WEEE/weee_intro.htm.
- ³⁸ www.swico.ch.
- ³⁹ Includes the Swiss Association for Electrical Appliances: www.sens.ch.

- ⁴⁰ Assuming an exchange rate of £1 = \$1.8.
- ⁴¹ Partial Regulatory Impact Assessment of the WEEE Directive, March 2003.
- ⁴² DTI recognizes that RoHS also may have an impact on the producers of the controlled substances (e.g. refined lead producers or zinc smelters that produce cadmium as a by-product).
- ⁴³ DTI expects that in the case of firms that are vertically integrated, R&D, production of components and final assembly of products will be done in-house, and that such firms will be affected at all levels. The restricted substances enter the production stream in the manufacturing of single components. Products that use these components may have to be adapted or redesigned to ensure that they function with the new components. Where this is the case, manufacturing firms towards the end of the supply chain will be affected indirectly.
- ⁴⁴ DTI, Partial Regulatory Impact Assessment on Directive 2002/95/EC of the European Parliament and of the Council on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (RoHS Directive); accessible at: www.dti.gov.uk/sustainability.
- ⁴⁵ However, the European Parliament voted to remove a five-year exemption from the financing requirements of producer responsibility for small manufacturers (firms with fewer than 10 employees and a turnover of less than two million euros) (DTI, Partial Regulatory Impact Assessment of WEEE; and letter from Brian Wilson, MP, Minister of State for Energy and Construction to the Chairman, 23 May 2002).
- ⁴⁶ “Irrespective of the selling technique used” (i.e. including e-commerce).
- ⁴⁷ Where the subsidiary of a transnational corporation (TNC) in a developing country exports end products to the EU, the TNC in question is likely to be held responsible.
- ⁴⁸ Article 3 states that where companies market products under their own brand, which were originally manufactured by other companies, the definition of producer applies to the companies marketing the products rather than to the original manufacturers.
- ⁴⁹ According to Charter, Boyce and Burrell (2003, p. 13) it is likely that in European consumer markets Chinese companies will implement a market entry strategy that uses existing European brands rather than exporting under domestic brands. However, China’s leading computer producer and exporter, the Legend Group, developed the brand name, “Lenovo”, as part of its internationalization strategy.
- ⁵⁰ The Computer Aided Life Cycle Engineering (CALCE), Electronics Products and System Center, United States (<http://www.calce.umd.edu/>) found that environmental requirements have triggered many patents on lead (Pb)-free technology. One study argues that United States companies began patenting lead-free solders for electronic uses around the time of the Reid Bill in the early 1990s. European companies became active during the development phase of the EU’s WEEE and RoHS initiatives. The bulk of the Japanese patents arose with the introduction of household appliances take-back legislation in the late 1990s. (CALCE, 2004).
- ⁵¹ An interesting development in the EU is the European Commission’s Better Regulations Package. It contains three important elements: (a) *Impact assessment* – proper assessment of compliance costs and administrative burdens of proposed legislation has been, and continues to be, extremely important to ensure a business environment that is conducive to competitiveness, innovation and growth. This applies to SMEs, in particular, as they are disproportionately affected by regulatory burdens; (b) *Consultation* – the Commission’s upcoming general principles and minimum standards for consultation, as announced in the Action Plan, will help streamline and improve current practices and make them more transparent to the outside world; and (c) *Choosing the appropriate instrument* – in order to ensure a regulatory environment that favours competitiveness and innovation, policy-makers should use the least disruptive and most effective policy instrument.
- ⁵² In 2004, three consultations were launched: pursuant to Article 5(1)(a) for fixing maximum concentration values; pursuant to Article 5(1)(b) for a number of exemptions requested by industry; and assessment of item 10 of the Annex to the RoHS Directive.
- ⁵³ Following the adoption of Regulation 1049/2001 on transparency and access to documents, the Commission introduced the open consultation process for soliciting inputs on areas for potential legislation (see: http://europa.eu.int/yourvoice/consultations/index_en.htm#results). The results of closed consultations are made public on the same website.
- ⁵⁴ The United States Government expressed “concerns that development of these directives lacked transparency and meaningful input from non-EU stakeholders and would adversely affect trade where viable alternatives may not exist” (United States National Trade Estimates Report to Congress, available at: www.ustr.gov/nte/2004.eu.pdf).
- ⁵⁵ At the 1999 Transatlantic Business Dialogue (TABD) CEO Conference in Berlin, the WEEE Directive was included among issues for “early warning” (i.e. issues brought to the attention of high-level United States and EU officials because they had the potential to lead to trade disputes). See: <http://128.121.145.19/tabd/media/1999BerlinCEOREport.pdf>.
- ⁵⁶ http://europa.eu.int/comm/enterprise/enterprise_policy/gov_relations/japan_rrd/eu_japan_reform.htm
- ⁵⁷ www.amchameu.be/Press/2000/oct62000.htm

- ⁵⁸ The EU is the largest export market for the United States high-tech industry, accounting for \$36 billion in 2002, and representing 16 per cent of that industry's total goods exports. The EU is also the largest destination for foreign direct investment (FDI) by the United States high-tech industry, which totalled \$45 billion in 2001 - a 25 per cent increase over 1996 (Guhl, 2002).
- ⁵⁹ A large number of comments are available on the JBCE website: www.jbce.org/.
- ⁶⁰ http://europa.eu.int/comm/environment/waste/weee_index.htm#contributions
- ⁶¹ In February 2005, the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China submitted a Chinese Stakeholders' Response to the Third Stakeholder Consultation on Adaptation to Scientific and Technical Progress under the RoHS Directive for the purpose of a possible amendment to the Annex.
- ⁶² The Directorate General for Trade of the European Commission asked the research firm, Consultancy and Research for Environmental Management (CREM) (the Netherlands), to examine the best ways to develop and implement environmental legislation, particularly bearing in mind the interests of developing countries. The study, which focused on the WEEE and RoHS Directives, was also to be used in the China-EU dialogue on environmental and health legislation.
- ⁶³ On 10 and 11 November 2003, AeA organized a seminar in Beijing with key officials of China's Ministry of International Industries in order to present the latest R&D work on Lead-Free Electronics and Recycling. The purpose of the seminar was to inform the Chinese officials of the technical challenges associated with the industry's conversion to lead-free technologies, and to establish an ongoing dialogue with those officials as more R&D in this important area is performed and deployed. (For more details, see: www.aeanet.org/GovernmentAffairs/gaet_EnvUpdate042704.asp).
- ⁶⁴ For details, see: www.deltha.cec.eu.int/spf/
- ⁶⁵ In the case of the WEEE and RoHS Directives, 30 and 41 months were allowed between their publication and the entry into force, whereas the TBT Agreement requires 60 days (WTO document WT/CTE/W/239).
- ⁶⁶ These studies were carried out by Professor Yang Changju, who led a research team from the School of Environment and Natural Resources, Renmin University, China; Dr. Phares Parayno, Chair of the Environmental Studies Program of Miriam College, Quezon City, the Philippines; Mr. Charuek Hengrasmee and Dr. Chirapat Popuang, leading a research team of the Thai Electrical and Electronics Institute, Bangkok.
- ⁶⁷ This section draws on a study by Professor Yang Changju, who led a research team from the School of Environment and Natural Resources, Renmin University, China.
- ⁶⁸ The CE (Conformité Européene in French) on a product is a manufacturer's declaration that the product complies with the essential requirements of the relevant European health, safety and environmental protection legislation, for example the so-called Product Directives.
- ⁶⁹ Chinese Stakeholders' Response to the Consultation on Adaptation to Scientific and Technical Progress under Directive 2002/95/EC of the European Parliament and of the Council on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment for the Purpose of a Possible Amendment of the Annex, 7 February 2005 (see: http://europa.eu.int/comm/environment/waste/rohs_consult.htm).
- ⁷⁰ The electromechanical products covered by the programme are: energy-saving lighting products, energy-saving computers, energy-saving and noise-suppressing air-conditioners, household refrigeration appliances, low-noise washing machines, low-pollution light vehicles, low pollution light motors, low-emission colour television sets, chlorine- and fluorine-free refrigeration appliances for industrial and commercial purposes, photocopying machines and kitchen appliances.
- ⁷¹ The product groups that require the CCC Mark include: electrical wires and cables, switches for circuits, installation protection and connection devices, low-voltage electrical equipment, electric tools, household and similar use appliances, audio and video equipment, information technology equipment, telecommunication terminal equipment, medical devices and detectors for intruder alarm systems (for more information, see the official website of CCC Mark at: www.ccc-mark.com)
- ⁷² This includes: revising the customs inspection and quarantine laws and rules on export of EEE; enhancing the global competitiveness of enterprises through certification, and providing electronics producers with good services to sustain the export of high-tech electronics; enhancing infrastructural capacity and investment in R&D.
- ⁷³ www.aeanet.org/GovernmentAffairs/gaet_EnvUpdate042704.asp
- ⁷⁴ This section is based on Parayno (2004). Chair, Environmental Studies Program, Miriam college Quezon City.
- ⁷⁵ The three leading exports of the Philippines in 2002 were: electronics (69 per cent); garments (6 per cent); and fresh and processed food (3 per cent).
- ⁷⁶ Around 30 per cent are owned by Japanese companies, 10 per cent by those of the Republic of Korea and 9 per cent by United States companies. European companies account for only around 7 per cent.

- ⁷⁷ The data for 2002 is obtained from the website of the Philippines Department of Trade and Industry: www.dti.gov.ph/contentment/9/16/20/233.jsp.
- ⁷⁸ The production process of semiconductors involves four main stages: wafer design, wafer fabrication, assembly and product testing. Wafer design and fabrication are very capital-intensive and are done primarily in industrialized countries.
- ⁷⁹ For example, the annual Materials Supply Day sponsored by Intel provides suppliers with an opportunity to discuss issues of concern and facilitates an exchange of views and information on strategies for environmental, health and safety (EHS) management.
- ⁸⁰ The Programme, known as “Green Choice Philippines”, aims to: (a) guide consumers to choose products that are environmentally sound; (b) encourage manufacturers to adopt processes and supply products that have less adverse environmental impacts; and (c) use labelling as a market-based instrument that complements the Government’s environmental policies and regulations.
- ⁸¹ For a comprehensive and chronological overview of measures taken in Thailand to adapt to environmental requirements in the sector, see the presentation by Chuarek Hengrasme, President, EEI at the UNCTAD-UNESCAP workshop held in Bangkok, 25–27 May 2005.
- ⁸² A bill of materials (BOM) defines the product structure in terms of materials. It provides a listing of all sub-assemblies, intermediate parts and raw materials that go into a parent assembly, showing the quantity of each required to make an assembly.
- ⁸³ A complete list of products covered and additional information on the Thai Green Label is accessible on the scheme’s official website at: www.tei.or.th/bep/GL_home.htm.
- ⁸⁴ The economic rationale for regional cooperation in recycling has been recognized in the context of the WEEE Directive. “For various parts of WEEE, recycling is economically viable only if large quantities of waste are processed. According to the principle of economies of scale only a few centralized installations in Europe would process these wastes. Cathode ray tubes are an example of this situation. Sufficient quantities of this equipment could only be processed if WEEE were collected in several European countries.” (Proposal for a Directive of the European Parliament and of the Council on Waste Electrical and Electronic Equipment, presented by the European Commission. COM/2000/0347 final - COD 2000/0158, Official Journal C 365 E, 19 December 2000, pp. 0184 – 0194).
- ⁸⁵ Households may prefer to sell discarded EEE to recyclers in the informal sector (even for a very low price), rather than returning it to collection centres or manufacturers without any compensation. Backyard recycling tends to be environmentally unfriendly. Yet the informal sector plays a potentially important role. There is a need for consumer education and the promotion of more environment-friendly waste management in the informal sector.
- ⁸⁶ As discussed in this article, the WEEE and RoHS Directives were notified to the WTO well before their publication in the Official Journal.
- ⁸⁷ Trade statistics presented in this article exclude medical devices and monitoring and control instruments (see Annex).
- ⁸⁸ Leading insurance companies are currently studying appropriate schemes and insurance premiums.
- ⁸⁹ Directive 2003/108/EC of the European Parliament and of the Council of 8 December 2003, amending Directive 2002/96/EC on waste electrical and electronic equipment (WEEE), OJ L345 of 31.12.2003, p. 106.
- ⁹⁰ For historical waste that is replaced by new equivalent products, or by new products fulfilling the same function, the financing of the costs shall be provided for by producers of those products when supplying them. Member States may, as an alternative, provide that users other than private households also be made, partly or totally, responsible for this financing. For other historical waste, the financing of the costs shall be provided for by the users other than private households.
- ⁹¹ Excluding WEEE categories 8 (medical devices) and 9 (monitoring and control equipment) that are not currently covered by RoHS. The RoHS Directive also includes electrical light bulbs and luminaries in households.
- ⁹² The Directive only covers products with a voltage of up to 1,000 volts for alternative current and 1,500 volts for direct current.
- ⁹³ For example, this annex excludes air conditioning equipment for use in motor vehicles.

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COMMENTARIES

Martin Charter

Director, Centre for Sustainable Design, United Kingdom

Ritu Kumar

Executive Director, Sustainable Trade and Innovation Centre, Geneva and Brussels

Importance of the issue

There has been a major restructuring of the electronics sector with an increasing shift of manufacturing to countries particularly in East and South-East Asia. As underlined in this chapter, electronics and information and communication technology (ICT) products now represent a major share of exports from East and South-East Asia. The implementation of the WEEE, RoHS, EuP and REACH Directives in Europe, and the Home Appliance Recycling Law (HARL) and Law for the Promotion and Effective Utilization of Resources (LPEUR) in Japan will have major implications for designers and manufacturers in developing countries. The impacts will be transmitted primarily through international supply chains. A key problem, which the chapter correctly identifies, concerns the obtaining of accurate information. In addition to this, a problem perhaps more relevant to East and South-East Asian countries is that of getting early access to information.

Countries in the EU should have transposed the WEEE (Article 175) and RoHS (Article 95) Directives into national legislation on 13 August 2004. However, at the time of writing, only three countries had transposed the law: Finland, Greece and the Netherlands, and it is difficult to obtain information about the actual and prospective national transposition dates.

The first wave of developments in the EEE sector has focused on environmental aspects, which are well documented in this chapter. In addition, a number of United States companies launched the Electronics Industry Code of Conduct (EICC) on 21 October 2004, which includes social and ethical issues as well. Hewlett-Packard facilitated collaboration on the Code between itself, Dell, IBM and the electronics manufacturing companies Celestica, Flextronics, Jabil, Sanmina SCI and Solectron. This Code was recently developed to establish and promote unified industry expectations for socially responsible practices across the electronics industry's global supply chain. It potentially provides a route for a harmonized approach for monitoring suppliers' performance across several areas of corporate social responsibility, including labour and employment practices, health and safety, ethics and environmental protection. On 10 November 2004, Cisco Systems Inc., Hewlett-Packard, Microsoft and Intel Corporation announced the formation of a new supply chain working group to develop integrated implementation plans for the EICC. The new working group, facilitated by Business for Social Responsibility, will develop common mechanisms and tools to enable compliance with the code. The companies will work collaboratively with suppliers and partners in the supply chain to develop common approaches to supplier surveys, reporting methods, auditing tools, risk assessments and programmes. The joint effort reflects the participating companies' commitment to leadership in the area of corporate social responsibility and their desire to help suppliers streamline their reporting requirements and make performance easier to verify.

Salient differences in approaches to the problem of waste from EEE across developed countries/regions (EU, Japan, the United States)

Environmental issues are increasingly starting to have an impact on the global electronics and white goods (or home appliances) sectors; these developments will have significant implications for manufacturers and assemblers in developing countries that export or plan to trade with the EC, Japan and the United States. Particular drivers are a range of recent legislative developments focusing on eco-design, recycling and hazardous materials reduction in the electronics and white goods sectors.

In the EU this includes:

- Restriction of Certain Hazardous Substances (RoHS) Directive, passed in March 2003;
- Waste from Electrical & Electronic Equipment (WEEE) Directive passed in March 2003;
- Eco-design and Energy-using Products (EuP) Directive passed in early 2005;
- Proposed Registration, Evaluation and Authorisation of Chemicals (REACH) Directive; and
- The Communication on Integrated Product Policy (IPP) published in June 2003.

The scope of the WEEE and RoHS Directives covers 10 product categories, while EuP covers all energy-using products excluding cars. The WEEE and RoHS Directives will effectively come into force in 2005 and 2006 respectively. The annex to this chapter provides details of categories and targets covered by the Directives.

WEEE sets recycling/recovery targets for 10 categories of products (see below), and RoHS places a ban from 1 July 2006 on four heavy metals (lead, cadmium, mercury and hexavalent chromium) and the brominated flame retardants, PBB and PBDE, used in those products (with the exception of medical equipment under RoHS):

- Large household appliances (e.g. fridges and washing machines);
- Small household appliances (e.g. vacuum cleaners, irons);
- IT and telecommunications equipment (e.g. PCs, photocopiers, telephones);
- Consumer equipment (TVs, videos, hi-fi equipment);
- Lighting equipment (e.g. fluorescent lamps);
- Electrical and electronic tools (e.g. drills, sewing machines);
- Toys (e.g. video games);
- Medical equipment systems (e.g. radiotherapy);
- Monitoring and smoke equipment (e.g. smoke detectors); and
- Automatic dispensers (e.g. drinks machines).

Thirteen EU countries already have laws in place for electronic take-back, and it is estimated that within five years as many as 28 countries will have such legislation. In addition, the EU is currently expanding the directive on rechargeable batteries to cover a wider range. Currently 20 countries have a mandate for take-back of such batteries. Nine collection schemes are in force in Europe for recycling electronic waste, for example in Belgium, Denmark the Netherlands, Portugal and Sweden. In addition, an alliance has been formed between Sony, Electrolux, Braun and Hewlett-Packard to implement their own pan-European collection scheme.

Japan passed the Home Appliances Recycling Law (HARL) and the Law for the Promotion and Effective Utilization of Resources (LPEUR) in 2001. In addition, the Green Purchasing Law (GPL) was passed in 2001, which effectively created a green market for a number of publicly procured products. The chapter provides a good summary of these laws.

Unlike the EU and Japan, the United States has no national law covering WEEE and RoHS. However, various states are adopting a proactive stance. In 26 states, 52 electronic waste bills were proposed during 2003 as well as 65 mercury-related restriction bills, 10 of which affect electronics. At present 38 states have EEE-waste programmes of different kinds. California, Massachusetts, Maine and Minnesota have recently banned cathode ray tubes from landfill sites. Also recently, there was a development that will have implications for the greening of the global electronics supply chain. On 15 November 2004, the White House and 11 federal departments (i.e. the Executive Office of the President, the General Services Administration, the Environmental Protection Agency (EPA), and the Departments of Agriculture, Defence, Energy, Health and Human Services, Homeland Security, Interior, Justice, Transportation and Veterans Affairs) signed a memorandum of understanding to develop strategies to improve the quality, performance and environmental management of federal electronic assets. They will spend \$50 billion on information technology (IT) equipment in fiscal year 2005, which represents 83 per cent of the federal Govern-

ment's total IT budget. The federal Government accounts for 7 per cent of the world electronics demand. The memorandum calls for increased reuse and recycling of federal electronic equipment and increased use of more energy- and resource-efficient equipment that aims to reduce life-cycle impacts and costs.

Lessons learned with regard to future environmental requirements (such as EuP)

There is a clear need for countries to set up early warning systems and get involved in the consultation process. The chapter cites some of the consultations undertaken by the EU when finalizing the WEEE and RoHS Directives. Another example which may be included is that of the REACH Internet consultations. These consultations, monitored by the EU between May and July 2003, invited comments and discussions from different stakeholders on the draft legislation. Similar consultations, inviting participation of suppliers from developing countries as well, should be organized for future environmental and social requirements. Countries should also consider establishing specific groups based in Brussels to keep an eye on developments and set up a regulatory watch or early warning system. This may be done either by industry associations or by country consulates.

How do these requirements affect developing countries?

With more outsourcing and contract manufacturing migrating to South and South-East Asia, and particularly China, there will be increasing requirements for suppliers to become more aware of environmental issues, especially product-related aspects concerned with materials reduction, energy efficiency, reduced toxicity and increased recycling. As described in the chapter, the impacts will be primarily due to increasingly strict supply chain requirements related to the RoHS Directive (e.g. removal of lead and cadmium). An additional implication of the RoHS Directive for developing countries concerns the testing and analysis of products and the technologies needed to do this. Sony, for example, has had to retrain 1,000 quality auditors to undertake testing and analysis of products to comply with RoHS.

Companies that have manufacturing facilities in Europe, and are deemed producers in Europe under WEEE, will also have to meet take-back and recycling requirements of the nationally transposed WEEE Directive. Problems may arise for many companies from South-East Asia that have sales/marketing offices in Europe (e.g. there appear to be 80 electronics companies from Taiwan Province of China in the United Kingdom alone), as many of them will not be aware that they are deemed to be producers under WEEE and they will have to join compliance schemes or make their own arrangements for recycling. This may well be an issue, but the biggest problem for the South-East Asian countries is posed by RoHS and its impacts through the supply chain.

An additional fear is that, given the limited time before the enforcement of WEEE and RoHS (i.e. 2006), many suppliers may be ignorant of the implications of these Directives. This will pose an enormous information management problem for companies at the top of and throughout the supply chain. The fact that the national transposition of WEEE and RoHS in EC countries has not met the August 2004 deadline should not mean that developing-country suppliers should become complacent – action will be required.

Information on the immediate impacts of “green” electronics laws and developments is needed. In the short term, the strictest rules are those found in Japan (e.g. as a result of HARL and LPEUR, which are voluntary agreements on removal of such substances as lead and cadmium). Sony has taken a particularly proactive and strict approach to the removal of these substances by its Asian suppliers through the implementation of its Green Partner Programme. However, there is a dearth of information in the “public domain” on the short-/medium-/long-term impacts of these developments.

An issue raised in the chapter that needs some attention is that of marginalization of smaller suppliers. If large companies and transnational corporations (TNCs) perceive a possible risk in their supply chain, they may switch to more reliable, larger suppliers, which could result in a loss of business for SME suppliers. For example, increasing requirements for lead-free supply chains (or networks) may result in a number of smaller suppliers, unable to provide lead-free solutions in time, being phased out of the supply chain.

What should be the strategy of developing countries?

Building upon the set of recommendations in the chapter, we have attempted to outline a five-point strategy for developing countries:

Set up strategy and management systems

- Identify and analyse specific environmental and social issues and the impacts on firms in the immediate, short, medium and long term; determine specific product-related environmental and social risks;
- Conduct high-level strategy meetings with senior management;
- Determine the appropriate positioning for brands and its business models relating to:
 - Environment, health and safety;
 - Sustainability (social, environmental and financial); and
 - Corporate social responsibility.

Set up appropriate organizational systems

- To provide an outline of organizational models that might be utilized to manage sustainability or corporate (social) responsibility issues on a worldwide, regional (e.g. Europe) and national basis;
- To analyse organizational models that competitors are using to manage sustainability and/or corporate (social) responsibility issues;
- To research appropriate job descriptions for different sustainability or corporate (social) responsibility positions;
- To help identify, recruit or headhunt appropriate staff to manage sustainability or corporate (social) responsibility issues;
- To determine immediate, short-, medium- and long-term cost implications of organizational development;

Set up information systems

- Determine the most appropriate structure for product-related environmental information systems designed to satisfy appropriate decision-making needs relating to:
 - Strategic (e.g. longer term) corporate strategy;
 - Tactical strategy (e.g. competition, new product development); and
 - Operational strategy (e.g. design, materials).
- Develop an Intranet site dealing with sustainability and/or corporate (social) responsibility issues, according priority to building a module on the management and technical requirements of WEEE, RoHS and EuP and the forthcoming REACH Directives;
- Determine immediate, short-, medium- and long-term cost implications of developing product-related environmental information systems;

Establish take-back and recycling systems

(Note: this is especially relevant for those companies that are deemed to be producers under WEEE in Europe).

- Research and create a list of recyclers and reverse logistics (take-back) companies with experience in business-to-business (B2B) relationships in the EU countries where companies are involved;
- Develop evaluation criteria and appropriate procedures for the selection of recyclers and reverse logistics (take-back) companies in EU countries;
- Determine the logistical issues associated with establishing reverse logistics (take-back) systems;

- Determine immediate, short-, medium- and long-term cost implications of establishing reverse logistics (take-back) and recycling systems;

Supply chain management

- Develop a supply chain management strategy that builds on product-related environmental compliance systems;
- Develop a product-related environmental risk profile amongst first-tier and strategic component suppliers and the broader supply chain – particularly focusing on the proposed requirements of RoHS and EuP and subsequently on REACH requirements;
- Develop a supplier training programme customized to the needs of target audiences. Such a programme may begin with a pilot for one supplier and then cascaded to other suppliers.
- Produce a booklet or downloadable checklist aimed at supporting suppliers on RoHS compliance (e.g. lead-free soldering, technologies);
- Develop a half-day workshop aimed at helping suppliers to eco-innovate (e.g. integrate environmental considerations into product development and design); and
- Determine immediate, short-, medium- and long-term cost implications of the integration of environmental considerations into supply chain management.

The role of government regulations versus industry initiatives in promoting eco-design

Government regulations and voluntary industry initiatives are equally important in promoting eco-design. A combination of standards set by governments, economic incentives provided by governments and voluntary, industry-wide initiatives are needed to make eco-design a priority amongst producers and suppliers.

Creating eco-design programmes in developing countries

Vossenaar et al., rightly recommend that businesses and governments in developing countries should develop and implement cost-effective eco-design programmes. For this to happen, it is necessary to develop knowledge clusters of industry training bodies, appropriate universities and research organizations. There is a need for simple but not simplistic tools. It is also important to learn lessons from the industrialized European countries (e.g. that eco-design is both a technical/engineering issue and a management issue). The experiences of companies and government-funded demonstration projects related to eco-design management can be useful. For example, the Dutch POEMS (Product-Oriented Environmental Management Systems) pilot project undertaken in the late 1990s is a good case study. The underlying rationale for the demonstration project was that previous government funding had involved free advice to companies on eco-(re)design of existing products, and when the project report had been completed, firms often reverted to “business as usual” (e.g. they failed to consider or integrate environmental aspects in product development processes (PDP)). Therefore there was a need to link eco-design to management systems (e.g. quality, environment or general) to ensure that environmental considerations were continuously integrated into the PDP.

Philip’s has found that corporate and business units need a shared vision of the proposed outputs of the *process* (e.g. green flagship products). There is a need to establish a clear demarcation of responsibilities (e.g. at the product-level, environmental considerations are product-specific and should be left to business units to determine). Experience also suggests that to ensure the systematic and continuous *integration* of environmental considerations into the PDP, there is also a need to establish mechanisms to share and communicate knowledge throughout global supply networks. To ensure implementation, it is also essential to *sell* the commercial benefits of eco-design in the language of different business functions (e.g. to marketing in marketing language). If projects are sold only in sustainability/environmental language they will hit the “*green wall*” and move no further. Organizational learning and knowledge management are important tools, with more mature eco-design management systems likely to produce more eco-innovation.

What is the Sustainable Trade & Innovation Centre's (STIC) potential contribution?

STIC as an independent third-party organization, with partners in developing and developed countries, has the potential to assist suppliers in developing countries in a variety of ways that complement the five areas outlined in the section above. In particular, STIC can:

- Facilitate discussion between governments and companies in developing and developed countries on existing and forthcoming requirements;
- Assist suppliers in developing countries to meet environmental and social requirements in export markets through a range of capacity-building activities, including:
 - establishing management and organizational systems suited to new market conditions;
 - establishing take-back and recycling systems;
 - assisting innovation and eco-design through training workshops, in-factory assistance and pilot projects; and
 - Setting up a “regulatory watch” and appropriate information systems, as described above.

The Consultative Task Force, of which STIC is a member, is well placed to provide a forum for dialogue between developing and developed countries. This can be accompanied by additional capacity-building efforts where organizations like STIC can provide useful inputs.

Ned Clarence-Smith

Senior Industrial Development Officer, Energy and Cleaner Production Branch – Focal Point, WTO Committee on Trade and Environment, United Nations Industrial Development Organization (UNIDO)

Gerardo Pataconi

Industrial Development Officer, Quality, Standard and Metrology Group, UNIDO – Focal Point for the implementation of the UNIDO-WTO Memorandum of Understanding.

Producers, consumers and regulators are nowadays confronted with a significant increase in environmental policies, standards and technical regulations. The issuance of new and stricter standards dealing with environmental matters is not an isolated phenomenon. Rather, it is part of a global “standardization” trend aimed at increasing the productivity and efficiency of supply chains and at achieving higher levels of security and safety to better protect consumers, workers and the natural environment. Specifically, new standards and technical regulations are being developed to: protect human and animal life or health, plant health (phytosanitary regulations), the natural environment and wildlife; ensure human safety and national security; and prevent deceptive practices. This “standardization” trend has a dramatic impact on trade and on access to export markets by developing countries.

The paper by Vossenaar et al. provides a well-documented and clear assessment of two EU Directives (WEEE and RoHS) as well as related initiatives of other countries. It also explores how developing countries are addressing environmental and health-related problem associated with the growing volumes of post-consumer waste from electrical and electronic equipment. Through assessments carried out in key exporters of EEE, it further analyses how institutions and SMEs in developing countries are dealing with technological and marketing challenges to comply with the WEEE and RoHS Directives as well as similar regulations in other countries. Another important issue it addresses is related to weaknesses in accessing information on new standards and regulations and their possible impact on industry and trade.

The recommendations made can be subscribed to. In addition, specific technical assistance, capacity building and financial schemes need to be conceived and offered to enable producers in developing countries to comply with the regulations; compliance with standards and regulations requires considerable investment to upgrade design and manufacturing technologies, logistics and means of verifying and proving conformity through inspection, auditing, testing and certification.

Other elements that need further attention to fully address the impact of WEEE and RoHS on developing countries include:

- Implications of the risk that developing countries that are not producers of EEE might increasingly become “dumping grounds” for WEEE;
- Data collection on, and assessment of the impact of, trade in “second-hand, used or reconditioned” EEE; it may offer excellent business opportunities but might also hide the transfer of waste and of more polluting and less energy-efficient products to developing countries; and
- The impact and cost implications for conformity assessment to prove application of WEEE and RoHS; the problem of enforcement of any standard/directive is usually linked to the conformity assessment infrastructure and market surveillance.

Environmental requirements and barriers to trade – the experience of UNIDO

UNIDO is deeply involved in the assessment of the impact of environmental standards. It carried out pioneering work in 1995 and 1997, conducting two global surveys (implemented in cooperation with the ISO, UNCTAD and ITC) to assess the trade implications of ISO 9000, ISO 14000 and eco-labels on developing countries and on countries with economies in transition. As a result

of this work, actions in support of these countries were identified and implemented by UNIDO. The organization, as a key provider of technical assistance and capacity building in the fields of quality, standards, testing and metrology (QSTM) and sustainable environmental production, has intensified its involvement in trade matters since the establishment of the WTO Doha Development Agenda, through a holistic approach involving increased cooperation with the WTO, UNCTAD and other multilateral as well as bilateral development and technical institutions.

UNIDO has been active in the environmental field since the preparations for the Rio Conference of 1992, to which it made significant inputs. It has always worked on allying improvement in productivity and competitiveness with improvement in environmental performance. Since 1994, it has used cleaner production as the major mechanism for promoting this alliance, through the creation of the National Cleaner Production Centre programme and the establishment of such centres throughout the world. Their mission is to advance the use of cleaner production by SMEs. In recent years, the programme has been focusing more on the transfer of cleaner technologies. It is also beginning to address the issue of environmental requirements acting as barriers to market access for enterprises in developing countries.

The efforts of the EU, Japan and other countries to promulgate policies promoting extended producer responsibilities must be seen as part of a more general global trend by countries to respond to calls by the international community – e.g. in the Millennium Declaration of 2000 and at the World Summit for Sustainable Development in Johannesburg in 2002 – for more sustainable patterns of consumption and production. UNIDO is currently elaborating a long-term strategy for assisting developing countries in responding to these calls. The strategy focuses on assisting these countries in dealing with the impacts on their trade of developed countries' policies to promote sustainable consumption and production. In addition, the strategy aims at assisting developing countries also to adopt sustainable patterns of consumption and production. This connects back to the findings by UNCTAD that China and Thailand are introducing national policies for extended producer responsibilities.

With regard specifically to trade and the EEE industry, UNIDO has carried out studies on global value chains in electronics. In Malaysia, for instance, it highlights the efforts of that country's policy-makers to meet the challenges of the transition to a knowledge-intensive electronics industry, with a focus on SMEs.

WEEE, RoHS and conformity assessment

One of the problems with any new standard and technical regulation is the way exporters can prove conformity. Even if supplier (self)-declarations might become increasingly popular even among producers in developing countries, when they produce and export they still often need to go through inspection (in production, at the borders and even in the marketplace), testing, auditing and certification. Costs of conformity can be high, especially for those countries where the quality of the infrastructure for standardization and conformity assessment is weak and is not recognized internationally. Based on UNIDO needs assessments, studies and enterprise-level surveys, it can be estimated that, on average, compliance costs might reach up to 10 per cent of production costs. This shows the importance of addressing conformity issues to fully comprehend the impact of new standards and regulations.

With regard to WEE and RoHS, producers of EEE will be obliged to demonstrate compliance for their products, and it is likely that they will use a combination of self-declarations based on reports from their suppliers, plus limited analysis and testing for banned substances. Formal testing procedures or testing standards will need to be established for each of the substances, and standards on reporting formats agreed. However, it could still be unclear where the burden of proof lies within the supply chain, for example where the original manufacturer has certificates of conformance (which they share down the chain), but where later testing or use, perhaps by end users, indicates otherwise.

The conformity assessment requirements are still to be fully defined and they would be related to adoption/harmonization of the directives in the national legislative framework. Nevertheless, to test products, parts and components for RoHS compliance, when considered necessary, would require upgrading of compliance analytical laboratories, proficiency testing and inter-comparisons, and staff training. It is equally important to verify the compliance of EEE producers with the RoHS Directive; identifying and rectifying failures in new products may require lengthy development work before the 1 July 2006 RoHS deadline

As reported in the chapter, it appears that Thailand is addressing the compliance problem through its establishment of a Trace Element Analysis Lab (TEA-Lab). It would be interesting to study what is being done in other countries and describe the specific technical assistance programmes under way to make testing requirements cost-effective and reliable.

Access to information and knowledge: early warnings

Countries establish appropriate notification mechanisms as part of their membership of WTO, to allow governments and their operators to be informed about new standards, technical regulations and conformity assessment procedures. Evidence to date strongly suggests that the system needs improvements, including complementary actions to allow information to effectively reach industry, consumers and regulators. Even when information reaches actors that would be affected by a new regulation, it would still be necessary to assess its impacts to enable producers to identify feasible means of adapting products and production methods to new requirements, and to upgrade conformity assessment procedures and institutions. This would be needed in order to enhance market access opportunities and avoid the risk of the regulation becoming a new barrier to trade.

The creation of early warning mechanisms/export alert systems would help developing countries overcome possible technical barriers to trade. We believe that for these systems to be effective, in addition to performing an information dissemination function, there is a need for them to develop and improve their capability to assess the impacts on production systems and the costs of compliance (e.g. inspection, auditing, testing certification, accreditation). Also, they need to offer practical and financially feasible solutions to overcome potential or actual barriers to trade. Furthermore, we recommend the inclusion of technical assistance components to help SMEs upgrade their production processes and products to comply with new technical regulations, standards or conformity assessment procedures of the importing countries.

The E-TRACE project in Egypt is an example of UNIDO's approach to early warning and to assisting producers overcome possible TBTs as well as improving supply chain management. This is a trade-related technical assistance and capacity-building (TRTA/CB) project (funded by utilizing a debt swap agreed between Italy and Egypt) through which producers and public institutions are being assisted, both technically and financially, in their efforts to meet the requirements of the EU market set by the EU regulation 178/2002. This regulation lays down the principles on food safety and circulation, with explicit reference to traceability of food products.

Initially, UNIDO and the Egyptian Ministry of Foreign Trade assessed the possible impact of and the business opportunities for Egyptian exporters of the new EU regulation. It then carried out an awareness-raising campaign and identified possible cost-effective solutions, taking into account the export data and the local capabilities and resources. At this point, a project was developed to provide institutional capacity building and technical assistance, and to create a financial facility for the purpose of providing access to funding for those producers that decided to implement food traceability systems and upgrade their skills and capabilities. The model is proving to be very effective and could easily be duplicated in other countries for addressing other new standards and technical regulations in the environmental and other fields.

Another example in relation to TBTs arising from environmental standards such as the take-back policies for EEE, is a project in India where UNIDO is promoting the transfer of cleaner

technologies through the Indian Cleaner Production Centre and its partners. The project focuses on two sectors, one of these being the automotive components sector. This is a large and growing sector in India, which is coming under pressure from environmental policies such as the EU's End-of-Life Vehicles Directive (which, like the WEEE Directive, is based on the principle of extended producer responsibility). Companies in the sector envisage that, because of the Directive, their clients (the automobile manufacturers) will soon be requiring their component suppliers to eliminate the use of hexavalent chromium. They have therefore approached the Indian Cleaner Production Centre within the context of UNIDO's cleaner technologies promotion project, to request assistance in finding alternative processes that do not use this chemical. Similarly, the Ugandan Cleaner Production Centre has been working with a client that exports flowers to the EU, to redesign the packaging it uses so that, among other things, it is easier to recycle within the context of the EU's Directive on packaging (yet another Directive based on the principle of extended producer responsibility).

Concluding remarks

Creating awareness and building capacity to deal with environmental standards and other emerging technical regulations or conformity assessment procedures not only reduces possible barriers to trade. It can also transform a potential technical barrier into a trade opportunity for those entrepreneurs in developing countries who exploit the chance the new directives offer by being the first to adapt to the new "rules of the game". By moving faster than its competitors in making the necessary investments, an enterprise can be rapidly in compliance with the importers' new restrictions, which in turn allow it to appropriate a larger market share and possibly become the new market leader.¹

Finally, the cost implications for ensuring conformity and market surveillance for WEEE and RoHS need to be further studied. In addition, the possibility of developing specific technical assistance projects that could be jointly implemented by UNIDO, UNCTAD and other institutions should be explored. The Consultative Task Force on Environmental Requirements and Market Access for Developing Countries could well offer the opportunity to move from assessment to concerted action to help developing countries implement environmental standards and regulations such as WEEE and RoHS.

Pierre Portas

Deputy Executive Secretary, Secretariat of the Basel Convention

Where ethics meets practice

In analysing the impact and opportunities arising from the transnationalization of environmental requirements for end-of-life electrical and electronic equipment exported by three rapidly industrializing countries in Asia, the paper by Vossenaar, Santucci and Ramungul also touches upon the fastest growing global waste stream – EEE waste. Given its constituents and characteristics, this waste stream could be subject to the Basel Convention's control regime, which increasingly takes centre stage in international discussions on environmentally sound management of such waste.

On a more general note, economic action and intelligence move faster than environmental action and intelligence. In today's world, globalization of the world economy sets the tone. Globalization brings successes and failures. Those benefiting from global trade may not be the ones enduring its resulting undesirable health and environmental effects. Globalization generates both benefits and problems. As a consequence, multilateral environmental agreements (MEAs), like the Basel Convention, have to react to mitigate these problems. Environmental action too often remains reactive and compensatory. However, the proper use of an MEA like the Basel Convention can be an effective preventive instrument.

The massive influx of EEE wastes to industrializing and developing countries generates income and creates jobs in these countries. Although economic prosperity is on the rise, those exporting and importing EEE wastes may not want the headache of solving the associated problems. Why is that? First, because there is no level playing field but there are a lot of free riders in the EEE waste business. Second, because governments have been taken by surprise and need time to adjust to the fastest growing waste streams in the world. There are no assurances that with economic advancement those countries that import EEE wastes will necessarily address the acute and long-lasting negative health and environmental effects of such wastes.

So which is the way forward? In the spirit, intent and purpose of the Basel Convention, every country needs to establish and operate effective control over the import of EEE wastes. Every country has a sovereign right to know and decide on what it can process and what it cannot process. Unless such a control is in place and enforced, the massive influx of uncontrolled EEE wastes to developing countries will continue to generate an ever-growing health and environmental burden for these countries. Similarly, such measures would be expected of the exporting countries.

Economic prosperity and the environmentally sound management of wastes, end-of-life equipment or post-consumer goods have to be accessible to everyone, everywhere and all the time. But if economic prosperity goes without environmentally sound management, we will pass on a legacy of a limping world to our children.

Electronic and electrical wastes, if they are not cleaned of their hazardous substances or components, can be controlled under the Basel Convention if subject to transboundary movements. To name such wastes differently, like post-consumer goods or end-of-life equipment, will not remove their hazardous constituents but may create confusion and uncertainties. A waste is classified and characterized as hazardous waste in the Convention because of its intrinsic hazards or properties, irrespective of whether such waste is destined for recycling, recovery or final disposal.

The sound management of EEE wastes requires adherence to national, regional and international legal regimes, a conscious decision to apply the principle of producer responsibility, a commitment to cooperation among countries to build capacity for sound recycling and recovery, as well as the disposal of residues arising from these operations, and reliance on a coherent set of interrelated and mutually supportive policy directions, including hazardous waste minimization, a

life-cycle approach to chemicals and integrated waste management. In this regard, the chapter describes the proactive environmental measures taken, in particular by China and Thailand, to adjust to the increasing volumes and complexities of EEE wastes generated domestically or imported.

The world is split apart. Industrialized countries have put in place strong environmental policies for the prevention, reuse, recycling and recovery of EEE wastes, whereas such drastic preventive and protective measures do not exist in many countries to which large volumes of such wastes are being exported. Is such a split world sustainable? Globalization is also about providing an equitable share of wealth.

The spirit of the Basel Convention simply recognizes that wastes are not ordinary substances or materials, and, when hazardous, represent a serious immediate or long-term threat to human health and the environment. The Basel Convention is about the global issue of the sound management and minimization of hazardous and other wastes and its universal application. The Convention is part and parcel of the international architecture required for ensuring that the globalization of EEE wastes does not lead to unprecedented harmful effects of post-consumer goods or end-of-life equipment on human health and the environment. Waste avoidance is a key factor in progressing towards alleviating the burden on importing countries. Improving the capacity for the sound reuse, refurbishing or recycling and recovery of EEE wastes in importing countries will improve health and environmental protection and generate economic benefits. But all this needs a commitment by all responsible stakeholders to bear their share of the burden and to marginalize unscrupulous economic actors – an ethical project for the benefit of all.

United Nations Economic and Social Commission for Asia and the Pacific, Environment and Sustainable Development Division (UNESCAP)

Vossenaar et al.'s paper on the Electrical and Electronics sector provides a thorough examination of an issue of particular importance for the Asia-Pacific region. As the study establishes, four countries of the region – China, Malaysia, the Philippines and Thailand supply over 50 per cent of the value of developed-country imports of electrical and electronic equipment (EEE). It is also important to note that the environmental implications of the EE sector in Asia and the Pacific are compounded by two other trends: the rise in domestic consumption of EE products as the Asian economies grow, and the volume of EE wastes that reach their end destination in Asia, both from domestic sources and developed-country waste streams.

In that regard, the sector is illustrative of the complexity of trade and environment issues for developing countries in Asia and the Pacific. While these issues have been frequently analysed in terms of the environmental requirements for exports of products from developing countries to developed-country markets, the EE goods sector illustrates that the more complete picture often concerns the environmental implications of both international and domestic trade flows.

The Asia-Pacific region is experiencing the fastest economic growth of any region in the world. This growth has contributed to significant and increasing environmental pressures, with serious consequences for the environment, human health and well-being, and long-term economic prosperity. The region is home to over half the world's population, including two thirds of the world's poor. Sustainability is thus not only important for the region itself, but also in terms of its impact on the sustainability of the world as a whole. There is a growing need to ensure economic development, in part through maximizing opportunities for market access to external markets, but it is also important to ensure that this access does not undermine domestic environmental sustainability.

An integrated approach to trade flows of developing countries

The trade and environment issues of concern to developing countries in Asia and the Pacific, and in fact worldwide, can be divided into two categories. The first concerns issues associated with developing countries' exports and production of goods for export. The second concerns issues associated with developing countries' imports and their production for domestic markets. Frequently, goods produced in developing countries do not adhere to the product standards, and process and production methods imposed by developed countries. This creates two costs for developing countries: (i) the potential economic gains of greater market access to developed-country markets are lost; and (ii) developing countries have to absorb the cost of environmentally unsustainable and hazardous process and production methods.

The import of products into developing countries can also have distinct environmental impacts, specifically: (i) developing countries' imports of products that would not be accepted in developed countries such as second-hand waste, hazardous materials and low quality products can have a negative impact on the environment and human health; and (iii) the import of certain types of products can have a negative impact on environmental sustainability in developing countries, including through their impact on consumption patterns.

Frequent technological improvements in the EE sector that encourage "upgrades" have created a stream of waste, the volume of which is increasing throughout the world. As UNCTAD's analysis clearly points out, regulations in the industrialized world, including the EU, Japan and the United States, have addressed the sustainability of the electronic sector, creating production requirements and designating responsibility for waste collection and management. These regulations have significant ramifications for a number of countries in Asia that have sizeable imports, exports, or both, of EE products.

Developing countries in the region need to enhance their access to external markets by meeting the environmental requirements of importing countries, while at the same time instituting domestic policies to control local consumption, encourage clean production and ensure appropriate recycling, reuse and safe disposal (including through import controls on hazardous electronic waste, such as through implementation of the Basel Convention, as discussed in the chapter). This would contribute to the economic growth necessary to eradicate poverty in the region while minimizing the transfer of environmental costs from developed to developing countries. To achieve these goals, however, many developing countries have indicated their need for further capacity building and technical assistance, including from other developing countries that have begun to enhance their own market access capabilities. The challenge, especially for SMEs, remains great.

UNCTAD's ongoing response to this need through its capacity-building workshops in the region has been well received. In addition to the work of UNCTAD, ESCAP, as part of a joint project of four United Nations Regional Commissions, is undertaking capacity-building activities in Asia and the Pacific on a subregional and sectoral basis throughout 2005 and 2006. However, capacity building is only part of the solution. UNCTAD's analysis makes two other pertinent observations about the realities of adjustment in the region. Many of these observations are equally applicable to experiences in other sectors and regions. The first underscores the need for consultation with and the involvement of developing countries in the development of legislation that affects them. Such involvement would assist legislators in setting time frames for implementation that would better enable developing countries to prepare for environmental requirements in a timely manner. The second concerns the need for more systematic dissemination of information and tools to enable enterprises, and especially SMEs, to adjust their production and other processes so that they do not lose market access. The current variability in adjustment processes of the countries studied demonstrates that a planned, multi-stakeholder approach to adjustment is appropriate and effective.

In addition to supporting a more inclusive development of environmental requirements and systematic, multi-stakeholder adjustment processes, ESCAP as a regional organization notes the recommendations for further exploration of adjustment tools that could be provided at a regional level. It looks forward to further exploring these possibilities with other agencies through its membership of the Consultative Task Force (CTF) on Environmental Requirements and Market Access. The CTF, although newly established, should be a valuable mechanism for assisting agencies in avoiding duplication, planning activities strategically for maximum coverage and impact, and supporting the development and sharing of analysis needed by developing countries. ESCAP looks forward to being an active member of the Task Force.

Ruediger Kuehr

United Nations University Zero Emissions Forum (UNU/ZEF), European Focal Point, Bonn and Hamburg, Germany²

In only a few decades, electrical and electronic equipment (EEE) has become ubiquitous in the homes and offices of the industrialized and rapidly industrializing world. However, the environmental implications of EEE have not yet been subjected to similar levels of consideration and debate as their economic and social aspects. As with any major technical revolution, the effects of, for example, information technologies as one of the 10 EEE product categories specified in the WEEE Directive are significant and wide ranging. Examples include increases in environmental efficiency in products and services, and shifts in transport, trade and consumption patterns associated with the increasing use of e-commerce and telecommuting. But there are also direct environmental implications associated with EEE due to the impact of production, use and disposal of the equipment.

Concerns over the environmental and health problems associated with EEE have prompted policy initiatives at both governmental and industrial levels, most notably the WEEE and RoHS Directives of the EU and the HARL and Green Purchasing Law of Japan. But in addition, political incentives will be required to achieve any real innovations for managing the environmental impact of EEE in a sustainable way, as well as for closing the digital divide and maintaining market potential and access for all countries involved in the largely globalized supply chain. The chapter by Vossenaar, Santucci and Ramungul addresses the latter issue, which has been dealt with only in passing, if ever, in the political and scientific discussions about environmental regulations for EEE. It discusses environmental requirements and market access for the rapidly industrializing countries of China, the Philippines and Thailand, and recognizes the need to promote sound collection and management of EEE waste in these countries.

The paper discusses with clarity the issue of transmission of environmental standards set in key markets such as the EU and Japan, which involves all exporting producers through largely globalized trade and supply chains. This is of special importance for the newly industrializing countries in South-East Asia, which were responsible for approximately 75 per cent of the value of EEE-related world trade in 2002. The paper is coherent, logical and well documented, and an important contribution to the discussions on the development impacts of EEE through regulatory and other policy instruments that attempt to reduce the environmental load of this booming sector. It is difficult not to share most of its conclusions and recommendations: this commentary also advocates joint efforts of all actors along the largely global supply chain of EEE.

Increasing attempts in the EU, Japan, Switzerland and elsewhere to apply the principle of producer responsibility also in the EEE sector point to a growing problem that deeply affects the rapidly industrializing countries in South-East Asia. This is for two key domestic reasons that are complementary and elementary, in addition to those expressed in the chapter: the growing markets for EEE in their countries of origin, and the environmental and health impacts of EEE, even in the production phase.

The direct environmental implications associated with EEE stem from the impacts of production, use and disposal of the equipment itself. This is an issue of consequence, especially given the huge number of rather complex EEE, such as personal computers (PCs), in homes and offices in the industrialized or post-industrialized world. In April 2002, the billionth PC was shipped and global annual production is still around 130 million. PC penetration rates in the industrialized countries are high, and it is plausible that the number of PCs could increase to one or more per capita in these countries. Meanwhile, there is also rapid growth in PC and other EEE use in much of the rapidly industrializing countries. China has become the world's biggest consumers of refrigerators. Consequently it is likely that the production rates to satisfy domestic demand alone in countries such as China, the Philippines and Thailand will grow significantly over the next few

years. And this will be in addition to production for export, provided these countries succeed in making the necessary timely adjustments to external environmental requirements.

As with most developments, the benefits are also accompanied by certain risks, especially when the countries are simultaneously key producers for the global market and have a booming domestic market, which leads to growing mountains of obsolete machines. In addition, several of the rapidly industrializing countries are also international hubs for outdated EEE, mainly for materials recycling purposes. The internal structure of the PC is complex, making recycling difficult. Yet many of the machines are still either usable or contain usable components, creating a real challenge for end-of-life processing. As a result of comprehensive new legislation, which has been introduced in, for example, the EU and Japan, as described in the paper by Vossenaar et al., firms are obliged to include waste management considerations, such as the use of easily recyclable and recoverable materials and the control of hazardous substances, into design and production. But, although the environmental impacts of lead and mercury have been considerably analysed for various product groups such as tubes and batteries, this knowledge has yet to be applied to assess the risks associated with heavy metals in electronics and, especially, IT equipment. Thus there is no substantive basis to justify the decision of the EU to ban these substances; its policy formulation is made on assumptions, leaving considerable scope for uncertainty among consumers, producers and employees.

Nevertheless, the complexity implies that the production of PCs and their components will remain rather material- and energy-intensive. A recent study of the UNU has shown that for producing only a 2-gram memory chip, 1.3 kilograms of fossil fuels and chemicals are required. Yet the use of fossil fuels is already closely correlated with impacts on climate change. Efforts have been made to reduce the environmental impacts through chemical substitution, reduction of use, and improved treatment and storage technologies in the manufacture of semiconductors. However, there is very little information available regarding environmental practices in countries such as China and the Philippines. The health of workers involved in chip fabrication is of particular concern due to their long-term exposure to chemicals, which might result in increasing rates of birth defects and cancer – an issue in which firms and governments have shown little interest, despite a barrage of lawsuits of former workers in countries such as the United States.

To make one desktop PC with a 17-inch CRT monitor, about 22 kilograms of chemicals, 240 kilograms of fossil fuels (05,040 mega-joules) and 1,500 litres of water are used, along with a significant amount of energy compared with other consumer goods. An automobile or refrigerator requires around 2,000 kilograms and 50 kilograms, respectively, of fossil fuels in production. The ratio of embodied fossil fuels to product weight for a computer is nine times, but only one or two times for an automobile or refrigerator. The typical PC has an average life span of three years in the industrialized and post-industrialized world, which makes this high amount of energy in production even more noteworthy. Office equipment consumes about 3 per cent of energy requirements in the United States, more than 40 per cent of which can be attributed to the operation of PCs; and there are similar estimates for other regions of the world. But energy-efficient technologies and strategies in the commercial sector are helping to reduce the environmental impact such as from greenhouse gas emissions. Nevertheless, PC energy requirements are expected to increase, due to PCs being kept on even when not in use (e.g. overnight) and due to the growing rate of utilization of computers.

This short description of a life cycle of a computer and its components illustrates the extent to which countries such as China, the Philippines and Thailand have to respond substantially through appropriate countermeasures, not only to meet certain environmental standards set by the main recipients of their EEE products, but also to fight a risky development in their own countries. Thus, in addition to the recommendations made by Vossenaar et al., one should also call for greater efforts to develop regulations for the production and consumption phases in these countries. Setting recycling and related eco-design requirements throughout the supply chain will certainly help

encourage the key exporters of EEE to consider appropriate adjustment strategies that go beyond mere market-led adaptation. Considerations of national WEEE management strategies, including the extension of a product's life span through reuse and repair, are already under way in countries such as China and Thailand.

However, there is a lack of public awareness of the environmental impacts from the production of EEE in both the industrializing and industrialized countries. Consequently there is almost no demand for environmentally sound EEE that could stimulate an industrial response. It would therefore be effective and efficient to combine efforts at an adjustment to external requirements of exported EEE with efforts towards an adjustment to internal requirements for sound WEEE collection and management, as suggested by Vossenaar et al. But these should also be combined with a campaign informing the public about the environmental impacts of EEE and appropriate ways to manage and reduce them. Such a campaign could push for an extension of EEE's life, for a reduction of harmful effects during production and of energy consumption during use, as well as the reduction of material inputs. But there are political decisions that often lead to rather absurd results from the perspective of sustainability, which require correction. One example is taxation of office equipment, including PCs, in Germany that discriminates against the utilization of refurbished PCs and therefore artificially shortens the life span of computers.

There is therefore a need not only for exchanging national experiences in developing adequate collection, repair and recycling systems, and exploring options for subregional cooperation, as suggested by Vossenaar et al., but also for discussions on harmonized global action that takes into account the entire life cycle of EEE. Actions are required at the level of the international community, governments, civil society (including academia) and the business sector, not only to enhance understanding of trends in environmental requirements and appropriate adjustment policies, but also to develop a common approach to successfully address the growing problems created by EEE. A careful analysis of the present situation with regard to the production, consumption and final disposal of EEE in the rapidly industrializing countries and an open exchange of experiences and ideas would help guide the way to possible problem-solving strategies. UNCTAD's CTF can play a useful role in promoting these dialogues, if accompanied by appropriate assessments and empirical analyses to provide a solid basis.

A joint consortium of UNU, Hewlett Packard and Promotionsteam Wetzlar is initiating a new project entitled Solving the E-Waste Problem (StEP). It aims at building a network of stakeholders from industry, academia, international organizations and NGOs to conduct research, dissemination and capacity-building activities. The group is to collaborate, through a common understanding of its objectives, to enhance reverse supply chains for EEE, with a view to:

- Mitigating environmental harm from EEE-waste processing in the industrializing world;
- Promoting efficient use of resources and increasing reuse of equipment, when appropriate; and
- Improving economic and social development, particularly in the industrializing world.

UNCTAD's experiences, expertise and continuing efforts, such as those on adjustment policies, and the exchange of national experiences through projects such as the UNCTAD/FIELD project and the CTF, makes that organization not only a valuable partner for the "StEP" endeavour, but also gives many opportunities for synergies between the activities of UNCTAD and StEP in the challenging field of EEE.

Bakar Jaafar

Professor in Environmental Studies at University Putra Malaysia.

Siew Hai Wong

Chair, Malaysian-American Electronics Industry, former Vice-President, Technology Manufacturing Group and General Manager, Assembly Test Manufacturing of Intel Corporation, and

Manickam Supperamaniam, former Ambassador of Malaysia to the WTO.

This chapter by Vossenaar et al. clearly highlights the environmental concerns resulting from the growing amount of post-consumer waste generated by the electrical and electronics (EE) sector, as well as the risks that hazardous materials used in the production may pose at the end-of-product life, including for recovery or recycling. More importantly, it emphasizes the need for concrete lines of action to control and reduce the waste and, better still, to prevent it.

Today, developed countries are taking a lead in this area. The EU is driving the process through the WEEE and RoHS Directives and other countries have new legislation imposing similar requirements. Transnational corporations (TNCs), which have factories located all over the world, have been working towards a solution for the removal of lead and heavy metals content, or already have one. This is the case, for example, of Intel, which has its assembly and test factories in China, Costa Rica, Malaysia, and the Philippines, as well as other companies such as Motorola, Agilent and Sony.

Malaysia has been relatively less affected by the new requirements for at least two reasons. First, the TNCs operating in Malaysia have been preparing to meet the requirements through direct communication between their head offices and their respective subsidiaries in there. Second, non-TNCs are manufacturing EE goods largely for the domestic market, under their own brands. Even when they become local suppliers of TNCs, they are generally in a position to get the necessary technical support from the TNCs they supply, for example, through mentor programmes. In the context of ISO 14001 certification programmes, TNCs, as mentors, enlarge their “sphere of influence” to the operations of their respective local suppliers and assist them in obtaining certification. Certain TNCs, such as Sony Electronics in Penang, have also created partnership programmes with local suppliers to reduce the global environmental impact of their products and promote proper upstream management of the use of substances.³ Apart from the large number of ISO 14001 certified companies, the relatively high degree of environmental awareness of the EE industry in Malaysia is also reflected, for instance, in their environmental reporting (including the publication of environmental performance indicators).⁴

The TNCs in the EE sector in Malaysia produce mainly semiconductor components, optical products and LAN (local area network) communications. TNCs providing electronic manufacturing services produce, among other things, motherboards and networking cards. Those specialized in consumer products manufacture mainly TVs and CD/DVD players. The TNCs subcontract their production to local SMEs to supplement their production when their own capacity is limited, or they outsource the production of more traditional products when they diversify into new products. Some TNCs also subcontract some of their process steps like burning in their boards or components, or for the final packing process. Some of the other areas where local SMEs support the TNCs include supplying automation solutions, jigs and fixtures to improve productivity and reduce costs of the operations. As mentioned earlier, most Malaysian brands, especially consumer EE goods such as Pensonic and Khind, are produced for the domestic market.

This poses a few challenges including the issue of who should be responsible for providing the solutions to their suppliers and subcontractors. For large companies, there is no major problem as they have the competence and resources to find ways of removing hazardous materials used in

their processes or components. However, since this can be a costly process, SMEs that have neither the resources nor the expertise to find solutions obviously need assistance. In Malaysia, it is widely believed that SMEs will be the most affected, as the additional costs will have an impact on their competitiveness.

The electronics industry is the leader in Malaysia's manufacturing sector, contributing substantially to the economy.⁵ In 2003, its structure was as follows: 68 per cent for electronic components, 19 per cent for consumer electronics and 13 per cent for industrial electronics. The total value of electronics exports from Malaysia in 2003 was about \$52 billion (accounting for 52 per cent of total exports), the largest being electronic components (\$25 billion), followed by industrial electronics (\$22 billion), and consumer electronics (\$5 billion). The industry employs 360,000 persons, representing 36 per cent of total employment in 2003. The presence of TNCs in Malaysia has created a sizeable local market for components and supporting or ancillary industries. There is now a strong network of inter- and intra-industry linkages in the sector. Since the inception of the Industrial Linkage Programme in 1997, a total of 170 SMEs have forged linkages with TNCs and other larger local companies. Most of the SMEs are involved in electronics, machinery, fabricated metal products and engineering support services. Some are also established to serve the EE industry for plastic injection moulding, metal stamping, machining, electroplating, moulds, tools and dies, and manufacture of electronic components.

Legislation, the voluntary application of elements of the concept of producer responsibility, as well as the use of the ISO 14000 and 18000 series of standards, have prompted certain companies to incorporate environmental, health and safety (EHS) requirements at the early design stage, for both products and processes. Sony Electronics (Malaysia) Sdn Bhd, for instance, has started its own product design for the environment since 1999 by carrying out new product life cycle assessment based on the ISO 14040 series of standards.

The use of environmental management systems, such as ISO 14001, may bring benefits to companies and help to increase market share. Studies on the European experience (see, for example, Hillary, 2000) show that cost savings to the producers, a better corporate image and improved employee morale are among the major benefits. However, environment-friendly products and services have yet to find their market niche, as revealed by a survey in 2000 of the Malaysian Institute of Management (*The Star*, 17 December, 2000). Environment-friendly products and services as a factor in gaining a competitive edge has been found to be the least important of all factors, including customer-related as well as other product-related ones such as price, quality, reliability, technical excellence, advancement in design and product reputation. To create a win-win situation there should be shared responsibilities between producers and consumers. Producers should be made responsible for producing goods containing some recyclables, and consumers should be made accountable for sorting and returning their post-consumption products to the collectors of recyclables and non-recyclables.

In general, the chapter adequately addresses the concerns of developing countries and provides some ideas on how to respond to them. However, in addition, more specific actions are needed to mitigate the problems relating to the lack of awareness, poor management of information, inadequate exchange of information, and lack of openness in communication among all stakeholders. All these problems can lead to reactive (rather than proactive) and sluggish industrial restructuring and adjustments in developing economies, as well as to "new" investment (and unnecessary financial commitment) in out-of-date products and processes. There is a need for more direct communication on new environmental requirements between developed and developing countries. For example, regulatory agencies on FDI, such as the Malaysian Industrial Development Authority and the State Economic Development Corporations, as well as national environment regulatory authorities, such as the Department of Environment of Malaysia, should be informed by their developed-country counterparts about new policy develop-

ments. They should be in direct communication with them with a view to anticipating future requirements and assisting industries in adapting to them.

General “waste and sewage” was among the problems experienced by Europe from the 18th to the mid-20th century. However, these problems have yet to be satisfactorily addressed and overcome in numerous developing countries, including Malaysia. Malaysia’s goal is to recycle 22 per cent of total waste by the year 2020. Currently, only 3 per cent is recycled. To achieve such a target, Malaysia has prepared a Solid Waste Master Plan, and has been debating a Solid Waste Management Bill that has yet to be passed by Parliament. In the meantime, Malaysian local authorities, led by the Ministry of Housing and Local Government, are undertaking numerous steps and activities to increase public awareness of recycling. However, there is neither a clear nor a specific policy to deal with post-consumer EEE waste.

E-waste management is certainly an issue of concern in Malaysia, and some legislation does exist to address some industrial waste issues. Those industrial waste types considered largely “toxic and hazardous”, or not generally accepted at the sanitary landfills managed by the local authorities, are defined and listed as “scheduled wastes” in the Regulations of 1989 under the Environmental Quality Act 1974 (Amendment). The specific types of e-waste covered by the Regulations are discarded electrical equipment or parts containing or contaminated with polychlorinated biphenyls (PCB) or polytriphenyls (PCT). Amendments have been proposed to also include waste electrical and electronic assemblies containing components such as accumulators, mercury switches, glass from cathode ray tubes and other activated glass or PCB capacitors, or those contaminated with cadmium, mercury, lead or PCB.

Among the industrial sectors, the EE industry is the third largest generator of scheduled wastes after the metals and chemicals industries (Malaysia, Department of the Environment, *Environmental Quality Report*, 2001). Several TNCs have been working towards reducing production waste. Sony (Malaysia), for example, has established a target to reduce the volume of hazardous wastes generated by its production activities by 10 per cent per year, and is working towards zero waste emission (recycling over 95 per cent of the volume of waste) (Sony Electronics (Malaysia), 2003).

Malaysia has some state-of-the-art waste treatment facilities. The Kualiti Alam industrial waste treatment facility was awarded a 15-year exclusive contract to handle Peninsular Malaysia’s scheduled waste on a commercial basis in 1995. But the facility is facing capacity constraints, and is not updating its schedule of fees, which are generally considered quite high. The industry has complained about high waste disposal costs. As a result, a number of industries such as the national automakers, PROTON and PERODUA, have invested in their own waste treatment facilities; over 77 licences have been issued to the operators of scheduled waste collection, recovery and recycling facilities. The only licences for final treatment and disposal of scheduled waste have been issued to Kualiti Alam and Trienekens (the only two concessionaires for the final treatment of all types of scheduled waste generated in Peninsular Malaysia and in the state of Sarawak respectively), and to five specific waste concessionaires, Faber Medi-Serve, Pantai Medinvest, Radicare and Normah Medical Specialist Centre, for the final treatment of non-radioactive clinical and infectious waste, at 14 different facilities in various regions or states, and to Petrojadi for the conversion of oily sludge and waste-to-energy in the state of Sabah (www.jas.sains.my/hazardous substances). The Atomic Energy Licensing Board regulates used radioisotopes and other radioactive wastes, which are treated at the facility of the Malaysian Institute for Nuclear Technology in the state of Selangor (www.mint.gov.my). Citiraya of Malacca, is a newly established company to process and treat e-waste generated by the electrical, electronic and telecommunications industries in Malaysia.

Other than for final treatment of the special types of waste, and for some limited resource recovery, little progress has been made in dealing with post-consumer EEE waste from the 5R

perspective: reduce, reuse, recycle, recover and reposit (for future use). In the state of Penang, for example, most of the EEE waste generated by households and small businesses ends up in landfills, as there is currently no mechanism for recycling or for safe disposal of community-generated EEE waste (Socio-Economic and Environmental Research Institute, 2003). The informal sector buys e-waste for a minimal price and sells it to customers looking for spare parts, either for repair work, for refurbishing computers for reuse, or for export to China; but it does not dismantle or recycle e-waste in an environmentally proper manner. Larger operations also exist and receive e-waste stocks from factories. Vendors are engaged to scrap such items and not sell them as second-hand products.

Some larger companies have initiated well-organized programmes to collect computers from the community for refurbishment and resale. For example, in February 2004 Dell, in cooperation with the Government of Penang state, launched a voluntary PC Recycling Programme to collect e-waste at zero cost.

Apart from other wastes, today, developing countries also have to handle the additional burden of post-consumer EEE waste. This will be a huge problem unless the principles of “producer-responsibility” and “consumer-accountability” are put in place and widely practised. Perhaps the producers should help finance the collection and recycling centres, while the consumers bear the costs of transporting their used goods to such centres. Otherwise, the costs of collection, cleaning and disposal of the unwanted materials have to be borne by local authorities, and thus, the general taxpayers.

With regard to *consumer responsibility*, the lead author of this commentary has proposed that the *indifferent-consumer-pays* principle be introduced as an environment-economic policy instrument in national waste management, based on the 3Rs programme, which can be extended to 5Rs (see above). Consumers would be responsible for depositing unwanted materials into material-specific recycling bins, as the costs of waste collection and sorting are generally very high (recycling in the informal sector may be less expensive, but involves environmental risks). The producers can gain in competitiveness by introducing new and increasingly environment-friendly products and services, as the recyclables become more accessible and readily available not in the backyard but in the open market, through a nationally organized “exchange of recyclables”, similar to those for any other commodities. It is too early to assess the experience of Malaysia in promoting the “indifferent-consumer-pays” principle. It is currently being reviewed by the relevant authorities of Malaysia in connection with the policy statement relating to waste management as contained in the 3rd Outline Perspective Plan of Malaysia (1996-2005) and elaborated in the 8th Malaysia Plan (2001-2005).

The following are a few recommendations for consideration (some of which are already discussed by Vossenaar et al.):

- TNCs are well informed of various environmental requirements, but SMEs still do not fully understand their implications. There is a need to create timely programmes to generate greater awareness of any proposed requirements and their implications;
- There should be a centre or forum for SMEs to discuss and identify possible solutions. Better still, all countries should collaborate and share information, either on the Internet or through universities or research centres, to assist SMEs;
- ISO 14001 should be used to increase awareness, and companies should be motivated to become 14001 certified. This will help in promoting the 5R programmes;
- The costs of certification need to be reduced to allow more SMEs to become certified;
- Addressing issues, such as eliminating the use of hazardous materials, during the design stage is the right approach. One way to encourage companies, including SMEs, to do this is to provide some incentives such as a tax reduction or grants;
- There is a need to create collection centres for consumers to return their end-of-life products as well as facilities to dispose of such products in an environmentally sound manner.

Many TNCs located in Asia have already started to introduce elements of producer responsibility. Collection centres are being set up in countries such as Malaysia and Singapore to collect used or discarded products so that they can be disposed of properly. Most of these companies pay the costs of transportation, and some even give rebates if their products are returned to their centres. In Malaysia, this is mainly driven by TNCs; local companies should be encouraged to follow their examples;

- Greater efforts are needed to promote more and effective participation from developing countries in the development of policies and legislation to protect the environment, in particular in the EE sector; and
- Capacity-building programmes should respond to the pressing need for a closer rapport and more open communication at the national, regional and international levels between all relevant authorities, particularly in the areas of environment, industry and trade. This was organized for industries of developing economies when they were required to conform to national obligations under the Montreal Protocol on Substances that Deplete the Ozone Layer of 1987.

UNCTAD's Consultative Task Force (CTF) can play a useful role in facilitating the exchange of national experiences among the key EE exporting countries, in particular those in Asia, and in identifying opportunities for cooperative subregional approaches. CTF activities are moving in the right direction by adopting a more proactive, anticipatory approach, including proper information management, participation in pre-standard/regulation-setting stakeholder consultations and the forming of public-private partnerships.

Federation of Industries of the State of São Paulo (FIESP), Brazil

About the chapter and the issue

The paper by Vossenaar et al. offers a broad and necessary overview of the issues involving environmental requirements related to the EEE sector. It confirms the noticeable trend towards the proliferation of regulations and standards, and its effects in terms of potential loss of market access for developing countries. It also sheds light on the greater challenge posed by environmental and health standards and regulations, which have grown significantly over the last 15 years along with increased international commitments as embodied in multilateral environmental agreements (MEAs) in areas such as biodiversity, climate change, restriction on the use of hazardous substances and toxic waste.

Brazil is a developing country that conducts foreign trade with major world markets – those of the United States, the EU, South-East Asia (including Japan) and Latin America. It is also geographically large with biodiversity assets that make it a strong supporter of MEAs. It therefore has a vested interest in achieving a proper balance between commitments in the fields of environment and health protection on the one hand, and market access for goods produced in developing countries on the other. Therefore its private sector is constantly under pressure both to achieve global goals – set by Brazil and other countries – and to respond to changing patterns of consumption in its major export markets resulting from preferences for environment-friendly goods. Furthermore, Brazil also faces protectionist practices in sectors that have become aware of the potential of “environmental non-tariff barriers” to block market access of competitive developing countries’ industries.

A previous background note elaborated by UNCTAD and presented at a pre-UNCTAD XI event here in Brazil, during the inception phase of the Consultative Task Force (CTF), already demonstrated the need for more interaction on policy issues and capacity constraints between three levels: the World Trade Organization (WTO), the international level outside the WTO and the national level in developing countries. It is particularly important for developing countries, which have significant capacity constraints, that efforts to link policy and capacity issues receive greater attention under the umbrella of the WTO. This is reinforced by the fact that the WTO offers a much broader policy discussion space than other Bretton Woods institutions due to its decision-making process based on the consensus rule.

At the same time, owing to the very nature of opportunities or constraints resulting from commitments in the WTO, developing countries tend to focus their scarce resources in this arena rather than in activities of other international organizations dealing with standards harmonization. This is as true for small economies as it is for a developing country such as Brazil. And it is also true in the sense that the private sector has significantly fewer resources than its government counterpart to assess the impact of new regulations and to design effective adjustment policies. However, many developing countries face significant capacity constraints, including a lack of human resources, that prevent them from making full use of WTO disciplines and TBT and SPS inquiry points. Also, little systematic attention is being paid to analysing the impact of voluntary environmental requirements that are increasingly present in international markets, and to the design of effective adjustment policies in this regard.

The Brazilian manufacturing sector has already initiated a series of initiatives at the national and state-level, related to the issues of WEEE and RoHS Directives as well as to general environment protection concerns.

The experiences of FIESP

The Environment and Sustainable Development Department (DMA) of FIESP coordinates all initiatives in this field, and has focused its actions on five major industry-related environmental

themes: environmental management, environmental licensing, pollution prevention and control, water resources and industrial waste. These are complemented by a strategic “environmental conformity” agenda composed of four integrated phases:

- Compliance: designed to help industries meet environmental requirements established by legislative action (regulations);
- Normative conformity: designed to help industries in voluntarily meeting environmental requirements established by standards;
- Eco-efficiency: designed to help industries adopt processes and production methods (PPMs) in conformity with environmental requirements, bearing in mind the environmental impact and costs, as well as the principle of continual improvement of environmental performance; and
- Eco-business: designed to help industries in accessing markets with responsible consumption patterns based on environmental criteria.

Regarding the issue of environmental requirements and their impact on market access for developing countries, the DMA has three types of initiatives, discussed below.

A discussion forum

This is aimed at fostering technical debate among all manufacturing sub-sectors. Its main purpose is to gather and exchange information on non-tariff barriers faced by industries, as well as to support cooperation among them and with other civil society actors.

There are two major organisms operated by the DMA for this purpose: *Conselho Superior de Meio Ambiente* (COSEMA, Superior Council for the Environment) and the Environmental Board of the Industries of São Paulo. Both entities promote debates related to environmental issues between manufacturing sub-sectors, research institutes, universities, government bodies and agencies, and NGOs. One of the working groups established under the umbrella of the Environmental Board is fully dedicated to addressing the issue of environmental technical barriers to international trade, and its work has already resulted in five proposals:

- Disseminate information and promote technical expertise on “environmental barriers” to international trade, through publications and technical meetings, focusing on a specific industrial sector as well as dealing with the subject in a general manner;
- Analyse life-cycle assessment (LCA) of products and services, including its potential to become an “environmental barrier” to international trade, focusing on Type III Environmental Declarations and Eco-design (issues that use LCA principles based on internationally agreed guidelines). FIESP will also focus on the ISO 14000 series, as well as on responding to the need to disseminate information and promote the technical capability of the industrial sector;
- Channel the results of these proposals to Brazilian government institutions, such as the Ministry of Development, Industry and Trade, the Ministry of Science and Technology, the National Bank of Economical and Social Development, the Agency for Export Promotion in Brazil, as well as competitiveness forums. Mobilize them to address the needs of Brazilian industry and fill the gaps related to: establishment of legal and technical requirements in international trade, improvement of internationally agreed certification and accreditation mechanisms and institutions, and of financial conditions for industry and institutions to enable them to cope with new rules in international trade;
- Promote participation of the industrial sectors, FIESP, unions and industry associations in defining national and state agendas aimed at promoting environmentally preferable products destined specially for foreign markets; and
- Promote studies for the creation of specific labels for environmentally friendly industrial products as well as the adoption by Brazilian industry of existing regional and international labels.

Designing of a state-level solid waste policy

This aims at encouraging debate on national legislation for solid waste management. The main objective is to support the adoption of a comprehensive legal framework that could address issues such as post-consumption waste, the producer responsibility principle and waste management in order to respond to national legislation and demands from Brazilian consumers as well as to meet foreign requirements, such as those related to the EU's WEEE and RoHS Directives.

Environmental management, eco-design and certification

DMA/FIESP has acted as a member of the Committee on Environmental Management in the Brazilian Association of Technical Standards, first through its Sub-Committee XVII, dedicated to the translation of the Technical Report ISO 14062 on Eco-design, and currently through its other eight subcommittees, dedicated to the elaboration and translation of regulations under ISO 14000 series. This initiative is also dedicated to disseminating information and providing technical support on eco-design through partnerships with private and state institutions like the São Paulo Design Center and the Institute of Technological Research, and to fostering environmental certification in industry through technical support, publications and seminars.

Issues for further analysis

The chapter by Vossenaar et al. raises a number of issues relating to trends that, while analysed in the specific context of the EEE sector, have horizontal implications, including for other manufacturing sub-sectors. These questions deserve further attention, not only due to their potential impact in terms of constraints to market access, but also because of their wider implications for developing countries. Some of these issues are:

- The trend towards “green procurement” and its impact on market access for developing countries;
- The risk of developing countries becoming “dumping grounds” for EEE waste and/or “second-best” markets for products that do not comply with environmental requirements in developed-country markets;
- The role of TNC branches in developing countries as potential “compliance inductors” due to compliance goals set by their headquarters in developed countries;
- The impact on market access for developing countries of national implementation of customs union-wide regulations in the case of the EU's WEEE and RoHS Directives;
- Specifically in the case of the RoHS Directive and similar regulations that ban certain materials and substances, the difficulties faced by developing countries that are unable to develop substitutes; and
- The role of intellectual property rights (IPRs) involving “eco-materials” (such as alternative substances to those prohibited by the RoHS Directive) in widening the competition gap between developed and developing countries, and possible abuse of market position by a few foreign suppliers.

Kakali Mukhopadhyay

Visiting Fellow, School of Environment, Resources and Development (SERD), Asian Institute of Technology (AIT), Thailand

The paper by Vossenaar et al. reviews recent developments in regulatory and other policy instruments that address waste resulting from EEE in major markets and their implications for producers in developing countries, especially China, the Philippines and Thailand. It also discusses the adjustment processes in these developing countries. This commentary focuses on the experience of Thailand and the role of technology.

As a result of the rapid and continuous worldwide growth of the electronics industry over the past few decades, Thailand's electronics and information technology-based industries have grown strongly, supported by intense promotional efforts by the Board of Investment (BOI). The EEE sector in Thailand may be broadly classified into the following six groups: consumer electronics, communications equipment, computer hardware, industrial electronics equipment, electronic components and computer software. Surveys carried out in 2004 indicate that there are a little over 400 establishments of various sizes in this sector, employing a workforce of over 592,000. The sector's contribution to total manufacturing GDP has grown, from 1.9 per cent in 1970 to 3.5 per cent in 1989 and to 8.3 per cent in 2003, mainly through the growth of the electronics sub-group. EEE accounted for 35 per cent of the value of total exports of the country in 2003.

Implications of the EU's WEEE and RoHS Directives for enterprises in Thailand

What are the implications of the EU's WEEE and RoHS Directives for Thailand? The paper describes very well how Thailand is trying hard to adjust to external environmental requirements as well as to the domestic challenges in the EEE sector.

The enterprises operating in the sector in Thailand are either components suppliers or assemblers, and the vast majority (over 80 per cent) are SMEs, although there are also a number of large enterprises. There is a large informal sector which plays a major role in EEE waste management. The EEE sector uses a lot of materials that are not environment-friendly during recycling, and this is a key problem. The informal sector has little knowledge of how to recycle parts in an environmentally friendly manner. There is also little awareness of related health impacts.

Thailand has taken several steps to adjust to the requirements of the WEEE and ROHS Directives, as described in this chapter. The Thai authorities have given considerable importance to enhancing understanding of the major implications of these two Directives for Thai producers. Committees have been created, conceived as public-private partnerships involving government offices, private sector institutions, in particular the Electrical and Electronics Institute and the National Metal and Materials Technology Centre, research institutes, universities and NGOs, to facilitate national level discussions and study the implications. Measures adopted include the Department of Industrial Works' notification concerning the control of imports of used EEE; the NESDB/EEI Green Productivity Movement project; inter-ministerial coordination to integrate laws and regulations; and the issuance of guidelines for environmental management. Furthermore, the Office of Industrial Economics and the Pollution Control Department (PCD) of Thailand have outlined a draft strategic plan on WEEE management based on the polluter pays principle, and on producer, importer and consumer responsibility; it also envisages the setting up of a specific fund for management of WEEE. A PCD EEE pilot project covering mobile phones, cathode ray tubes, dry cell batteries and fluorescent lamps deserves particular mention in this respect. The project aims, among other things, at estimating the volume of EEE waste generated for each product and analysing waste management systems, the life cycle of the products concerned and consumer behaviour with regard to disposal.

In Thailand the large companies exporting to the EU are relatively well prepared to respond and adjust to the requirements of the new Directives. However, SMEs will face severe problems in

meeting the requirements, including rising production costs. It is important to increase the awareness of the manufacturers about the implications of the two Directives and to promote cooperation on waste management. Compliance with the RoHS Directive requires more R&D expenditure to find substitute substances. For example, there is a need to enhance knowledge of how to use alternative substances to heavy metals in order to produce environment-friendly goods for export markets. R&D should be strongly supported, especially in the area of substitute materials for the production of EEE and design for dismantling, reuse of equipment and proper waste treatment. Promoting joint ventures between Thai companies and companies of trading partners (e.g. in the EU) for the development and transfer of technology necessary for substitution and treatment of waste may be helpful in this context.

As discussed in the chapter, the Thai Government has recognized the need to develop national legislation to address domestic environmental concerns, and steps have been taken in this direction. The Ministry of Industry's prompt attempts to address the issues at stake are encouraging. An important initiative is the national eco-labelling programme – the Thai Green Label scheme. The programme aims at materials recovery and resource conservation. Criteria have been developed for 35 product categories, including a number of EE products. To date, of 144 products that have been awarded the label, 66 are EE products.

Several surveys have identified barriers to the adjustment process, such as costs of substitute materials, lack of information about the substitute materials, and lack of supporting infrastructure. It has been observed that most companies are required to modify their material management systems and to realign/re-qualify their suppliers for proper RoHS compliance. The RoHS Directive and similar legislation in other countries is likely to affect SMEs that may not have the resources to undertake R&D projects to develop substitutes. There is concern that these constraints might drive the SMEs from the market. On the other hand, the authors suggest that certain SMEs might be able to move faster in the adjustment process than large companies, precisely because of their small size and decision-making structure. Those SMEs should be encouraged to invest part of their sales proceeds in R&D. In this connection, the Thai Government could play an important role by providing subsidies to SMEs to undertake R&D projects.

The chapter provides examples of initiative taken by the Thai Government, large industries, NGOs and some academic institutions to create and enhance awareness. However, a thorough study of the technology and R&D needed to meet the new requirements is yet to be carried out. In this connection, it should be noted that most SMEs in Thailand receive materials from large producers, either local or overseas. The challenge for the Thai producer is to find competent suppliers that fulfil all necessary requirements. This demands technical and managerial skills for collaboration throughout the supply chain.

Adoption and implementation of adjustment policies by enterprises in Thailand will involve adjustment costs. This may result in an increase in production costs of EEE, depending on the length of the adjustment period. In the EU context, the chapter indicates that the United Kingdom Department of Trade and Industry (DTI) expects component suppliers will probably bear most of the costs of adjusting to the RoHS Directive in the short term, but in the long term they are likely to pass on these additional costs to the assemblers and/or manufacturers in developed countries. As the majority of components used in the developed countries are imported from developing countries, an important issue is the extent to which producers in developing countries will be able to pass on their additional costs to the final assemblers/manufacturers in the developed countries. Unfortunately, Vossenaar et al. do not attempt to estimate the likely impacts of new environmental requirement on production costs, profit margins and competitiveness in the context of developing countries. This is an important issue for Thailand, in particular because EEE is its main export sector.

How far the two Directives will spur innovation in Thailand as well as in the EU is an area for further research. The RoHS and WEEE Directives might lead to innovation in the form of new

technologies, product design and waste management. However, one important question is whether SMEs will be motivated to switch to more innovative products and processes and related eco-design. Here the Government can play an important role; in order to motivate SMEs to undertake innovative activities, tax rebates might be a useful policy option for the Government.

Role of technology

In adjusting to external regulation of the EEE sector, technology can play a crucial role. This is not sufficiently emphasized in the chapter. EEE waste is generated in large volumes because of its technology. Technology means the integral body of knowledge necessary to transform raw material inputs into products and services. In a broad sense, this includes technical know-why and know-how, as well as the managerial skills required for the efficient utilization of inputs to produce quality goods and services. Technology is an important factor in international competitiveness. It is one of the basic elements for improving productivity, enhancing quality, and producing higher value-added products and services. It thereby helps a country move away from its traditional labour-intensive exports and its dependence on primary, natural-resource-based commodities. In this context, a range of technological options can be suggested. EEE firms can adopt new production technology with reduced environmental impacts. This would result in cost increases for purchasing new machinery, technology and manpower in the short run, but production cost savings would be evident in the long run. Firms can also improve process efficiency by reducing their use of inputs in the production of EEE. This would result in maximizing efficiency of production processes while minimizing the impact on the environment. Eco-efficiency can be achieved by using fewer inputs per unit of product. Eco-design, or design for the environment, results in optimization of product use in terms of conservation of natural resources, and reduction of waste, pollution and hazards. This includes reducing resource consumption – both of material and energy – and pollution prevention; for example, smaller units could be designed which would utilize fewer materials, smaller chips would result in lower resistance and packaging could be changed from using foam to paper. The resultant cost-savings would also help firms maintain their market shares of EEE products. Use of recycled or reconditioned parts in equipment such as copying machines, computers and parts can also result in lower production-costs.

To meet the requirements of external regulations (e.g. the RoHS and WEEE Directives) EEE firms might have to invest in technologies which add to costs, including, at least in the short or medium term, operating costs. For example, the DTI study referred to in the chapter lists a number of reasons why the operating costs of technologies using substitute materials may be higher than those using banned substances (for example due to higher energy costs). Firms complying with the regulation may seem less competitive in the market than the non-complying firms in the short run, but non-compliance is not an option for firms participating in international supply chains. It is therefore important to look for win-win situations. Whether changing their technology or undertaking eco-design for reuse/recycling, firms will need more investment. New machinery that has to be bought to produce a new product may be more costly than modifying existing machinery for cleaner technology production. Thus technology plays a very important role in the management of WEEE. The government can help by providing subsidies to EEE firms for adopting new technologies for waste management.

Thailand and FDI

The Thai Government has pursued policies for facilitating the inflow of FDI to build the country's industrial base while at the same time improving the environment. In 2001, the EU was the third most important source of FDI in Thailand after Japan and the rapidly industrializing Asian developing countries.

The WEEE Directive is based on the concept of producer responsibility. Producers are accountable for end-of-life management of their brand products. It is a well-known fact that FDI has played a major role in the growth and exports of these sectors, hence part of the responsibility lies with the foreign direct investors.

Recommendations

The EU and other developed countries should provide assistance in the areas of environmentally sound technology and eco-design so that Thailand can meet the new environmental requirements for the EEE sector.

Developed countries and TNCs should give special attention to the conditions and needs of SMEs in Thailand. It is also essential to create awareness of the environmental and health impacts of recycling of EEE among those involved in recycling activities in Thailand's informal sector.

James Lovegrove

Managing Director, AeA Europe

Becky Linder

Director, AeA

The American Electronics Association (AeA), the largest United States high-tech association, and its office in Brussels, Belgium (AeA Europe) welcome this opportunity to provide a sectoral perspective on the matters raised in UNCTAD's *Trade and Environment Review*. Our comments focus on three areas: first, the contribution of a global sector operating in a set of regional jurisdictions (with a focus on the EU); second, several concrete examples of operational challenges, and third, some "food for thought".

Regional solutions vs. the global market

As globalization becomes the norm, environmental legislation seems to be developing at the regional level. As worrying as the lack of coordination is, legislators now appear keen to move into the realms of highly complex product-specific requirements in a sector which is very sophisticated and innovative. It appears environmental issues having no boundaries is a thing of the past.

A clear trend in the other direction, geographically speaking, is that most United States high-tech companies today are "global" to the extent that their supplies, sub-assemblies, components or even designs come from various parts of the world. It is not financially feasible to have manufacturing lines that produce different products for each jurisdiction. In light of uncoordinated environment regulations at the country level, companies are often forced to take the highest legal requirement or standard and apply it throughout their manufacturing lines. Therefore, a regional approach, for example in the EU, will have global impacts in areas where there is either no problem or where the problem has possibly been resolved through an alternative means.

The EU is clearly proving the quickest at creating environmental legislation. Many AeA member companies' business models support the principles of innovative environmental legislation. However, despite significant financial investment in green products, some companies still do not reap the full rewards due to poor or non-implementation/transposition of legislation across the EU – a complex and frustrating system through which to provide technical and practical know-how as well as inconsistent enforcement methods.⁶

This frustration with the EU legislative process is felt across various sectors, but nowhere is it felt more than in the high-tech sector. Many high-tech companies regard themselves as environmental pioneers, forever pushing to improve their products and manufacturing processes either through extending product life-time, reducing energy consumption, or reducing the size of products and components (and therefore the amount of material used) through nanotechnology. The high-tech sector has revolutionized the way of life of billions of the world's citizens. It has provided an extraordinary array of tools to improve our use of finite resources whilst also integrating society, generating jobs and creating economic growth. These remarkable innovators are responsible for providing software solutions for HIV/AIDS and cancer research, and for tracking, predicting and analysing climatic abnormalities, as well as hardware for keeping planes in the sky and our hospitals running, providing improvements in production (such as supply chain management), alternative sources of energy (e.g. fuel cells and wind power) and the backbone of the world's global communications system.

Operational challenges

The concept of the EU's take-back directive – the WEEE Directive – was welcomed by many key stakeholders who were keen to see an EU-wide response to e-waste. Indeed, many AeA companies

saw market opportunities in this Directive, to the extent that they could use their innovative strategies – among others - to redesign boards for reuse in new computers (and hence reduce costs of components), recover precious metals and centralize take-back logistics.

However, the EU system is not ideal for coping with complex and extensive environmental legislation.⁷ Article 175 (of the EU Treaty) allows member States to go further than minimum requirements of a Directive, which means there is the possibility of 25 different laws in the EU's single market. Additionally, the Directive requires the member States to incorporate into their national legislation key concepts and practical implementation aspects. This disconnect can be seen in the WEEE Directive where critical obstacles still remain only six months before the deadline for final implementation. Companies face a range of highly complex and costly issues to address, such as registration requirements, how they link with the definition of "producer" and how they are being handled in each member State. Additional issues include: (i) the status of exemptions under the WEEE and RoHS Directives; (ii) RoHS compliance, proof of compliance and liabilities; and (iii) financial guarantees.⁸

As many of the more progressive member States are now realizing, some of the alternatives to lead solder, for example, are far more environmentally unfriendly than what is being banned – in terms of toxicity or reliability (which in turn has heavy environmental costs in terms of products' life-cycles being shortened and having to join the waste stream). Several companies with products covered by exemptions, with the intent of ensuring reliability, are discovering their suppliers do not have the market to continue selling leaded components covered under exemptions. Therefore, the EU will be incurring a reliability risk with lead-free solder alternatives, a risk it has tried to avoid through exemptions.

Furthermore, companies run comprehensive sets of tests and qualifications to ensure product satisfaction. But they will not have the time or resources to put their existing product lines back through the new product development process once RoHS alternatives are incorporated. Again, this Directive has been discussed for years, but companies remain unsure whether their products are covered, and if they are, how to test compliance. To add to the challenge, China is developing an RoHS equivalent which adds another dimension altogether to a global company's response to improving environmental management/stewardship.

The above examples not only divert billions of dollars (or euros) of resources away from the next generation processor or software, which could bring significant benefits to a myriad of users, but also demonstrate that a more global response to environmental legislation is essential for companies and users alike.

Food for thought

The interconnectivity of global markets and supply chains, coupled with different policy responses of governments to EEE waste, has created an opportunity to bring stakeholders together to ensure that environmental laws affecting the EEE sector balance sound, scientific, international trade facilitation and the health and safety of the global workforce.

As the UNCTAD *Trade and Environment Review* recommends, information dissemination between stakeholders should be improved, the United States high-tech sector supports developing a coherent and proactive dialogue to fully involve stakeholders to create a more inclusive policy development process. It strongly advocates harmonizing standards for the cascade of environmental regulations affecting the EEE sector. Harmonization is critical to facilitate the free movement of goods, avoid trade barriers and harness technological advances that contribute to environmental conservation. The many complications surrounding the interpretation, scope, implementation and enforcement/surveillance of the EU's WEEE & RoHS Directives is a clear example of the need for global standards to create awareness among all stakeholders and to provide an opportunity to contribute to policy processes directly affecting industry and governments around the world.

The United States high-tech sector welcomes an opportunity to work through UNCTAD to discuss the UNCTAD *Trade and Environment Review* with key stakeholders, especially its conclusions and recommendations. An enormous opportunity lies ahead to bring stakeholders together to ensure citizens in all countries will be able to benefit from the latest in technological advances provided by the global high-tech sector while contributing to environmental conservation.

NOTES TO COMMENTARIES

- ¹ Specifically with regard to WEEE and RoHs, an entrepreneur from Lebanon reported to UNIDO that having been fortunate enough to know in advance about the issuance of these Directives, her company invested a considerable amount of money to change its production technology. This enabled her firm to be prepared even before the Directives were approved, allowing it to gain a new and much larger market share by being a key “environmentally friendly” producer.
- ² The author is an editor and co-author of the study, *Computers and the Environment: Understanding and Managing their Impacts*.
- ³ In July 2002, Sony Electronics (Malaysia) launched the Sony Green Partner Environmental Quality Approval Program in Malaysia, which aims to educate suppliers and to establish requirements concerning the use of non-hazardous substances in the manufacture of their products. According to the Sony Electronics (Malaysia) *Environmental Site Report, Year 2003/04* (Sony, 2004), 178 suppliers were successfully granted Green Partner status.
- ⁴ The final list of the Recipients of the Association of Certified and Chartered Accountants (ACCA) Malaysia Environmental Reporting Awards 2003 (now the Malaysia Environmental and Social Reporting Awards, MESRA) consisted of 17 recipients. Seven of these were TNCs, 4 of which are from the EE industry: First Silicon (Malaysia), Motorola (Malaysia), Sony Electronics (Malaysia), and Sony Technology (Malaysia) Sdn Bhd.
- ⁵ Information on Malaysia’s EEE sector can be found on the website of the Malaysia External Trade Development Corporation (MATRADE). Economy, Trade & Industry, Key Export Industries. Electrical and Electronics, at: www.matrade.gov.my/economy-trade/key-industries/electric.htm.
- ⁶ Whilst companies divert precious resources into compliance, member States fail to properly transpose legislation. According to the EU’s XXI *Annual Report*, there were 3,927 infringement cases as of 31.12.2003, see: http://europa.eu.int/comm/secretariat_general/sgb/droit_com/index_en.htm. With 10 extra member States (which acceded in May 2004) infringement cases are bound to increase as the new countries implement/enforce 1,600 EU Directives (so called “*aquis communautaire*”). It is interesting to note that even member States with significant resources, such as France, lead the pack on non-implementation of environmental legislation (5th EU survey, pp. 39–41, available at: <http://europa.eu.int/comm/environment/law/as03.htm>).
- ⁷ Another feature is the growth of legislation that focuses on products: extended producer responsibility. Companies operating in Europe are required to comply with additional requirements ranging from packaging, labelling, registration, annual reporting, chemical content, energy efficiency, end-of-life treatment through to design prerogatives – the whole life cycle is affected by EU legislation.
- ⁸ AeA Europe has an *Environmental Bulletin* which deals with many of these questions: www.aeanet.org/bulletin. Alternatively, for companies owned by United States parent companies, membership details are available at: www.aeanet.org/europe.

3

Chapter

Part 1

ORGANIC AGRICULTURE: A TRADE AND SUSTAINABLE DEVELOPMENT OPPORTUNITY FOR DEVELOPING COUNTRIES

Sophia Twarog (UNCTAD)

A. Introduction

Increasing environmental and health concerns in developed countries, as manifested in the growing number of environmental and health-related Government regulations and private sector standards, can pose new burdens on developing countries wishing to export to these markets. Yet these concerns may also lead to some opportunities for developing-country exporters. The organic agriculture sector (OA) is one such example.

Developed-country markets for certified OA products have been growing much faster than overall food markets over the past two decades. This presents some promising export opportunities for producers and exporters of organic products in developing countries. In addition to income generation, OA can offer an array of positive effects at home, related to the environment and to sustainable natural resource use (improved soil fertility, reduced soil erosion, enhanced biodiversity), and in the social sphere in terms of rural employment generation, lower urban migration, improved household nutrition, local food security and greater self-reliance. This multidimensional potential has been recognized in a number of forums, including the World Summit on Sustainable Development in 2002.

The objective of this paper is to analyse OA as a trade and sustainable development opportunity for developing countries. It attempts to capture the current state of production and markets, highlight a range of possible benefits, as well as challenges in reaping those benefits, and make recommendations for future action at national and international levels. It builds on the considerable work that UNCTAD has carried out on this subject over the past five years, including inter-governmental consensus building, research and policy analysis, and technical cooperation.¹

The paper is organized as follows. Section B provides some definitions of OA and gives an indication of organic production worldwide. Section C highlights OA as a potential opportunity for local and national sustainable development. Section D presents an overview of the major organic markets worldwide and discusses OA as a potential export opportunity. Section E outlines a number of challenges related to production and trade that producers and exporters of organic agricultural products from developing countries must successfully meet in order to reap potential benefits. Section F highlights areas for further work and makes a number of recommendations.

Part II of this chapter, by Vossenaar and Angel, examines the experiences of Central American countries, Cuba and the Dominican Republic, drawing upon the results of work carried out under the UNCTAD/FIELD project, Building Capacity for Improved Policy- Making and Negotiation on Key Trade and Environment Issues.

B. Organic agriculture: definitions and scope

1. What is organic agriculture?

There are a number of definitions and also misconceptions as to what constitutes organic agriculture. Definitions vary slightly across national and regional regulations and private voluntary standards. At the international level, there are two main points of reference: the Codex Alimentarius Commission, a joint intergovernmental initiative of the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) dealing with food safety and labelling matters, and the International Federation of Organic Agriculture Movements (IFOAM), an international umbrella organization for the organic movement with some 700 members worldwide. Both have developed organic standards that are intended to serve as “standards for standards” (i.e. not intended to be standards themselves, but to assist countries and institutions in developing their own standards).

IFOAM defines OA as including

“...all agricultural systems that promote environmentally, socially and economically sound production of food and fibers. Recycling nutrients and strengthening natural processes helps to maintain soil fertility and ensure successful production. By respecting the natural capacity of plants, animals and the landscape, it aims to optimize quality in all aspects of agriculture and the environment. Organic agriculture dramatically reduces external inputs by refraining from the use of synthetic fertilizers and pesticides, genetically modified organisms and pharmaceuticals. Pests and diseases are controlled with naturally occurring means and substances according to both traditional as well as modern scientific knowledge, increasing both agricultural yields and disease resistance. Organic agriculture adheres to globally accepted principles, which are implemented within local socio-economic, climatic and cultural settings.” (IFOAM, 2004)

The Codex Alimentarius Commission further specifies that

“organic agriculture is one among the broad spectrum of methodologies which are supportive of the environment. Organic production systems are based on specific and precise standards of production which aim at achieving optimal agroecosystems which are socially, ecologically and economically sustainable..... ‘Organic’ is a labelling term that denotes products that have been produced in accordance with organic production standards and certified by a duly constituted certification body or authority.” (Codex Alimentarius Commission, 2001)

Thus, *organic agriculture* (OA) is a part of the larger category of *sustainable agriculture*. Sustainable agriculture has been defined in a number of ways, including as

“environmentally friendly methods of farming that allow the production of crops or livestock without damage to the farm as an ecosystem, including effects on soil, water supplies, biodiversity, or other surrounding natural resources. The concept of sustainable agriculture is an ‘intergenerational’ one in which we pass on a conserved or improved natural resource base instead of one which has been depleted or polluted.” (National Safety Council, 2005).

Another definition is “farming that provides a secure living for farm families; maintains the natural environment and resources; supports the rural community; and offers respect and fair treatment to all involved, from farm workers to consumers to the animals raised for food.” (GRACE, 2005). Sustainable agriculture includes a number of systems, such as integrated pest management (IPM) and low external input and sustainable agriculture (LEISA), which allow only limited use of synthetic external inputs.

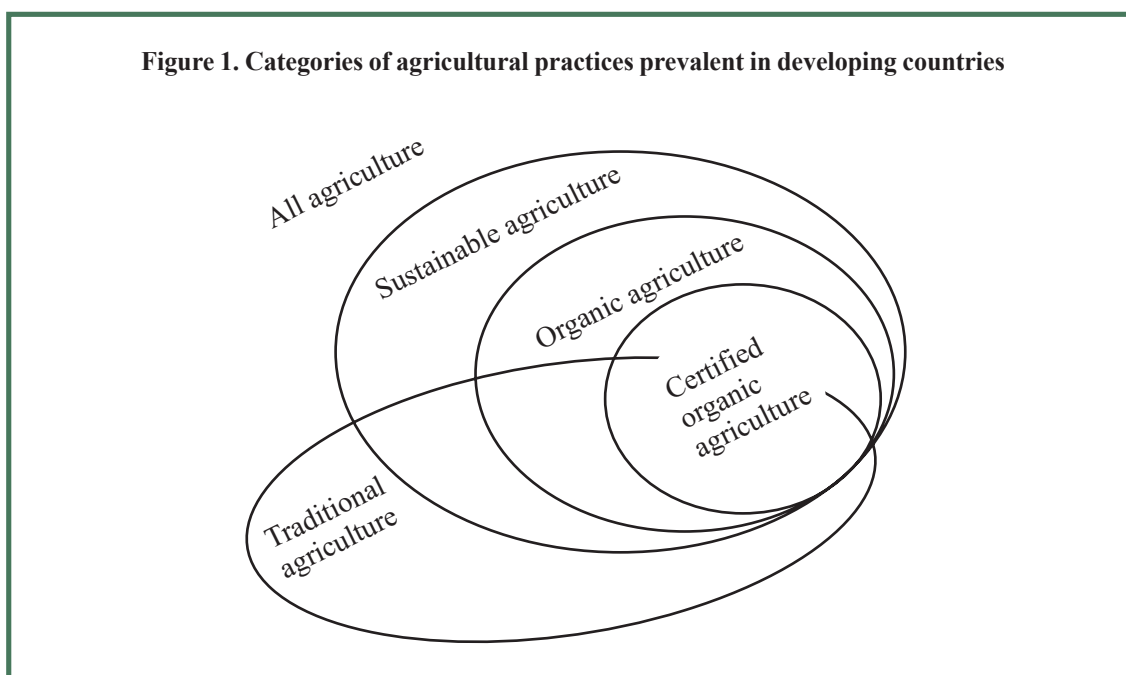
Within the category of sustainable agriculture, OA is distinguishable in several ways: it takes a holistic approach to farm management, does not permit use of genetically modified organisms (GMOs) or synthetic agro-chemicals, and involves production in accordance with precise production standards. Within the category of OA, *uncertified OA* products are produced according to organic methods but are not certified as organic by a third party. *Certified OA* products, on the other hand, are produced and processed in accordance with organic standards and this is checked and certified by a third party (i.e. a certification body). The certification body generally indicates this positive assessment by allowing its seal to be affixed to the product. Once certified as organic, the product may be marketed as such. Certified OA products generally fetch higher prices than those produced using *conventional agricultural* techniques (i.e. products not produced according to organic standards and often involving the use of synthetic agro-chemicals.). Only OA products certified according to the standards in the target markets can be exported to and sold as organic in those markets.

Simply ending the application of agro-chemicals does not qualify the production as OA, as doing so without implementing improved farm management and organic practices to rebuild the

natural resource base will likely lead to declining soil fertility and low yields and productivity. A further misconception of OA equates it with “going back” to *traditional agriculture*. Some forms of traditional agriculture would meet organic production standards and could thus be considered as uncertified OA. In general, however, the two are not identical. Moreover, using modern OA techniques can build on traditional agricultural practices to improve soil and plant health and increase agricultural productivity, particularly on farms where agro-chemicals have not previously been used (FAO, 2002). Not all traditional agricultural practices are sustainable in the long term, although many are. Figure 1 below attempts to graphically present the different categories of terms used in this paper. The overlap between categories illustrates the fact that, in practice, the different terms exist within a spectrum of approaches that sometimes have no clear divisions.

In general, this paper focuses on the *certified OA* category, as this is where benefits from the market may be obtained. However, uncertified OA generally can offer the same agricultural output, environmental, social and cultural benefits as certified OA.

When talking about certified OA products, most people think of organic food and beverages. But the scope of OA products has been rapidly expanding into other categories. Consumers today can purchase organic pet food, cosmetics, cleaning products, textiles and even mattresses. For processed certified OA products, each stage of production, processing, storage and transportation must be certified as organic in order for the final product to be certified. The objective is to maintain the organic integrity of the final product and includes requirements such as no commingling of organic and conventional products.

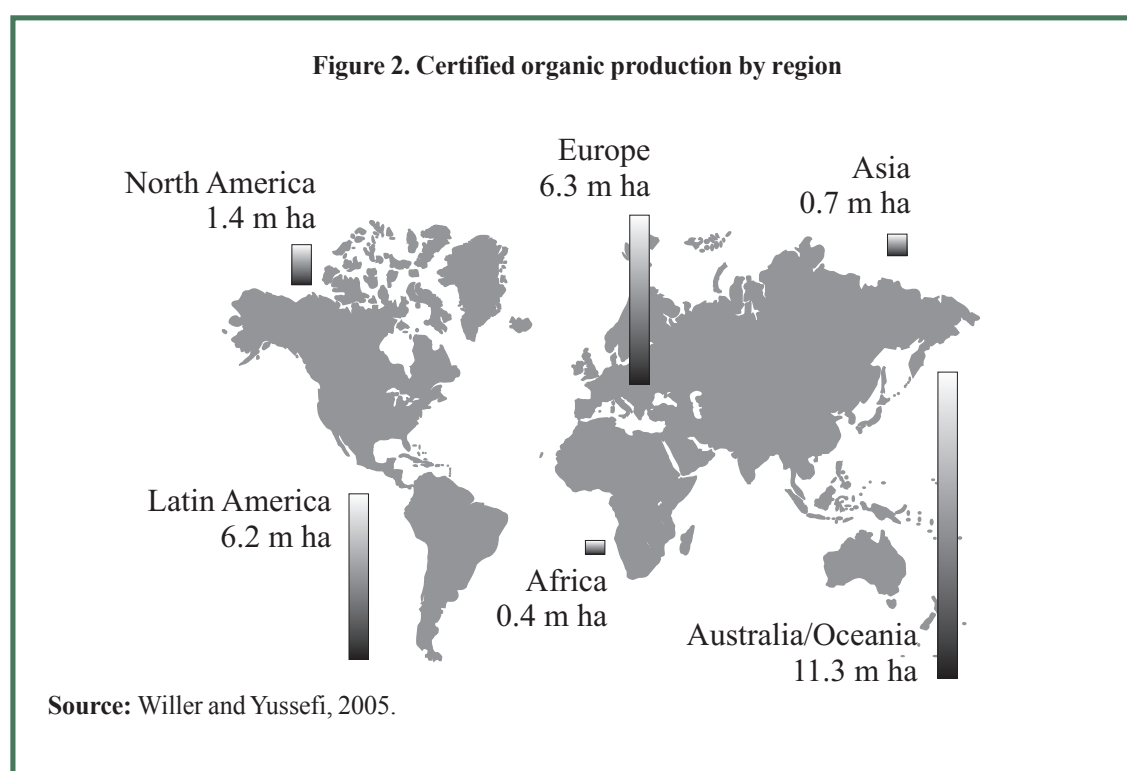


2. Organic production worldwide

It is not easy to find accurate statistics on OA. Even in Europe, data on production and markets are often unreliable, contradictory or based upon rough estimates.² Official government statistics rarely, if ever, exist. Researchers trying to make estimates of organic production and sales must therefore resort to other methods. For example, Willer and Yussefi (2005) asked experts from IFOAM, certification bodies and other institutions to contribute OA statistics at their disposal and also carried out an Internet and literature search to arrive at their estimates on world production.

The results of their survey³ indicate that over 110 countries produce certified OA products and over 26 million hectares are under organic management in over 550,000 farms in all regions of the

world, and this is growing continuously. Nearly half of this total acreage is located in Argentina and Australia and is used primarily as pastureland for extensive grazing. The percentage of arable land managed organically is highest in Europe. In Austria, Liechtenstein and Switzerland, over 10 per cent of agricultural land is managed organically. In addition to the above, it is estimated that there are at least 14.5 million hectares of organically certified “wild harvested plants” worldwide. Figure 2 offers a graphic representation of regional certified OA output and annex 1 provides indicative country-level data. Due to the lack of reliable statistics, however, annex I data probably considerably underestimates the true scope of certified organic production. Other leading experts have estimated, for example, that in 2002 more than 140 countries produced certified organic food and beverages, including some 100 developing countries, of which around 20 are least developed countries (LDCs) (Kortbech-Olesen, 2002, personal communication). Several experts believe that today nearly all countries produce at least some certified organic products (Rundgren, 2005, personal communication; Kortbech-Olesen, 2005, personal communication). Moreover, it should be borne in mind that certified organic production represents only a portion of total production carried out using organic methods in accordance with organic standards.



Organic production in developing countries

In the developing world, Latin America is the leading region for certified OA production. Its ancient, sophisticated agricultural traditions and fertile land provide a good foundation for this type of agriculture. Production has been increasing rapidly in recent years in most countries of the region (see table 1).

The main certified OA products produced in the region are fresh fruit and vegetables (e.g. apples, grapes, bananas, pineapples) grains and cereals, coffee,⁴ cocoa, sugar and meats.⁵ Most OA products – with the exception of fruit juices and wine – are exported to Europe and the United States with little value added processing. There are a large number of domestic certifiers of organic products. To enter European markets, however, recertification by a European certifier is often required, except for products from Argentina and Costa Rica which are on the EU third-country list (signifying that their standards and conformity assessment systems for organic agri-

Table 1. Changes in area of land under certified organic production in selected Latin American countries (2000–2004)

	Estimated area of certified OA land (ha)				
	2000	2001	2002	2003	2004
Argentina	3 192 000				2 800 000 ^a
Bolivia	31 025		364 100		
Brazil	275 576			803 180	
Chile			285 268	646 150	
Costa Rica	8 974			13 987	
Mexico	85 675		215 843		
Peru		84 908		150 000	
Uruguay	1 200				760 000

Source: Compiled from Lernoud, 2005.

^a The decrease reflects the decertification of livestock certified areas due to changes in the market for organic meat (Lernoud, 2005). The economic crisis in Argentina during this period probably also played a role.

culture are recognized by the EU as being equivalent to its own). Domestic markets are developing in many Latin American countries including Argentina, Brazil, Bolivia, Costa Rica, Ecuador, Mexico, Peru and Uruguay.

The Asian region has experienced steady expansion in OA production, the fastest growth occurring in countries with relatively more developed agricultural sectors and stronger economies. The development of Asian OA gets its momentum from two divergent groups: NGOs working on sustainable development that are interested in OA as a development tool for poverty reduction and increased self-reliance; and agribusiness companies that have converted to organic to take advantage of market opportunities. Production is mainly fresh produce, field crops and aquaculture. However, little value added processing is done in the region. Organic livestock production is constrained by limited availability of organic feed. Much OA is practiced by grower groups, either self-organized groups of farmers or those under contract with export companies. Some export companies have their own large-scale OA farms. Exports are the main driver of OA production growth in Asia since domestic markets there remain very limited, with the exception of Japan (the main market in the region) and a handful of relatively well-off developing economies such as China, Hong Kong (China), Malaysia, the Republic of Korea, Singapore and Thailand (Panyakul and Kung Wai, 2005; IFAD, 2005).

In Africa, much agriculture has, by default, low external inputs, but is not necessarily organic. Certified organic farming is relatively underdeveloped, but growing. Uncertified OA and “ecoagriculture” are, however, much more widespread and on the rise. The adoption of organic production methods has often been motivated by concerns such as enhancing soil fertility, combating desertification, increasing the agricultural productivity of smallholders, reducing costs of purchasing external inputs and promoting the use of local plant varieties. Recently, interest in certified OA for export has also been increasing. Virtually all certified OA produced in Africa is exported, mainly to Europe. Only Egypt and South Africa have significant domestic markets. In other countries, there is evidence of growth in demand for “naturally” grown products, which are generally not certified. Organic urban farming is being explored in some places, and this accounts for a large proportion of the fresh produce and protein consumed in many African cities. Certified OA products grown include fruit and vegetables, tropical beverages, oils, herbs and spices. Few African governments have been actively promoting their organic sectors (Parrott and Kalibwani, 2005), the notable exception being the Government of Tunisia.⁶

Most organic farmers in developing countries are smallholders. In Brazil, for example, 90 per cent of organic farms are smallholdings (Lernoud and Piovano, 2004). In Mexico, over 98 per cent of the country's 53,000 certified organic farms were smallholdings,⁷ accounting for 84 per cent of organic land and generating 69 per cent of foreign currency revenues from organic exports (Gomez Tovar and Gomez Cruz, 2004; Lernoud, 2005). In Uganda and the Republic of Tanzania, most organic farming is carried out by small-holder farmers organized largely by export companies in Uganda or in strong cooperative unions in Tanzania. (Taylor et al, 2005). However, large-scale organic farms are an important feature of organic production in some developing countries. In Argentina, for example, 74 per cent of organic acreage is in Patagonia (sheep production) and this is owned by only 5 per cent of organic farmers, while smallholders farm the remaining 26 per cent of the land under organic management. In some countries, multinational companies are purchasing land to produce organic products for export. For example, in Argentina, the Italian Benetton family owns over 20 per cent of the total land under certified organic management.

While certified organic products are produced in all regions of the world, sales of these products are highly concentrated in North America and Europe. Therefore, many developing countries are interested in OA as an export opportunity, as discussed in section D below. However, OA may also offer a range of local and national sustainable development benefits. These benefits are explored in the next section.

C. Potential contribution of organic agriculture to national sustainable development

In developing countries, a shift towards sustainable agricultural practices, such as OA, can deliver long-term food security as well as economic, environmental, social and cultural benefits.

1. Economic benefits

Organic agriculture can procure higher incomes for farmers. This can be due to higher prices received for certified OA products, larger quantities produced and sold, and/or lower input costs.⁸ The interaction of these three variables can be expressed in terms of the following equation:

$$\text{Net income or profits} = (\text{price}) \times (\text{quantity sold}) - \text{total costs} \quad (\Pi = P \times Q - TC)$$

To properly analyse the impact on livelihoods of organic farming, it is necessary to examine its profitability over a period of several years. Each of these variables is examined separately below. In addition, many argue that OA markets offer not only higher, but also more sustainable income for farmers due to better and more stable farm-gate prices, stable markets and long-term relationships between producers and traders (Musiime, Keizire and Muwanga, 2005).

Price: Certified organic products almost always fetch higher prices than conventional products. This is true both at the retail and farm level, and is one of the main attractions in “going organic” for many farmers. The exact amount of the price premium⁹ received by farmers varies according to product, season and the short-term supply-demand balance in the target market. The issue of bargaining power may also play a role (i.e. whether there is only one buyer of organic products in a region or several).

While global systematic data on farm-gate organic price premiums are not available, anecdotal evidence exists. In Uganda, for example, organic cotton farmers received a price premium of around 25 per cent. The out-growers of the company African Organics received price premiums in the range of 40 to 80 per cent for products such as pineapples, ginger and bananas (Waniala, 2004). In April 2004, Ugandan growers of organic apple bananas and passion fruit earned 212 per cent and 100 per cent more, respectively, than their conventional counterparts (Musiime, Keizire and Muwanga, 2005). In May 2005, the export price of Ugandan robusta coffee beans was \$0.97/

kg, whereas organic robusta sold at \$1.35/kg, implying a price premium of at least 39 per cent (*The Standard*, 2005). Tunisian organic olive farmers received price premiums in the range of 10–20 per cent in 2005 (see commentary by Maamer Belkhiria and Ben Kheder, in this *TER*). A study carried out by the International Fund for Agricultural Development (IFAD, 2003) of small farmers in Latin America and the Caribbean revealed that price premiums received by farmers ranged from a minimum of 22.2 per cent for bananas in the Dominican Republic to 150 per cent for cacao in Costa Rica.

However, in some cases, certified organic products end up being sold as conventional products, as happened with organic cotton produced in one region of Uganda (Waniala, 2004). Thus, from the farmers' perspective, the expected price premium may be lower than the observable price premium,¹⁰ and it is the expected price that influences the farmer's planting decisions. Uncertified organic products, on the other hand, do not generally fetch price premiums.

Quantity: OA can lead to higher overall farm output and productivity (i.e. increased yields/output per hectare). When comparing agricultural yields of organic farming with those of conventional or traditional farming, two factors must be borne in mind. First, organic farming is based on the principle of crop rotation, with different crops being planted each year. Thus a full rotation cycle of several years must be used to obtain results that can be accurately compared with systems based on monocropping. Second, organic farming often involves multi- or intercropping practices. To compare yields of only one crop may therefore be misleading; a more accurate measure would take into account total production of crops per land area.

Third, whether yields increase or decrease depends very much on the starting point. Perceptions on this subject have been much influenced by the earliest studies, which were almost exclusively carried out in developed, particularly European, countries that had a long history of intensive, high external input farming and depleted soils. When these conventional farms converted to organic, yields dropped initially, but as the soil fertility was gradually built up, yields increased. In Europe, organic yields after the transition period are often lower than conventional crop yields. In the United States, on the other hand, post-transition period organic yields are comparable to conventional yields.¹¹ A recent review of a 22-year farming trial in the United States concluded, for example, that "organic farming produces the same yields of corn and soybeans as does conventional farming, but uses 30 percent less energy, less water and no pesticides." Under drought conditions, the organic systems produced higher yields (Lang, 2005, referring to Pimental, 2005).

Moreover, the European scenario does not accurately reflect the situation in developing countries. In some developing countries, agriculture is dominated by large-scale, high external input farming. But the vast majority of farmers in developing countries are small-scale farmers, many or even most of whom do not use large amounts of external inputs such as synthetic fertilizers and pesticides, often because they cannot afford to purchase them. Many rely on traditional agricultural techniques instead. In these cases, application of OA techniques nearly always increases agricultural productivity by optimizing the use of local resources; indeed, agricultural yields can double or even triple (FAO, 2002; IFAD, 2005).

The following table presents data on changes in agricultural productivity for 17 certified and non-certified organic projects and initiatives in selected developing countries (for details, see FAO, 2002). In 15 of these projects yields increased significantly, while in two cotton projects yields remained constant. This is perhaps not surprising given that cotton is among the most pesticide-intensive crops grown. For example, in 1994 cotton accounted for about 24 per cent (\$1.8 billion) of the global insecticides market, even though the crop occupied only 2.4 per cent of the world's total arable land¹² (Myers, 2000). In Tunisia, application of organic techniques increased yields of olive farms by 14 to 40 per cent (see the commentary by Maamer Belkhiria and Ben Kheder in this *TER*).

Total costs: Total costs include the direct costs of production – land, labour and capital (in this case, for example, seeds, planting materials and fertilizers) – as well as costs related to such

aspects as transportation, storage and certification. Total costs for organic products may be higher or lower than for conventional products.

OA can be more labour-intensive than conventional farming. On small farms, particularly in conditions of rural unemployment or underemployment, family members often provide the additional labour. In remote areas, opportunity costs for such labour may be fairly low. On larger farms, it may be necessary to hire additional labour, which would then increase actual expenditures. In addition, workers may need to be trained in OA techniques, which involves costs in terms

Table 2. Impact on agricultural productivity of a shift to organic agriculture (certified and non-certified) in selected developing countries

Country	Project	Number of farm households	Area under organic ^a agriculture in the project (ha)	Changes in agricultural productivity observed during the project
Bolivia	PRODINPO integrated development programme	2 000	1 000	Potato yields up from 4 t/ha to 10-15 t/ha
Brazil	AS-PTA alternative agriculture	15 000	60 000	Bean yields up by 50-100 per cent
Cuba	Organic urban gardens	26 000	8 000	Total production up from 4 000 t/yr to 700 000 t/yr
Egypt	SEKEM biodynamic cotton	150	2 000	Cotton yields up from 2.25 t/ha to 3.0 t/ha
Ethiopia	FAO Freedom from Hunger	2 300	2 150	Sweet potato yields up from 6 t/ha to 30 t/ha
Ethiopia	Cheha integrated rural development	12 500	5 000	Cereals yields up by 60 per cent
Kenya	Manor House Agriculture	70 000	7 000	Maize yields up from 2.25 t/ha to 9 t/ha; new vegetable crops
Kenya	C-MAD Programme	500	1 000	Maize yields up from 2 t/ha to 4 t/ha
Kenya	Mumias Education for Empowerment project	2 069	217	Beans/groundnut yields up from 300kg/ha to 600 kg/ha
Kenya	Push-pull pest management	300	150	Maize yields up by 60 per cent
Mexico	UCIRI Fair trade and organic coffee	4 800	5 000	Coffee yields up from 300-600 kg/ha to 600-1 200 kg/ha
Nepal	Jajarkot Permaculture Programme	580	350	Rice yields up from 1.8 to 2.4 t/ha; maize yields up from 1.2 to 1.6 t/ha
Pakistan	Sindh Rural Women's Uplift Group	5 000	2 500	Mango yields up from 7.5 t/ha to 22.5 t/ha; citrus yields up from 12 t/ha to 30 t/ha
Senegal	Rodale Regenerative Agriculture Research Centre	2 000	2 000	Millet/sorghum yields up from 0.34 t/ha to 0.6-1.0 t/ha
Senegal	ENDA organic cotton	523	233	Cotton yields: no change at 300 kg/ha
United Rep. of Tanzania	GTZ organic cotton	134	778	Cotton yields: no change at 660kg/ha
Zimbabwe	Chivi Food Security Project	500	600	Sorghum/millet yields doubled; new vegetable crops produced

Source: Extracted from FAO, 2002, p. 143, table 1 (taking only the 17 projects with numerical data).

^a Certified and uncertified

of time and in some cases fees. This is an additional labour-related cost. On the other hand, organic farmers spend much less than conventional farmers on external inputs, particularly agro-chemicals. In many developing countries, costs of these inputs are a major expense for farmers and are mainly financed by high interest loans. (Musiime, Keizire and Muwanga, 2005). Thus the savings generated by reducing purchases of external inputs usually outweigh the additional labour-related costs.

For certified organic products, transportation and storage costs may be higher, as organic products must be segregated from conventional ones. In addition, organic certification by third-party certification bodies recognized in target markets can be relatively expensive, particularly for smallholders (discussed in more detail in Section E below).

Subsidies: Agricultural subsidies provided by governments to farmers increase farm profitability. Most developed-country governments subsidize their farmers – both conventional and organic. However, very few developing-country governments are in a position to offer their farmers direct price support; some subsidize agricultural inputs, particularly synthetic fertilizers and pesticides. This in fact acts as a tax on the organic sector and reduces its profitability vis-à-vis conventional farming. Only a small handful of developing-country governments target OA with direct subsidies or other financial incentives. The main exception is Tunisia, where the Government covers 70 per cent of the certification costs during the first five years of organic operation – up to a maximum of 5,000 Tunisian dinars (approximately \$3,700) – as well as 30 per cent of the investment costs of equipment and tools specific to organic projects. In addition, supplies necessary for organic production for export are exempt from customs duties and value added tax (Republic of Tunisia 2005).

In some developing countries, NGOs or donor agencies cover part or all of OA certification costs, particularly in the first few years of OA production. While not a subsidy per se, the positive effect on farmers' incomes is similar.

Profitability: Farm profitability will depend on the relative magnitude and directions of these variables. Most studies have shown that profitability of organic farming is greater than or equal to that of conventional farming. In Europe, for example, profitability of organic farms was comparable to that of conventional farms, despite the fact that conventional farms received proportionately greater subsidies than did their organic counterparts¹³ (Offermann & Nieberg, 1999). In Latin America, in the above-mentioned survey by IFAD, “in all cases organic producers obtained higher net revenues relative to their previous situation” (IFAD, 2003). An IFAD survey in Asia concluded that “organic systems, primarily because of price premiums, are generally more profitable than conventional ones” (IFAD, 2005).

2. Food security

Food security is a critical and complex subject, with important links to the economic factors discussed above. It is not simply a question of agricultural yields. Much of the world's food insecurity is based upon difficulty – or lack – of access to food due to poverty. Helping to increase the productivity of smallholders through OA improves their livelihoods and overall well-being (FAO, 2002). In addition to improving yields of crops that farmers may produce for their own consumption, organic farming can also provide higher incomes, which contribute to greater food security.

Diversified production. Food security also implies having a reliable and stable food supply. OA is based on multicropping, polycultures and crop rotation, as opposed to monocropping. This is less risky for farmers for several reasons. First, the planting of a variety of crops leads to much higher resilience (resistance to adverse conditions) and regulates pests and weeds in a natural way. Second, while monocropping ties the farmer's livelihood to the success of one crop, OA practices tend to spread risk: even if one crop out of ten were to fail, the farmer will still be able to harvest nine crops. It can thus enhance local food security.

Improved nutrition. The increase in incomes as well as the larger quantity and variety of food produced by organic farms lead to improved nutrition for rural families. Introducing, for example, animals on the farm to supply organic fertilizer has the positive side-effect of providing eggs, milk or meat that augment protein content in local diets.

3. Environmental benefits

OA provides a wide range of environmental benefits as compared to conventional agriculture. It is for this reason that it is included in UNCTAD's general analysis of environmentally preferable products (EPPs).¹⁴ These benefits include the following:

Less pollution. As it does not employ synthetic agro-chemical inputs, OA causes much less environmental pollution, particularly of groundwater supplies. Moreover, nitrate leaching rates per hectare in OA systems are roughly half of those in conventional agriculture systems. (Stolze et al, 2000 in FAO, 2002).

Improved soil and less erosion. OA techniques improve soil structure and increase soil organic matter, thereby improving the soil's water retention capacity. It has the additional social benefit of augmenting supplies of drinking water (FAO, 2002). The improved soil structure also reduces soil erosion, which is a leading cause of soil degradation worldwide with a negative impact on agricultural yields (FAO, 2002).

This improvement may be especially important for countries regularly faced with droughts or floods. For example, the Rodale Institute Farming Systems Trial, which investigated how managed and natural systems respond to climate-related stress, found that organic systems recorded higher productivity than their conventional counterparts over a five-year drought period. This was found to be due to the higher water-holding capacity of the soils under organic treatments, as the soils in the organic plots captured more water and retained more of it in the crop root zone than in the conventional plots (Lotter, Seidel and Liebhardt, 2003). A study undertaken in Nicaragua after Hurricane Mitch indicated that agro-ecologically managed farms proved to be much more resistant to this extreme ecological disturbance than conventionally managed farms: the agro-ecological plots had 40 per cent more topsoil, a 49 per cent lower incidence of landslides and more than 20 per cent more vegetative cover (Holt-Giménez, 2002 in FAO, 2002).

Enhanced biodiversity. OA leads to a greater abundance and variety of the whole range of agricultural and wild flora and fauna in and around the farm – from microbes and earthworms in the soil, to more diverse crops in the fields, to wild vegetation around the fields and to birds in the air (FAO, 2002). For example, a long-term trial study in Switzerland revealed 50 to 80 per cent more earthworms on organically managed farms as compared to conventionally managed ones (Pfißner and Mäder, 1997 in FAO, 2002). A separate study found that organic soils in Switzerland had up to 90 per cent higher total mass of micro-organisms than conventionally managed soils (Fliessbah et al, 2001). A study carried out in the United Kingdom by the British Trust for Ornithology found that bird densities of all species studied were higher on organic farms than on conventional farms (Chamberlain et al, 1996).

OA is an important means of developing and preserving *in situ* local varieties of plants and animals that have been developed by farmers over long periods of time. This must be seen against the backdrop of an alarming global loss of agro-biodiversity due largely to mechanization and increasing scales of agriculture often based on monocropping, as well as to agro-chemicals (FAO, 1996). It is estimated that more than 90 per cent of crop varieties have disappeared from farmers' fields in the past century (ITDG, 2002).

No genetic contamination. As OA strictly excludes the use of GMOs, there is no risk of these having unexpected interactions with surrounding flora and fauna.

Mitigating climate change. According to the FAO and others, OA offers the potential to mitigate climate change. It does this by reducing emissions of agricultural greenhouse gases, which in conventional agriculture are primarily generated by the production and use of synthetic fertilizers. Moreover, by restoring the organic matter content of soils, OA may even counteract climate change. Its carbon-sequestration efficiency is double that of conventional agriculture. OA systems are also better able to adjust to climatic changes (FAO, 2002; Haas and Köpke, 1994).

Reduced energy consumption. OA consumes less energy than conventional agriculture, both directly (oil and other fuels) and indirectly (synthetic pesticides and fertilizers that have been manufactured using energy). This conclusion was reached by a number of scientific studies that revealed that the total energy consumption of organic farms is between 30 and 64 per cent of that of conventional farms (Haas and Köpke, 1994, Zarea et al, 2000, and Fliessbach et al, 2001 in FAO, 2002). Organic systems also outperform conventional systems in terms of energy efficiency (i.e. the ratio of energy input and output). A study in Iran, for example, found the energy efficiency of OA to be 81 per cent better than high-input conventional agriculture. (Zarea et al, 2000 in FAO, 2002).

Landscape services. OA provides diversified landscapes and semi-natural habitats, enhancing the functional and aesthetic value of agricultural land.

4. Social and cultural benefits

A number of social and cultural benefits have been observed in developing-country communities that shift to OA.

Benefits for smallholders. Smallholders in particular could gain considerably from OA. In developing countries, smallholders often constitute up to 70 per cent of the rural population. Owing to the nature of their production systems (i.e. low agro-chemical inputs), many smallholders can quite easily convert their farms to organic. They may, however, face serious problems in coping with the costs and requirements of certification, which is a necessity for capturing benefits from the organic market. In contrast, larger enterprises are in a better financial and managerial position to undergo the certification process. However, the production systems of such enterprises are also often heavily dependent on external inputs of agro-chemicals. As a result, they face the problem, initially, of reduced yields and difficulties in converting to OA.

Women's empowerment. Similarly, OA may have positive effects on the incomes of women, who make up a large share of smallholding farmers, particularly in sub-Saharan Africa and Asia (ESCAP, 2003). In some cases the need for more labour inputs could also prove onerous (IFAD, 2005).

Traditional knowledge. OA can build on and enhance the traditional knowledge (TK) and practices of local and indigenous communities. Much TK is about the land and how to work with it, as well as about harvesting and storage techniques. In addition, TK has long been used by farmers to selectively breed cultivars or varieties well suited to local conditions. These local farmer varieties are also called landraces. The interface between modern OA techniques and farmers' traditional agricultural knowledge and landraces offers fertile ground for innovations and improvements in local agricultural productivity. This is in line with the general UNCTAD finding that the interface between "modern" scientific knowledge and TK systems has the potential to generate important innovations and other benefits such as increased project effectiveness (UNCTAD, 2004a). Farmers' TK can enhance the successful implementation of OA techniques, while OA techniques can enhance the productivity of traditional farming systems.

Health and safety. OA can bring a number of local health benefits. In developing countries, up to 14 per cent of all occupational injuries in the agricultural sector and 10 per cent of all fatal

injuries are attributable to pesticides (Myers, 2000). With OA, farm workers and their families living on or near the farms are no longer exposed to hazardous chemical inputs, resulting in improved health. As mentioned above, OA can also lead to improved local nutrition and cleaner, more reliable, local drinking water supplies.

Community revitalization. Some other social benefits are readily observable and very important, but difficult to quantify. For example, shifting to OA can lead to a stronger sense of community identity, self-reliance and empowerment. Building on local TK also revitalizes pride in a community's history and identity. Successful conversion to OA can lead to greater self-confidence, making organic farmers more likely to experiment and innovate. This in turn generates increased income flows in the long term.

Reduced rural-urban migration. Because of the stronger sense of community identity, improved livelihoods and possible increased demand for labour, OA has the potential to reduce rates of rural-urban migration, thus taking pressure off overcrowded cities (FAO, 2002).

D. Organic agriculture as an export opportunity for developing countries

This section examines OA as an export opportunity for developing countries, including areas of possible comparative advantage. It gives an overview of global sales of certified organic products, with a focus on the major organic markets (i.e. the United States, Europe, Canada and Japan) and developing country markets. This includes information as available on types of products, points of sale, imports and price premiums. The section then discusses OA market access and entry conditions, including an overview of the regulations governing imports of organic products in the European Union, the United States, Japan and Switzerland.

During the past decade, the major markets for OA products have been growing rapidly. This growth has been driven by increasing consumer awareness and concerns about environmental and food safety issues, including a number of food scares. More recently, concerns about genetically modified (GM) foods have also helped boost growth of the organic market. In countries where mandatory labelling of GM-containing foods is not required, for example in the United States, choosing certified organic products may be the only way for consumers to ensure that their food is GM-free.

OA production is expanding in developed countries, but domestic supply is expected to remain below domestic demand for most organic products for some years to come, creating export opportunities for developing countries. Furthermore, the long-standing interest of developed-country consumers in tropical products and the emerging appetite for so-called "ethnic" foods create demand for organic products that cannot be easily supplied by domestic producers. In many developed countries, "organic" applies not only to apples, granola and muesli, but also to chocolate bars, mango juice, Sumatran coffee and frozen Thai curry preparations.

Systematic data on international trade in organic products is virtually non-existent. The Harmonized Commodity Description and Coding System does not differentiate between products produced conventionally and those produced organically. However, there is evidence that many developing countries are taking advantage of organic export opportunities. In Mexico, for example, 80–85 per cent of organic produce is exported. Foreign currency revenues generated by OA exports from Mexico have been rising rapidly, from \$34 million in 1996 to \$280 million in 2002, accounting for 8.5 per cent of the total export revenues in the agricultural sector (Gomez Tovar and Gomez Cruz, 2004). Similarly, in Uganda, the value of organic exports rose from \$4.6 million in 2002/2003 to \$7.7 million in 2003/2004 (Musiime and Naluwairo 2004).

Developing countries may have some inherent comparative advantage in organic production. This is due to their relatively abundant labour supply as compared to developed countries, and

their relatively lower use of agro-chemicals in agriculture. Among the best export opportunities for developing countries could be for products such as:

- Fresh and processed tropical organic products (e.g. bananas, pineapples, coffee, cocoa and mangoes);
- Counter-seasonal fresh produce; and
- Other products with large, short-term demand-supply gaps.

The organic food market can roughly be divided into three segments:

- Ingredients for the food processing industry;
- Products for direct consumption; and
- Products for the catering and institutional sector.

According to the Centre for the Promotion of Imports from Developing Countries (CBI), the first segment is the most important for developing-country exporters (to Europe), as they often do not have good market information and cannot compete with major brands in the retail market. Moreover, the demand for organic convenience foods is rising rapidly (CBI, 2004).

Some producers in developing countries consider OA as one effective way to respond to increasingly stringent food safety and quality requirements in key export markets, such as the new EU regulations on food safety and the private EurepGAP standard imposed by major European supermarkets on their suppliers of food products¹⁵. Since OA excludes the use of synthetic agro-chemicals, organic products would not be affected by stringent maximum residue levels (MRLs)

Table 3. Overview of world markets for organic food and beverages

Markets	Retail sales estimate	Retail sales forecast	Approximate share in total food sales (per cent)	Expected annual growth rates 2003-2005 (per cent)
	(\$ million) 2000	(\$ million) 2003		
Total	15 225–16 475	23 000–25 000	-	
Europe	6 950–7 650	10 000–11 000	-	
Germany	2 100–2 200	2 800–3 100	2.0-2.5	5-10
United Kingdom	1 100–1 200	1 550–1 750	1.8-2.3	10-15
Italy	1 000–1 050	1 250–1 400	1.0-1.5	5-15
France	800–850	1 200–1 300	1.0-1.5	5-10
Switzerland	450–475	725–775	2.5-3.0	5-15
Denmark	350–375	350–375	2.5-3.0	0-5
Austria	200–225	325–375	2.5-3.0	5-10
Netherlands	275–325	425–475	1.0-1.5	5-10
Sweden	175–225	350–400	1.5-2.0	10-15
Belgium	100–125	200–250	1.0-1.5	5-10
Other Europe*	400–600	790–900	-	-
United States	7 500–8 000	11 000–13 000	2.0-2.5	15-20
Canada	500	850–1,000	1.5-2.0	10-20
Japan	275–325	350–450	<0.5	-
Oceania		75–100	<0.5	-

Source: International Trade Centre, compiled in January 2003 (reproduced in Vossenaar, Jha and Wynen, 2004).

*Finland, Greece, Ireland, Norway, Portugal and Spain. Ireland is included for 2003.

for these chemicals.¹⁶ There is considerable common ground between organic and EurepGAP standards. The EurepGAP secretariat is currently working with organic certifiers to provide a one-stop shop solution, which would enable producers to receive a single audit to meet both organic and EurepGAP certification requirements (Garbutt, 2005, personal communication).

1. Market trends

Global market

The size of the world certified OA market in 2003 was estimated by the International Trade Centre of UNCTAD/WTO (ITC) to be in the range of \$23 to \$25 billion, with annual market growth rates in the range of 5–20 per cent. Over 95 per cent of certified organic food sales in 2003 were in Europe and North America (table 3). For developing countries wishing to produce and sell certified OA products, these are the main target markets, and thus the focus of this section.

The ITC forecasts tally fairly well with more recent estimates (summarized in table 4) by Sahota, Director of the Organic Monitor, who estimates that world sales of organic food and drink reached \$25 billion in 2003 with overall growth rates of 7 to 9 per cent. He points out that Europe overtook North America as the major market in 2003, but that this was largely due to an appreciation of the euro against the dollar (Sahota, 2005).

The United States of America

In the United States, sales of organic products have grown at annual rates of between 17 and 21 per cent since 1997, while total food sales have grown at an annual rate of 2 to 4 per cent. Between 1997 and 2003, the percentage of organic foods in total foods increased from 0.8 per cent to 1.9 per cent.¹⁷ Sales of organic products reached \$10.8 billion in 2003 – an increase of 20 per cent since 2002. Of these, \$10.4 billion were from organic food sales and \$440 million from non-food products such as fibres, flowers, household cleaners and pet foods. Fresh fruit and vegetables remain the largest category, accounting for 42 per cent of organic food sales (figures 3 and 4 below). The average annual growth rate for organic foods is projected to be 18 per cent for 2004–2008 (Organic Trade Association, 2004).¹⁸

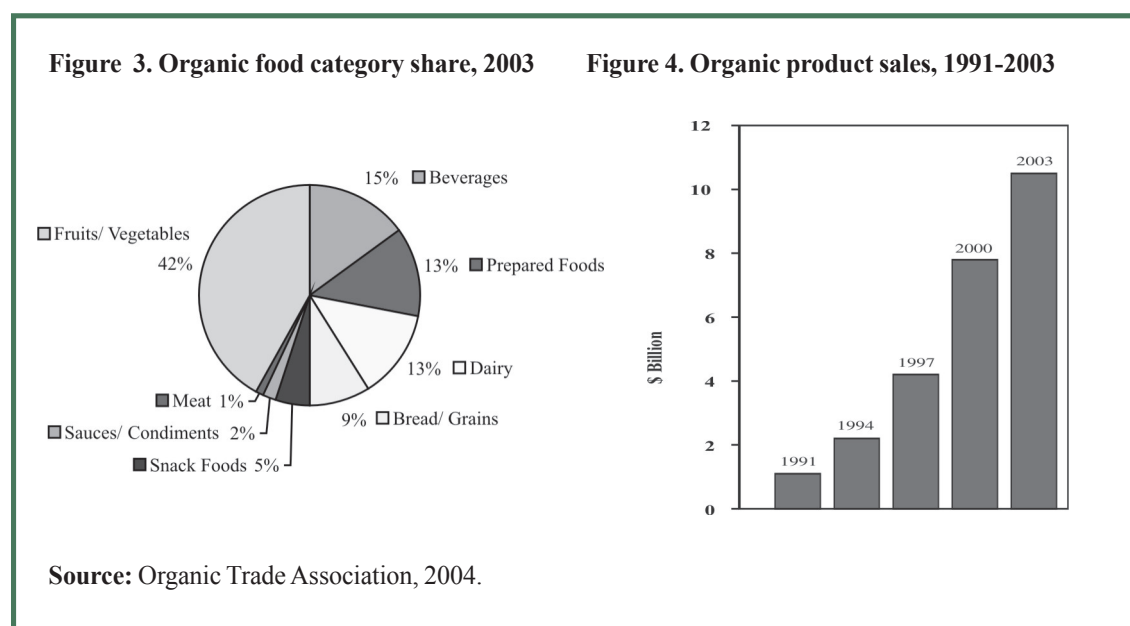
Table 4. Regional distribution of certified organic food sales in 2003

Region	\$ billion	Per cent of global certified organic food sales
Western Europe	13.0	52
North America	11.4	45
Asia (including Japan)	0.48	2
Oceania/Australia	0.24	1
Total	25.0	

Source: Sahota, 2005.

The variety of products available on the United States market has expanded significantly. Traditionally marketed mainly by natural food shops (e.g. Whole Food Market and Wild Oats), organic food is now more widely available in supermarkets such as Safeway and Kroger. A 2004 consumer survey indicated that 66 per cent of American consumers purchased organic products at least occasionally, up from 55 per cent in 2000. This increase was largely driven by improved access to organic products in mainstream markets, heightened concern about health, including the

impact of GMOs, and more information sources (Hartman Group, 2004). The introduction of the National Organic Programme (NOP) also seems to have helped raise consumer awareness about organic food, especially since it has provided one widely recognized organic label.



Reliable data on organic imports and exports is not available, as United States Customs do not differentiate between organic and conventional products.¹⁹ Using other sources of information, however, the United States Department of Agriculture (USDA) estimates that in 2002 that country exported between \$125 million and \$250 million worth of organic products, of which \$75–\$150 million worth went to neighbouring Canada (largely processed foods) and \$50–\$100 million worth to other countries including those in the EU as well as Australia, Japan and the Republic of Korea. For the same year, the value of organic imports was estimated to be between \$1.0 billion and \$1.5 billion. Imported products included fresh fruit and vegetables, tropical products that cannot be grown in the United States, and ingredients for processed products. Imports came from all regions of the world, including Canada, Latin America (e.g. raw ingredients including fats and oils, fruit and vegetables, and cocoa) and Europe (processed foods such as pasta, wine and olive oil) and Asia (soybeans, frozen fruit and vegetables). Whereas the United States used to be a net organic food exporter, due to very strong domestic market growth, the import to export ratio is now approximately 8:1 (USDA, 2005a).

It is commonly believed that organic price premiums are falling around the world. However, in the United States at least they remain high. Table 5 presents comparisons of organic and conventional farm-gate prices for a wide range of products in April 2005. For most of these products, farmers received price premiums of between 30 per cent and 130 per cent (see annex 2 of this chapter for a longer list) (New Farm, 2005).

Europe

Taken as a whole, Europe is the largest market for organic products. Market growth is strong, but slowing down compared to the exceptionally high growth rates of the 1990s. In 2003, organic sales grew at an average annual rate of approximately 5 per cent to reach 10.5 to 11 billion euros. In 2002, the average growth rate was estimated at 8 per cent. Organic products have managed to hold their own quite well in the face of fierce competition between supermarkets, which has lowered the price of conventional products and thereby made organics relatively more expensive. Sales of organic foods grew at more than double the rate of overall food, which grew by only 2 per cent in 2004 (ACNielsen, 2005).

Table 5. Farm-gate prices of selected organic and conventional products in the United States (15 April 2005)

Product	Unit	Organic (price in \$)	Conventional (price in \$)	Premium (per cent)
Grains				
Barley (malting)	Bushel	3.75	2.45	53
Corn (#2 yellow)	Bushel	6.11	2.31	165
Soy (feed stock)	Bushel	14.25	5.99	138
Fruit				
Apples (Gala)	88 Ct	39.36	18.75	110
Apples (Golden delicious)	100 Ct	23.17	17.50	32
Grapefruit (Ruby)	48 Ct	27.98	17.00	65
Lemons	140 Ct	29.00	24.50	18
Pears (Bartlett)	90 Ct	40.98	35.00	17
Strawberries	8/1 lbs	28.50	12.00	138
Vegetables				
Avocados	48 Ct	59.50	33.33	79
Broccoli	14 Ct	39.75	17.00	134
Carrots	24 x 2 lbs	29.42	14.67	101
Green beans	25 lbs	59.95	41.00	46
Lettuce (Green leaf)	24 Ct	38.23	26.5	44
Mushrooms (Portabella)	5 lbs	22.06	12.88	71
Potatoes (Red A)	50 lbs	33.48	13.33	151
Tomatoes	2 Layers 4 x 5	49.63	17.5	184

Ct: Count

Source: New Farm, 2005.

Surveys indicate that European buyers of OA products are motivated primarily by food safety and health concerns. Nature conservation and environmental protection and taste are among the other major motivating factors (Zanoli et al., 2004 in CBI, 2004).

The biggest European national markets are, in descending order, Germany, the United Kingdom, France, Italy and Switzerland. There is considerable variation in growth rates across countries. Growth rates in France, Germany, Italy and Switzerland were in the 2–5 per cent range, whereas in Spain, the United Kingdom and many Central and Eastern European countries, annual growth rates exceeded 10 per cent (Richter and Padel, 2005).

In recent years, many European governments are more actively promoting the organic sector, including production. Yet demand continues to outstrip supply, necessitating imports.²⁰ Among the top five, the United Kingdom is the most import-dependent and France the least. Table 6 below shows the volume (in tons) of organic imports in 2002 for selected products in selected countries. Most of these imports are, however, from other European countries (including re-exports from developing countries). Developing-country supply to the EU is dominated by a number of leading producers, including Argentina, China, Mexico and South Africa. Due to their advantage of geographical proximity to Europe, Egypt and Morocco are leading suppliers of off-season organic

fruit and vegetables. These countries have a relatively better infrastructure that enables them to meet the EU's regulatory requirements for organic products and general food law requirements (CBI, 2004).

Price premiums in Europe

Comprehensive, updated price premium data for all of Europe is unavailable. According to CBI, organic products generally fetch retail prices that are 15–25 per cent higher than their conventional counterparts. Premiums have been declining in recent years due to increasing competition in the organic sector as well as economies of scale in shipping, processing and distribution of some products as a result of increased levels of trade.

Table 6. Volume of imports of selected OA products by selected EU countries in 2002 (tons)

	Cereals	Oil seeds	Potatoes	Vegetables	Fruit (incl. nuts)	Milk (products)	Wine
Denmark	20 000		2 000	1 772	3 000		3 000
France	112 225	18,200	6 000	30 000	25 000	25 000	20 000
Germany	100 000	8,000	6 000	50 000	30 000	15 000	120 000
Italy	200 000	na		4 280	12 484	120 000	
Netherlands	40 000	30,000	7 500	80 000	2 000	2 500	
United Kingdom	160 000	Very small	20 000	74 000	30 000	22 000	22 000

Source: Kilcher et al., 2004 (as compiled in CBI, 2004).

According to CBI estimates for Germany, price premiums range from 18 to 142 per cent, with the average price premium in the 60–70 per cent range. In France, price premiums average 20–30 per cent in supermarkets, with specialized health food stores selling at prices 50 per cent higher than these. In Italy, the average retail price premium is 25 per cent in supermarkets and 30 per cent in organic stores. Depending on the season, organic fruit and vegetables can sometimes sell at roughly the same rates as conventional ones (CBI, 2004).

The ZMP²¹ publishes monthly data on conventional and organic products for Germany. Table 7 shows the average retail prices for 12 products and the price premium of organic compared with the conventional product. The premiums range from 39 per cent for organic lettuce to 274 per cent for organic eggs, with most in the 67 to 156 per cent range. The average retail price premium for the 12 products was 111 per cent (ZMP, 2005).

In Switzerland, the average price premium according to the Research Institute of Organic Agriculture (FibL) estimates is 40 to 50 per cent overall, with higher premiums in specialized shops than in supermarkets. In the latter, price premiums are approximately 40–80 per cent for vegetables, 40–50 per cent for cereals, 50–60 per cent for fruit and nuts, and 10 per cent for milk and dairy products (Kilcher et al., 2004). Table 8 shows price premiums in August 2004 in the Migros supermarket chain, one of the country's main retailers of organic products. These premiums are lower than the estimates above. Tables 7 and 8 also reveal wide differences in food prices across countries.

National markets

In terms of value of retail sales of organic products, the top five European organic national markets are Germany, the United Kingdom, Italy, France and Switzerland (in that order). An overview of each of these five markets is presented below.

Table 7. Average retail price for selected^a organic and conventional products in Germany (March 2005)

Product	Quantity	Organic price (euros)	Conventional price (euros)	Premium (%)
Ground beef	1 kg	9.71	5.15	89
Pork chops	1 kg	11.67	4.56	156
Eggs	10	2.92	0.78 ^b	274
Bananas	1 kg	2.42	1.37	77
Pears	1 kg	2.64	1.51	75
Lettuce	1	1.82	1.31	39
Tomatoes	1 kg	4.38	2.14	105
Red peppers	1 kg	6.37	3.43	86
Carrots	1 kg	1.44	0.65	122
Milk	1 liter	0.95	0.57	67
Butter	250 g	1.59	0.81	96
Wheat flour	1 kg	1.10	0.44	150
Average				111

Source: ZMP, 2005.

^a The 12 products were selected based on availability of price data for comparable organic and conventional products.

^b Eggs from chickens raised in cages; eggs from free-range chickens cost 1.48 euros for 10 eggs.

Germany is the largest national organic market in Europe and the second largest in the world after the United States. It is also the largest importer of organic products in Europe, importing 38 per cent of the value of all organic products sold in its market. Fruit and vegetables top the list, accounting for 30 per cent of the value of German organic imports and half of the organic fruit and vegetables consumed in Germany. These come mainly from France, Italy and Spain. Other imports include coffee, tea, cocoa, nuts, spices and oils, almost all of which come from developing countries (Kilcher et al, 2004). Hamburg is an important port of entry for organic products into the EU (CBI, 2004).

Table 8. Retail prices of selected organic and conventional products in Switzerland (August 2004)

Product	Quantity	Organic price (Swiss Francs) ^a	Conventional price (Swiss Francs)	Premium (%)
Spätzli (egg noodles)	500 g	3.80	3.10	22
Bananas	kg	3.60	3.00	20
Milk	1 litre	1.70	1.45	17
Eggs	4	3.20	2.60	23
Pork chops	kg	27.50	19.55	41
Carrots	kg	2.30 to 2.90	1.70 to 1.80	33 to 61

Source: Gruber, 2005 (personal communication).

^a The exchange rate in 2004/2005 was roughly 1.50 Swiss francs to 1 euro.

The main organic product groups consumed are bread and other bakery products, dairy products, tofu, eggs, fruit and vegetables and meat (CBI 2004). Distribution takes place through specialized shops (35 per cent) supermarkets (35 per cent) and direct sales (18 per cent); the role of supermarkets is on the rise (Kilcher et al., 2004). Since 2001, promoting OA has become an official part of German agricultural policy. The Government's OA programme has an annual budget of 20 million euros, and initiatives such as the State-sponsored Bio-Siegel logo is intended to bring some clarity to the complex and confusing situation of nearly 100 organic labels in Germany, thereby helping to boost the sector (CBI, 2004; Yussefi, Willer and Lünzer, 2004).

In the *United Kingdom*, 56–65 per cent of organic products were imported in 2002/2003, of which organic fruit and vegetables comprised 76 per cent of the total sales value and cereals accounted for 65–70 per cent. This is despite a food campaign by the Government of the United Kingdom and the Soil Association (the main certifier) urging consumers to buy local organic produce, and efforts by supermarkets (that sell 80 per cent of the organic food in that country) to procure domestically (Richter and Padel, 2005; CBI, 2004).

In *France*, fresh fruit and vegetables, cereals and beverages accounted for half of organic sales in 2002 and showed the strongest growth (Kilcher et al., 2004). Imports accounted for only ten per cent of the French organic food market, the lowest share in Europe, but are on the rise as domestic production cannot meet rising demand. Some 60 per cent of imports originated in other EU countries (CBI 2004). The main imports from non-EU countries included tropical fruit, coffee, cocoa, tea, spices, sugar, oils and cereals. The best-known organic label (AB for *agriculture biologique*) is owned by the Government. Kilcher et al. (2004) note that for organic plant products, this label can only be used for products from other EU countries or from those on the EU third-country list, unless the product is included in the "exotic products" list. This could dampen prospects for some developing-country exports.

Italy has the most land under organic production in Europe. Over a third of all Italian organic production is exported, mainly to other European countries, but also to the United States and Japan. Italy relies on imports for processed goods, except for pasta and wine (of which Italy is a net exporter) and fruit and vegetables (Pinton and Zanoli, 2004). Most Italian production is in the south of the country, whereas 65 per cent of the organic consumption is in the north where income levels are relatively higher. In 2003, 60 per cent of organic sales were via specialized food stores and direct sales and 35 per cent via supermarkets. It is expected that by 2005 some 60 per cent will be sold in supermarkets (Kilcher et al., 2004).

In *Switzerland*, OA products comprise the highest share of overall food sales in Europe. This is largely due to active promotion of such products by the country's two main supermarket chains, Coop and Migros, which together accounted for 75 per cent of organic sales in 2002. Migros currently carries some 850 organic items. The high levels of consumers' income, education and environmental awareness have also contributed to strong demand for organic products. Imports of organic products have been constantly rising and are expected to continue to do so in coming years. Share of imports vary by product group. Virtually all organic coffee, cocoa, tea, tropical fruit and oilseeds are imported, as well as over 90 per cent of organic cereals, sugar and sweeteners, and over 75 per cent of other fresh fruit. On the other hand, only 20 per cent of organic vegetables are imported and almost all organic milk, eggs, wine and potatoes are produced domestically. The private Bio Suisse labelling scheme plays a very important role in the market. Its standards are more restrictive than the Swiss Government's Organic Farming Ordinance. For imported products bearing the Bio Suisse label, transportation by air is prohibited, and fresh products can only be imported if they cannot be grown in Europe for climatic reasons (Kilcher et al., 2004).

Although its domestic organic market is modest, the *Netherlands* is an important importer of organic products. Rotterdam is the main point of entry into Europe for organic imports, for re-export throughout Europe.

Canada

Retail sales of organic products in Canada were estimated at \$750–\$1,000 million in 2003, making it the sixth largest national organic market in the world. Annual growth rates are estimated to be in the 20–25 per cent range. Because of Canada's climatic conditions, many organic products cannot be grown domestically and must therefore be imported. Some 80 per cent of imports are from the United States, although a considerable proportion consists of re-exported products originating in Latin America, particularly Mexico. The main imports from developing countries include tropical and off-season products. In addition, due to Canada's ethnic diversity, there is a strong interest in novel and ethnic products (Kortbech-Olesen, 2004).

The Organic Agriculture Centre of Canada publishes data on average retail food prices for a number of organic and conventional products; their prices can vary substantially across regions. Nevertheless, table 9 gives an indication of average price premiums of organic compared to conventional products in January 2004. The table indicates that average price premiums vary across products, ranging from 11 to 174 per cent.

Japan

Japan is the largest organic market outside Europe and North America, and is of particular importance for Asian organic producers. Prior to 2001, the Japanese market for organic products was estimated at more than \$3 billion, which would have made it one of the top three national markets

Table 9. Organic and conventional retail food prices (in Canadian dollars): average for four Canadian cities (Vancouver, Toronto, Montreal and Halifax) (January, 2004)

Product	Unit	Organic price	Conventional price	Premium (%)
Cereals				
Oats for cooking	kg	3.86	2.30	68
Wholewheat pasta	kg	7.12	5.37	33
Wholewheat flour	kg	2.26	1.75	29
Dairy and eggs				
Cheddar cheese	kg	25.69	12.64	103
Eggs	1 dozen	4.98	2.58	93
Milk (2%)	litre	2.59	1.79	44
Fruit and vegetables				
Apples	kg	4.35	2.89	51
Carrots	kg	2.69	1.37	96
Cucumbers	each	3.35	1.31	156
Romaine Lettuce	each	2.52	1.72	47
Green Peppers	kg	9.59	4.47	115
Tomatoes	kg	6.40	5.79	11
Meat				
Chicken	kg	10.42	5.52	89
Hamburgers	kg	16.14	5.90	174
Pork chops	kg	21.72	8.84	146

Source: Organic Agriculture Centre of Canada, 2004.

in the world. However, this estimate included specially cultivated agricultural products (using fewer pesticides) in addition to organic products. In 2001, the Government introduced regulations on organic farming, which allow only products certified by a Government accredited organization to be marketed as organic. Thus many products previously marketed as organic lost this status so that estimates of the organic market shrunk to a fraction of its previous size²² (Sahota, 2005).

Consumer demand for organic products is on the rise, fuelled by a number of food scares such as BSE and high dioxin levels. Major food retailers have introduced organic products and a number of specialized shops have opened in major cities. Obstacles to the sector's development include a general lack of awareness by consumers about organic food, a saturated overall food market, and reduced purchasing power of consumers due to economic recession. (IFOAM Japan, 2004). Domestic organic production is increasing, but still remains low (only 0.15 per cent of total domestic agricultural production in 2002). Therefore, imports play an important role. According to IFOAM Japan, "it is likely that the organic market will depend increasingly on imported organic foods" and the ratio of imported to domestically produced organic fresh crops was 2.5:1 in 2002. Import dependence is particularly high for fruit: 0.8 billion yen worth were produced domestically compared to 5.9 billion yen worth that were imported, principally bananas and kiwis (largely from the Philippines) and citrus fruit (mainly from the United States) (IFOAM Japan, 2004). Their average price premium has been estimated at 37 per cent. Certification requirements, language and cultural differences have been cited as major barriers to market entry (Organic Monitor, 2003).

Organic markets in developing countries

As mentioned above, developing countries account for only a very small share of the global sales of certified OA products. This is largely due to lower income levels, consumer unwillingness to pay price premiums, and a lack of consumer awareness of the benefits of organic products. Generally, between 90 and 100 per cent of certified organic products produced in developing countries are exported to developed-country markets. Nevertheless, although developing-country markets for certified OA products are quite small, they are growing. Moreover, there are growing markets for uncertified self-claimed organic and "naturally grown" products in many developing countries. Often sales are made within the local community and are based upon trust between the farmers and consumers, who may know each other personally.

Domestic markets for both certified and uncertified OA products are of great importance to developing-country organic producers. These markets serve as useful outlets for producers just starting out in organic production, in order to gain experience before going for certification. Market entry costs are low, and such markets are accessible to the smallest farmers, even those growing organic vegetables in their backyards in the city. These markets provide the economic foundation that allows production of a broader range of OA products, and can help farmers achieve economies of scale. Even where only one OA product is successfully exported, farmers can sell the other crops produced on the organic farm in domestic markets. Such farms are by their very nature based on inter-cropping and multi-cropping, as opposed to mono-cropping. Domestic markets also provide a fallback option when export opportunities become constrained due to international market fluctuations or changes in import market regulations or procedures.

In Latin America, Argentina and Brazil have the most developed domestic markets for certified OA products. In the 1990s, OA markets in larger Argentinean cities were growing, with sales through home delivery schemes, specialized stores and supermarkets. Yet even in Argentina, 90 per cent are exported, mainly to Europe and the United States. In Brazil, 45 per cent of domestic sales are through supermarkets, 26 per cent through fairs and 16 per cent through specialty shops (Lernoud and Piovano, 2004). The Brazilian Zona Sol supermarket chain has actively promoted organic products. Supermarkets in a number of other Latin American countries, including Costa Rica, Honduras, Nicaragua, Peru and Uruguay, are starting to offer organic products, particularly fruit and vegetables. Most countries of that continent have specialized natural or health food stores.

These stores play an important role in raising consumer awareness of the health and environmental benefits of organic products, thus helping the organic market to grow. The most popular points of sale for organic products in Latin America are neighbourhood fairs or small informal markets, where local producers sell their goods usually on a weekly basis. Here farmers can get the full price for their products, without resorting to middlemen. Economically, these markets may be small but they are very important for smallholders. Examples include the weekly fairs in villages across Peru organized by the NGO, Red Agroecologica, which builds on the millennium-old tradition of local trade of the indigenous communities; the bi-weekly fair in Porto Alegre, Brazil, which gathers 300 producers; and the FAMA ecological market in Santo Domingo, the Dominican Republic (Lernoud, 2005).

In Asia, significant domestic markets are developing in China, Hong Kong (China), Malaysia, the Philippines, the Republic of South Korea, Singapore and Thailand. These generally offer a mixture of certified organic products alongside self-claimed organic, and are sold through a variety of channels such as supermarkets, organic bazaars, specialty shops, direct sales and Internet marketing. In China, the domestic market is growing rapidly; in 1999, virtually no certified organic products were sold, and today organic vegetables are available in supermarkets in Beijing and Shanghai, dozens of tea shops sell organic tea, and organic rice, fruit and honey are also available, all of which are certified by the Organic Food Development Center and other domestic certifiers. Prices of organic vegetables are generally one to three times higher than those of their conventional equivalents, and sales are good (Xiao, 2005, personal communication).²³ Trade of organic products within the region is growing, although most are exported to the EU and Japan (Kung Wai, 2004). Some governments promote sales of food produced using fewer agro-chemicals, such as “green food” in China and “safety vegetables” in Viet Nam. While in general this is a positive development, some consumer confusion may result.

In Africa, domestic markets for certified OA products are developing in Egypt and South Africa. The pioneer of the organic movement in Egypt, Sekem, sells most of its certified OA products domestically, including herb teas, cotton and fruit and vegetables. In other African countries, markets for uncertified, naturally grown products are reported to be growing (Parrott and Kalibwani, 2005). The Kenyan domestic market, for example, is growing fast, with 10 retail outlets in Nairobi and others in main Kenyan towns selling self-claimed organic products. Sales are also increasing in Uganda via the National Organic Agricultural Movement of Uganda (NOGAMU) shop, box delivery schemes, local supermarkets and contracts with local schools. Organic products in greatest demand there include fresh vegetables, fruit, spices, fruit juices and concentrates, eggs, vegetable oils and shea nut butter (Taylor et al., 2005). In Tunisia, the initial results of a new domestic market promotion initiative facilitating linkages between organic vegetable and fruit farmers and five supermarket chains are promising (see commentary by Maamer Belkhiria and Ben Kheder in this *TER*).

2. Market access and entry requirements

Although there has been some discussion²⁴ on facilitating market access of developing-country exports of OA products, currently OA products face the same market-access conditions as their conventional counterparts in terms of tariffs and quotas. As mentioned above, there is no separate international HS code for organic products or separate national lines in customs classifications.

Like other agricultural products, organic products must meet all sanitary and phytosanitary requirements in the importing countries, which may include mandatory maximum residue levels (MRLs), hazard analysis of critical control points (HACCP) and traceability. In addition to government regulatory requirements, it may be necessary to meet private voluntary standards in order to gain market shares. EurepGAP is a prime example. For more information on these requirements, see chapter 1 in this *TER* by Hoffmann and Rotherham. It should be noted that organic products stand a better chance of meeting many of these requirements, for example those related to traceability and MRLs of synthetic agro-chemicals.

For a product to be exported and sold as organic in another market, it must be certified by a third party as having met the organic production standards enshrined in that country's organic regulations. These third-party certifying bodies must in turn have been either approved (in the case of the EU) or accredited (e.g. in the case of the United States) by the relevant government authority. Some buyers may also require that the certifying body be IFOAM-accredited.²⁵ In addition, all relevant administrative and import procedures in the organic regulations must be followed. Moreover, in many markets, the concept of "organic" is strongly tied in consumers' minds to a particular label or mark. This mark is a sort of branding in the marketplace, and may ultimately play a stronger role in influencing market entry than any regulations. Many of these certification marks, particularly in Europe, are tied to private organic standards that meet the requirements in official organic regulations but also add additional requirements (as illustrated above in the case of the Bio Suisse mark). In order to sell products in a certain market, it is usually necessary to produce to the standard of and be certified by the particular certifying body or bodies whose labels have consumer confidence and recognition in that market. This branding effect seems to be stronger in many national European markets than in the United States, where more than 45 domestic certification bodies certify to a single USDA standard and the USDA organic logo is gaining increasing consumer recognition.

Regulations governing imports of organic products in major markets: European Union, the United States, Japan and Switzerland²⁶

For the countries that import the bulk of developing-country OA products, facilitated market entry can be attained through governments or other channels. The following is an overview of the regulations governing organic imports in the EU, the United States, Japan and Switzerland. Canada, another major organic market, is currently in the process of developing national organic regulations. At present, two of its provinces – Quebec and British Colombia – have provincial regulations.

European Union

EEC Regulation No. 2092/91 governs imports of organic products into the EU from non-EU countries. There are three mechanisms for meeting the requirements of the regulation:

1. Getting on the third-country list (Article 11.1)
2. Member State authorization of products/importer derogation (Article 11.6)
3. Commission approval of inspection bodies in a third country (Article 11.7)²⁷

Under Article 11.1, a country's government can request to be put on the EU's third-country list.²⁸ EU authorities will then carry out an evaluation to determine whether the country's organic standards and conformity assessment systems are equivalent to those of the EU. The evaluation involves physical visits by experts. Currently there are six countries on the list, only two of which are developing countries.²⁹ Costa Rica is the only developing country to have recently been included in the list, although others such as the Dominican Republic, Guatemala, Honduras and India are in the process of applying.³⁰

When the EU regulation was drafted, it was intended that Article 11.1 be the main avenue for entry of imported organic products. However, the evaluations to determine equivalency have proven to be rather time-consuming and complicated. Consequently, most organic products from non-EU countries enter the EU under Article 11.6, whereby member States can issue authorizations to importers wishing to import organic products from non-EU countries. The importer must submit documentation proving that the imported product was produced to organic standards equivalent to those of the EU regulation; was inspected and certified in a manner equivalent to the EU requirements; and was certified by an inspection body that operates in compliance with ISO 65 or the EU equivalent, EN45011. As 90 per cent of the organic imports to the EU are imported according to Article 11.6, organic producers or exporters in developing countries are highly dependent on es-

tablished importers in the EU. Moreover, as Article 11.6 is applied differently in different member States, and is also due to expire, it has created uncertainty among developing-country producers/exporters and their importing partners in the EU (Kommerskollegium, 2003).

In addition, Commission Regulation 1788/2001 (which entered into force in November 2002) tightened these rules by requiring that an original certificate of inspection for each consignment be submitted to and endorsed by the designated authority at the port of entry of the member State. This makes export to the EU of organic products, particularly perishables, more difficult.

The importer derogation, which was originally intended to be a temporary solution, has recently been extended until the end of 2006. At that time, it is expected to be replaced by a new permanent system. On 21 December 2005, the European Commission adopted a proposal for a new OA regulation aimed at clarifying and simplifying EU rules and regulations and enhancing flexibility to take account of regional differences in climate and conditions. Organic imports can come from countries whose production standards and conformity assessment systems are deemed equivalent to those of the EU or in accordance with Codex Alimentarius guidelines. Direct recognition of certification bodies in third countries is another new element. The proposal also aims to promote the use of the EU logo and reduce general claims by private bodies of having OA standards that are better or "more organic" than the EU rules. An initial analysis indicates that these changes should be quite favourable for developing-country producers and exporters of organic products. The proposal will now go through the normal consultative process, culminating in a EU Council decision, probably by the end of 2006. (Commission of the European Communities, 2005).

The United States

The United States National Organic Program (NOP) came into effect in October 2002. It establishes national standards for organic production and handling, a national accreditation programme run by the USDA's Agricultural Marketing Service, labelling requirements and organic imports. Imports labelled "organic" must be produced, certified and labelled in accordance with the NOP rules. Certifiers must be accredited or approved by the USDA. For foreign certifiers, there are three ways of achieving this:

- Direct accreditation by the USDA;
- Accreditation by a foreign government upon request of that government; and
- Equivalency agreement between the United States Government and a foreign government.

Most United States organic imports enter the market via the first option. Certifiers, both domestic and foreign, apply directly to the USDA for accreditation to enable them to certify to the NOP production standard. This accreditation covers the certifier's operations worldwide. All accredited certifiers are to be treated equally, regardless of whether they are based in the United States or abroad. USDA-accredited certifiers are required to accept the certification decisions made by all other USDA-accredited certifiers.³¹ As of 20 December 2005, there were 95 USDA-accredited certifying agents, of which 54 were based in the United States and 41 were foreign-based. Of these 41, 10 were based in developing countries,³² all in Latin America (USDA, 2005b). This option is advantageous for developing-country producers, since their domestic certifiers can be treated in the same manner as certifiers based in the United States. On the other hand, it requires producers everywhere to comply with United States organic production standards, which may or may not be suitable to the local climatic and socioeconomic conditions.

Under the second option, the USDA can accept the accreditation of a foreign certifying body by a foreign government upon request of that government. The foreign government would need to have a programme to accredit a certifying body to the NOP standard, and the USDA would need to determine that its conformity assessment system meets the requirements of the NOP. The certifying bodies would then be "approved", but not directly accredited, by the USDA. As of mid-2005, the USDA had recognized the conformity assessment systems of five foreign national or provin-

cial governments: Denmark, New Zealand, the United Kingdom and the Canadian Provinces of British Columbia and Quebec (Bowen, 2005). These governments can thus accredit certification bodies in their territories to certify to the NOP standard.

Under the third option, a foreign government may negotiate an equivalency agreement with the United States Government. However, to date, no country or regional bloc has done this, although the EU and the United States are currently in the process of trying to negotiate one. Certifiers accredited by a foreign government with whom an equivalency agreement was in effect would also be “approved” – not “accredited” – by the USDA.

In the United States, all certified organic products, whether produced domestically or abroad, are eligible, although not required to bear the USDA organic label. Private certifiers may also fix their labels alongside the USDA label, as long as the USDA label is larger in size. Claims by private certifiers of having organic standards that are “higher” or more rigorous than those of the NOP are not allowed. Thus the NOP sets a ceiling as well as a floor on organic standards. This eliminates competition based on the “my standard is better than your standard” argument. This will tend to be advantageous to developing-country exporters, as meeting one production standard can get them access to the entire United States market.

Japan

In Japan, the term “organic” was given legal definition as part of the Law Concerning the Standardization and Proper Labelling of Agricultural and Forestry Products, which was adopted in 2000 and came into force in 2001. This law requires all foods (both domestically produced and imported) labelled as organic to carry the Japan Agricultural Standard (JAS) mark. Organic products must be certified by a certification/inspection organization that has been registered with the Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF). These certification bodies may be based in Japan or in foreign countries whose standards and conformity assessment systems have been deemed by MAFF to be equivalent to those of Japan. Currently these include Australia, the 15 countries of the EU, Switzerland and the United States.

As of May 2005, there were 71 Japanese and 24 foreign certifying bodies registered with MAFF. The foreign certifiers may operate in third countries where they had been providing certification services at the time of their application to MAFF, but not in Japan. Registered certification organizations may delegate inspection to a certifying body in a third country with whom it has a “trust contract of providing inspection data”, provided that the latter is recognized as a certifying body by that country’s government or by a reliable international organization, such as ISO or IFOAM, and that it has considerable experience in certifying organic products.

A revision to the law was passed by the Japanese parliament in June 2005 and is expected to come into force in March 2006. Under the revised law, the country equivalency requirement for foreign certification bodies will be abolished; certification bodies in any country may apply for registration with MAFF. This improves developing-country export prospects. Another change under the revised law is that registered certification bodies must meet the criteria defined in ISO/IEC Guide 65 and not be under the control of the organic operators they certify. In addition to the above, organic food products certified in a country whose organic standards and conformity assessment system have been deemed to be equivalent to the JAS system can be exported with the relevant government certificate and be marketed as organic by a JAS-certified importer in Japan (Matsumoto, 2005, personal communication; MAFF, 2005; Commins and Kung Wai, 2003; JONA, 2005).

Switzerland

The Swiss Organic Farming Ordinance, which came into force in 1998, is modelled on the EU organic regulation; however it is stricter in some ways, including the requirement that the whole

farm be under organic management, but less strict in others, such as requiring a two-year conversion period instead of the EU's requirement of three years. Switzerland and the EU have a bilateral agricultural agreement that recognizes their organic regulations as equivalent. Thus a product certified as organic in accordance with the EU regulation can be imported from the EU into Switzerland without additional certification. This applies also to products from third countries. However, it should be noted that the private labelling schemes in Switzerland, notably the market dominating Bio Suisse, impose additional requirements.

The Swiss system is analogous to that of the EU in that it maintains a country list of those countries whose governments impose conditions on organic products deemed equivalent to those in force in Switzerland. Currently this list includes all EU member States, Argentina, Australia, Costa Rica and New Zealand. For imports from countries not on this list, importers in Switzerland must apply for an individual authorization and provide an attestation of equivalence. An import certificate must accompany each shipment. While there are no import quotas for organic products per se, Switzerland has import quotas for fruit and vegetables that are set according to the seasonal availability of Swiss products (Kilcher et al., 2004).

E. Challenges related to the production and export of developing-country OA products

This section highlights a number of challenges that developing-country producers and exporters of organic agriculture must overcome in order to reap the benefits outlined above.

Developing country producers and exporters of OA products face many challenges in common with producers and exporters of conventional and traditional agricultural products. These include difficulties in getting the products to market due to production in remote locations with poor transport infrastructure; dependence on middlemen for marketing and access to retail outlets, with associated lower farm-gate prices; lack of access to credit, often necessitating resort to loan sharks and the payment of usurious interest rates; and lack of quality inputs and knowledge. Also, as described above, agricultural products must meet a range of market access and entry requirements (public and private) in the importing countries.

Another general problem for developing-country exporters of agricultural products that compete with domestically produced products in import markets is the sizeable agricultural support provided by many developed countries to domestic producers, which reduces the competitiveness of developing-country agricultural producers³³. The secretariat of the Organisation for Economic Co-operation and Development (OECD) estimates that direct budgetary payments to producers accounted for 32 per cent of OECD gross farm receipts in 2003. Total agricultural support in OECD countries in that year amounted to \$350 billion – nearly \$1 billion a day (OECD, 2004). This amount is nearly 60 per cent more than the combined GDP of all 50 of the least developed countries (LDCs).³⁴

In addition to the above, governments in many developed countries, particularly in Europe, have a variety of policies designed to increase the amount of land that is organically farmed. The rationale behind these policies in Europe is that organic farming provides a number of environmental benefits to society and that these are not taken into account in private production decisions. Organic farming is thus a public good. Providing government support to organic farming would bring farmers' private costs and benefits more in line with full social costs and benefits.

European programmes include green payments (i.e. subsidies), demand-side policies and national targets for land under organic management. Under the EU's agri-environment programme, farmers enter into a contract with their national government under which they commit for a period of time (usually five years) to specific environmentally preferable farming practices, such as organic agriculture, in return for payment. According to Häring et al.,

“In 2001, almost 500 million euros were spent on organic lands under the two measures

(2078/92 and 1257/99), with organic farms averaging payments of 183-186 euros per hectare compared with 89 euros per hectare for conventional farms...The share of organic land supported by agri-environmental policies ranges from 33 and 37 per cent in France and Italy to almost 93 and 94 per cent in Finland and Denmark. ...Sweden's 113 percent has more policy-supported organic land than certified area, reflecting Sweden's policy of supporting uncertified organically managed lands." (Häring et al. (2004) cited in Dimitri and Oberholtzer, 2005).

EU governments set targets for land under organic management to demonstrate their commitment to the sector's growth. There is considerable variability across member States. Germany's goal of 20 per cent by 2010 may be difficult to reach, given that only just over 4 per cent of farmland was organic in the year 2003. Belgium, Denmark, Finland, France, Ireland, the Netherlands, Sweden and Wales (in the United Kingdom) have also set targets, ranging from 3 per cent by 2005 in France to 20 per cent by 2005 in Sweden. Austria, Greece, Italy, Luxembourg, Portugal, Spain and the United Kingdom, have not set national policy targets (Dimitri and Oberholtzer, 2005). The impact of the changes in the European Common Agricultural Policy – CAP Reform 2003 – which include, for example, a shift to single farm payments independent of the production level, is still unknown, but some believe that the changes will favour the expansion of organic farming (Häring et al., 2004, in Dimitri and Oberholtzer, 2005).

Another way in which developed-country governments support organic farming is through publicly funded research. In Europe, this amounts to some 70–80 million euros each year. Again, there is considerable variability across countries, with Denmark, the Netherlands and Switzerland providing over 60 per cent of all such spending in Europe (Niggli, 2005 in Dimitri and Oberholtzer, 2005). In the United States, publicly funded research accounts for the lion's share (at least two thirds) of the estimated \$7 million that the Government spends exclusively in support of organic agriculture (Dimitri and Oberholtzer, 2005).

The subsection below outlines a number of challenges that are particular to the production and export of developing country OA products.

1. Challenges related to organic production

In most developing countries, OA has generally developed outside the realm of public support.³⁵ Many developing-country governments have been hesitant to embrace OA due to a lack of awareness of its potential benefits, concerns about organic agricultural productivity and food security, or perceptions that organic regulations and standards in developed-country markets may act as protectionist barriers to trade. Currently, many developing countries have government policies that are relatively disadvantageous for OA, though this is often an unintended side-effect: for example, the provision of heavily subsidized pesticides aims to support conventional agriculture but also makes OA relatively less competitive. Developing-country governments frequently pay little attention to the organic sector, and only a few have embarked on real OA policy development. This latter group includes, for example, Costa Rica, India and Tunisia.³⁶

The conversion period (i.e. the first couple of years after switching to organic production) is often the most difficult for farmers, due to the many adjustments and changes to be made. Sometimes, agricultural yields may temporarily decrease if the farmer had been previously relying heavily on agro-chemicals. During the conversion period, farmers cannot benefit from the price premiums associated with certified OA products. Poor farmers do not have ample reserves to see them through a season or two of lower profitability.

A shift towards OA requires considerable investment in human capital in terms of knowledge and know-how of organic techniques that work well in that environment. Farmers need to be trained and informed, and this is perhaps one of the greatest impediments to growth of the OA

sector. Training is labour-intensive, particularly when the target audience lives in remote places. On-farm demonstrations of OA techniques are especially needed in areas where illiteracy rates are high. Agricultural extension services in many developing countries are poorly funded, and staff seldom have training in organic production techniques. In many cases, most of the resource materials made available to them are provided by the agro-chemical industry. Extension workers are often trained to convey simple messages, such as what pesticide to use, and with little respect for traditional farming systems or knowledge about organic methods.

Public funds for agricultural research and development (R&D) in developing countries have in general been falling for several decades, and R&D in OA continues to receive a very small share of that already limited amount. Private sector agricultural R&D helps fill the gap to a certain extent, although globally these funds are mainly directed towards conventional production in high-income countries. This lack of funds for R&D in OA could potentially slow down relative productivity growth in the organic sector in general, and in developing countries in particular. In addition, in certain cases it may be difficult to find the needed organic inputs, such as sufficient organic composting materials, bio-pesticides, bio-fertilizers and high quality seeds.

While developing countries may have a natural comparative advantage in OA due to relatively abundant labour, an increasing number of cases have been observed where labour shortages have become a barrier to organic agriculture. Examples include female-headed and child-headed households. Furthermore, poorer segments of rural societies tend to gain much of their livelihood from off-farm employment, which occupies labour time and confronts farmers with new trade-offs (Hauser, 2005, personal communication).

Lack of secure land tenure has been cited as an obstacle to organic farming in a number of countries. Organic farming involves investing considerable effort to build up soil fertility. Farmers must feel secure that they will be able to reap the benefits of those efforts in the future. In some cases, women are doing much of the farming but are not allowed to own land. In other cases, for example in several countries in Africa, arable land may be owned at the community level and individual plots rotated among farmers on a regular schedule, which means that just when a farmer has built up his/her soil fertility it is time to change plots. This acts as a disincentive to “go organic” (Tesfai, 2005, personal communication).

2. Challenges related to organic exports

Certification costs

Third-party certification by a body accredited or approved by the government and recognized by the consumer in the target market is necessary for organic exports. This usually means that developing-country products are being certified by foreign certifiers that often have their headquarters in the target market. This can be quite costly for developing-country producers, particularly when the inspectors must fly in to carry out the annual inspection. In low-income countries, and particularly for smallholders, certification costs can entail a disproportionately high financial burden. The actual cost varies, as different certifying bodies use different pricing schemes. Some foreign certifiers employ local inspectors or make arrangements with local certifying bodies to carry out the actual inspections, which can lower costs. The certification decision itself, however, is usually still made by the foreign certifier.

Wynen (2005) gathered information on the cost in several countries of certification for export. In Mexico, for example, charges are approximately \$320 per day for initial administrative work and inspection by Certimex, a local certifying body, requiring around two days. These costs are 50

to 60 per cent higher than the costs of certifying for the domestic market. In China, foreign certifiers charge approximately \$500 per day and a typical inspection takes 1–4 days. In South Africa, the foreign certifier, ECOCERT, charges farmers approximately \$1,200 per farm per year. Part II of this chapter by Vossenaar and Angel shows comparable rates in Central America.

In some cases, whole groups of smallholding farmers in the same area producing the same product can be certified as a group. Group certification generally relies on internal control systems (ICS) whereby the community self-manages and self-monitors, and the third-party certifier verifies that the ICS is functioning properly. Thus, as the inspections are done within the group itself, it is no longer necessary for the third-party certifier to conduct annual inspections of every small farm. This can greatly reduce the cost per farm.

According to Wynen (2005), in Uganda, for example, a farmers' group of 1,600 cocoa farmers was certified at a cost of \$12,000 per year (\$7.50 per farmer) and a group of 2,000 coffee farmers paid \$8,000 (\$4 per farmer). Wynen points out, however, that this can still represent a high cost for these farmers who may have small fields (less than an acre) with perhaps 80 kgs of product per field.³⁷ Indeed, certification in these cases was only possible because the exporter was able to provide the funds for the certification (Taylor, 2005, personal communication).

Certification costs rise significantly when multiple certifications are needed, as discussed further in the section on harmonization below.

Marketing-related constraints

Timely and accurate market information on organic markets is generally very hard to obtain, particularly in developing countries. Producers may not know which products are most in demand in which markets, and where imports from developing countries could fill demand-supply gaps. While demand for most, if not all, organic products is on the rise in major markets, occasionally situations of oversupply may occur for particular products. This happened recently with organic milk in Denmark, where growth of the mature market (more than one third of milk sales were organic) slowed down in 2002 giving rise to a short-term oversupply (Organic Monitor, 2002). Markets for individual organic products are also fairly small. This increases the probability of temporary market saturation. Some of these markets are fairly cartelized, leading to suboptimal solutions from the producers' point of view. Moreover, marketing chains are complicated and involve more paperwork than for conventional products. Serious delays in getting import permits for the EU have been reported. As a result of all of these factors, some certified organic products from developing countries might end up being sold as conventional, as recently happened for organic tea from India and sesame from Uganda.

Logistics

Certified OA products for export often have specific logistical requirements for handling and transport. For example, they must generally be stored and transported separately from conventional products, which entails higher logistical costs. Moreover, not all transport companies have such facilities. Processing facilities for organic products are generally limited in developing countries. This implies that the developing-country OA product range tends to be concentrated at the lower end of the value chain. Often they end up supplying inputs for processing in developed countries, thus forgoing more lucrative opportunities further up the value chain.

Consumer preferences for locally produced food

While consumer preferences are fuelling overall growth for organic products in major markets, prospects for developing-country products are somewhat dimmed by consumer preferences for

locally produced organic food. This preference is driven by several factors, including the desire for very fresh food, the wish to support local farmers and a lack of trust in organic guarantee systems in faraway places. It is also tied into concerns about “food miles” (i.e. the number of miles food travels to reach the consumer’s plate and the environmental damage caused by this transportation). The food miles campaign seems to be particularly strong in the United Kingdom, which has one of the highest shares of imported products (estimated at between 56 and 65 per cent) in its organic market.

Certain organic labels, particularly those in Europe, implicitly favour locally (including nationally and regionally) produced food. Kilcher et al. (2004) note, for example, that Bio Suisse, the main private organic label in Switzerland, will not put its label on any products that have been transported by air; the main French label, AB, owned by the Government, can only be used on OA products produced in the EU with the exception of certain listed exotic products that cannot be grown in the EU. Even the EU organic logo was originally allowed only on products produced in the EU, although a recent legal interpretation reversed that practice.³⁸ It is difficult to sort out cause and effect regarding these preferences. Owners of such labels claim that their consumers want locally produced foods, but these consumers are often influenced by information provided by the local and national organic industry, which of course has an interest in promoting its own products. Retailers also play an important role: a few have adopted “buy local” policies for organic products as a marketing tool.³⁹ Whatever the ultimate cause, it is clear that such preferences and requirements will hinder developing-country exports.

Wynen and Vanzetti (2002) have examined the food miles argument from a quantitative perspective. They found that the pollution and other externalities (e.g. noise and accidents) caused by sea and rail transport are minimal. For road transport, these costs were much higher, but most of the costs are incurred in moving trucks in and out of cities, not between them, and thus would apply for locally produced products in the same measure as those produced further away. They also note that many organic products may be produced in a more efficient manner (i.e. using less energy and natural resources) in distant locations. They find that “total resource use for the production and transport of a good can be lower when transported internationally than produced and consumed locally”. They conclude, “consumers should bear in mind that, where locally-produced goods use more resources to be produced, global environmental benefits may be foregone.” Interestingly, some websites that strongly promote buying local food also advise consumers to buy fair trade products.⁴⁰ Coupling organic agriculture with fair trade labels might be one way to overcome concerns about food miles.

Lack of harmonization, equivalence and mutual recognition

Discussions in a number of forums including UNCTAD, FAO and IFOAM, have indicated that the plethora of certification requirements and regulations is considered to be a major, if not the key, obstacle to a continuous and rapid development of the organic sector, especially for producers in developing countries. The organic market is confronted with hundreds of private sector standards and government regulations, two international standards for organic agriculture (of the Codex Alimentarius Commission and IFOAM) and a host of conformity assessment and accreditation systems. Mutual recognition and equivalency among these systems is extremely limited, with lack of cooperation and “harmony” being a central problem.

To service their clientele, certifying bodies must often obtain a number of costly accreditations. Producers interested in selling in more than one market (or sometimes even in two different stores on the same street!) have to bear the high costs of multiple certifications. In most markets, it is not enough to simply conform to government regulations; producers must also meet the specific requirements of the private organic standard whose associated label is used by a particular retailer or recognized by consumers in that market. For developing-country producers and exporters, this exercise is even more costly, as they are required to use foreign inspectors to carry out the certifi-

cation. There are certainly many farmers around the world who would be interested in producing certified organic products, but are deterred by such complicated and costly certification procedures.⁴¹

This confusing situation is likely to become increasingly complicated in coming years as more and more governments develop their own varieties of organic regulations. As of October 2003, 60 countries were at some stage of regulating the organic sector, of which 37 had fully implemented regulations. Table 10 provides a summary of organic regulations by region and status in 2003. Among developing countries, those with fully implemented regulations included Argentina, Costa Rica, India, the Philippines, the Republic of Korea, Thailand and Tunisia. Those with finalized but not fully implemented regulations included Brazil, Chile, Guatemala, Egypt, Malaysia and Mexico. Those in the process of drafting regulations included China, Indonesia, Lebanon, Madagascar, Nicaragua, Peru, Saint Lucia, and South Africa (Commins, 2005). In the past two years, this situation has changed. For example China's organic regulation is now in place (see Xiao's commentary in this *TER*) and there have been developments in Central America (see part II of this chapter). However, an update of this table is not currently available.

The hundreds of different standards and regulations have much in common. But the devil is in the details; for example differences exist in specific conversion periods, packaging, storage and transport requirements, or lists of permitted substances for fertilization, disease control or food processing. To some extent these differences are necessary as they reflect underlying ecological and socioeconomic differences. However, many appear to be arbitrary.

The existence of so many different standards in the world will put pressure on export-oriented countries with emerging organic regulations to adopt the most restrictive elements of the standards and regulations in their targeted export markets. While this strategy could help gain market access and so boost organic exports, these standards may not be particularly well-suited to the local situation. When organic production in Europe and North America was in a similar early stage of development, their standards were less restrictive than they are now. Some question whether organic production would have expanded so rapidly there if farmers then had to meet today's standards.

Although consumer preferences are often cited as the reason for differing requirements, most consumers do not benefit from the current situation. First, it is they who ultimately bear the costs of multiple certifications. Second, inevitably they have less of a variety of organic products to choose from and consume. Third, there is considerable consumer confusion over the many different labels in the market. It is a reasonable assumption that the vast majority of consumers of organic products are not really aware of or particularly sensitive to the differences in the details of the various standards and regulations. Consumer surveys have indicated that they simply wish to

Table 10. Overview of status of OA regulations by region (as of October 2003)

Region	Fully implemented	Finalized but not implemented	Drafting stage
Europe	26	2	4
Asia and the Pacific	7	1	3
Americas and the Caribbean	3	4	4
Africa	1	1	2
Middle East	-	-	2
Total: 60	37	8	15

Source: Commins, 2005

buy products that are free of harmful agro-chemicals, tastier, produced in a manner that is less harmful to the environment and that are not genetically modified. In short, besides hampering international trade, the lack of harmonization and equivalence of standards could also be stifling consumption of organic products, thus jeopardizing the high growth of recent years.

Table 11. Effects of harmonization of organic agriculture

Without harmonization	With harmonization	Effect of harmonization
Exporting countries		
<i>Administration:</i>		
- Domestic market: set own standards	Setting and updating	Lower costs due to less work, and fewer conflicts and administrative errors
- Export: keeping up with a multitude of standards	national/regional standards	
Certify according to a multitude of standards	Certify to one set of standards	Less paper work, travel, required skills
Extra training of inspectors/officers	Training of certification personnel	Less training of certification evaluation personnel
Many layers of accreditation	Some accreditation	Less numbers of accreditation needed
<i>Production:</i>		
Use of foreign standards	Use of standards appropriate to local conditions	No loss of production and fewer costs resulting from elimination of inappropriate standards
<i>Marketing:</i>		
Need for investments and operation of different storage facilities	Need for investments and operation of one storage facility	Less storage needed
Delay in marketing due to required paperwork	Less delay in marketing	Less delay in marketing, as less paperwork needed
Possibly high dependence on importer (e.g. for many exporters to EU)	Less dependence on importer	More flexibility in choice of importer
Unequal treatment of exporters (e.g. exporters on EU third-country list compared with those not on list)	Increased competition	More equal treatment
Importing countries		
No need for consensus on practicalities of equivalence	Need for consensus on what is equivalence	More meetings
More paperwork on import certificates	Less paperwork on import certificates	Less paperwork, lower costs of certification, lower consumer prices for organic products
Some protection of local producers	Less protection of local producers	Increased free trade (WTO- consistent)
Consumers: limited choice of products and relatively high price	Increased trade, product diversity and lower product prices	Consumers: increased trade, product diversity and even lower product prices

Source: Reproduced from Wynen, 2005.

In a study prepared for the UNCTAD/FAO/IFOAM International Task Force on Harmonization and Equivalence in Organic Agriculture, Wynen (2005) analysed the impact of harmonization on factors related to administration, production, marketing and importing. An overview of this analysis is given in table 11. The table shows that a lack of harmonization (i.e. the current situation) generates additional costs in many areas. Harmonization would yield a wide range of benefits and cost savings. The main additional cost would be the time involved in reaching consensus on the practicalities of equivalence.

One point in table 11 that merits further elaboration is the general problem that organic standards in the importing countries may not be ecologically or socially appropriate for production in developing countries seeking to export to those markets. Environmental conditions in the tropics or the desert are quite different from those in the North. In addition, most of the rural population in developing countries comprises poor smallholding farmers, unlike in most developed countries.

Wynen (2005) provides a number of specific examples of the above. First, the EU requirement to use organic seeds is very difficult for many developing-country producers. The organic seed market in many countries is in its seminal stages; such seeds often either cannot be found or are only available at exorbitant prices. In South Africa, for example, it was reported that the cost of organic seeds for salad products was 35 times that of conventional seeds. Second, the use of peat, which is prohibited by a private European certifier based on environmental conditions in the United Kingdom, is not considered to be an environmental concern in South Africa. Third, the EU stipulation for a maximum use level of 170 kg of nitrogen per hectare per year for organic products was based on European conditions where pollution with nitrogen is a problem. But in many developing countries, soils lack nitrogen and cultivation under such a restriction would be impossible. This would be true, for example, for vegetable production in desert land in Egypt. Some foreign organic requirements would actually contravene national law. For example, complying with a foreign certifier's requirement not to use chlorinated water in packing houses would be considered an illegal action in South Africa where this is required under national regulations. This incompatibility makes it virtually impossible for South Africa to export fresh vegetables to the market concerned.

Wynen (2005) also notes the cumulative effects of these factors and fears that exporters may not be willing to get involved in organic trade as it could be perceived as too risky. This would leave producers in developing countries without buyers of their certified organic products, as domestic markets remain modest. She also notes that newcomers to organic production find it more difficult to comply with today's stricter requirements compared to those who entered this market 10 years ago. The stricter and many different requirements are also likely to deter the development of domestic certifying bodies.

The current situation leads to economically suboptimal outcomes. The multitude of regulations and private labelling schemes serve to increase market entry costs, particularly for foreign producers, and they segment markets. As a result, certain actors gain semi-monopolistic positions, and benefits are shifted away from consumers and export-oriented producers towards domestic producers producing only for the domestic market. Multiple layers of regulations and standards may therefore act as technical barriers to trade.

3. OA and the least developed countries

For LDCs, OA offers particular opportunities and challenges. Many of the poor in the LDCs live in rural areas, and are often smallholders carrying out subsistence farming of traditional food crops as opposed to the export of cash crops. For LDCs with a high population density, small plots tend to be ever more intensively cultivated. Food security, rural poverty and rural underemployment are often major issues.

Many LDCs are located in sub-Saharan Africa (SSA) which is home to more than 60 million smallholder farmers. Food productivity growth in this region has been very low in the past few decades. According to the World Bank, among others, “it is increasingly recognised that declining soil fertility is at the root of stagnant agricultural productivity and increasing food insecurity and hunger in large parts of SSA” (Heerink, 2005). As a result of soil degradation in SSA, productivity levels of irrigated lands are around 7 per cent, rain-fed 14 per cent and rangelands 45 per cent below their potential (World Bank, 1998). Building up soil fertility is a main pillar of OA, and thus a direct response to the problem of soil degradation.

Many smallholder farmers in LDCs cannot afford to purchase external inputs such as agro-chemicals. Some may already be de facto practicing OA, although most would be able to increase their productivity through greater application of organic techniques. The low level of agro-chemical use, combined with rich bodies of traditional agricultural knowledge, can be a source of comparative advantage for these countries.⁴²

At least 20 LDCs produce and export certified OA products (Kortbech-Olesen, 2002, personal communication). However, most OA products in LDCs fall into the uncertified OA category. Certification poses a real challenge to many LDC OA producers. It is relatively costly and cumbersome, particularly for illiterate smallholders, and domestic markets for certified OA products in LDCs are virtually non-existent. Thus price premiums will only be obtained through export, which means that group certification is needed. Often, one or more NGOs or international agencies provide concerted assistance for export, including partially or wholly covering the costs of certification, at least initially. For example, the Export Promotion of Organic Products from Africa (EPOPA) programme, funded by the Swedish International Development Cooperation Agency, has enabled smallholders in Uganda and the United Republic of Tanzania to successfully export OA products.⁴³

Access to good, up-to-date information on OA techniques and markets is also particularly difficult in LDCs, compounded by widespread illiteracy.⁴⁴ Moreover, Internet access is limited. As mentioned above, OA is knowledge-intensive as opposed to external-input-intensive. In addition, the poor infrastructure in LDCs, such as inferior roads and other transport facilities, results in high transportation costs, thereby adversely affecting organic and other agricultural exports. Post-harvest losses are also quite high. Added to this is the lack of good facilities for standards, testing and quality control, which further hinders agricultural exports in general (Dao, 2004).

F. Seeking solutions

Sections C and D above highlighted the many different trade and sustainable development opportunities that OA production and export may offer developing-country agricultural producers and exporters. Section E outlined a number of challenges related to the production and export of OA products. This section recommends a number of actions at national and international levels that could help interested developing countries overcome these challenges and thus reap the potential benefits. It builds on recommendations made in the course of a number of UNCTAD activities over the past five years.⁴⁵

1. Recommendations at national level

Recommendations to governments

There are a number of ways in which developing-country governments can promote the production of OA:

They can examine the current state of the national organic sector, with a view to identifying the main barriers and bottlenecks for the continued growth of OA production and export. This would

include an assessment of the ways in which current government policies and programmes affect the OA sector relative to conventional agriculture. Relevant policy areas could include agriculture, trade and finance (including credit provision, taxation and land tenure). The emphasis could be on identifying those elements that are directly or indirectly hampering the development of the sector or favouring production by conventional means over organic production.

This national assessment exercise should be based upon dialogue with the various stakeholders, particularly the organic producers and exporters, at the national level, to identify what they perceive to be the main obstacles to further development of the sector (both production and export), as well as their aspirations and the specific ways in which they believe that the government could help.

The assessment should also examine issues such as the ways in which land tenure laws and community practices may affect prospects for OA. Without secure land tenure, farmers will have less of an incentive to make the investments needed to improve soil fertility or endure the two-year conversion period. As mentioned above, women can be particularly affected because in many countries they do the farming but are not entitled to own the land.

A national OA action plan could be designed that responds to the key needs identified in the assessment and multi-stakeholder dialogues. This might include an emphasis on development of OA production, domestic and overseas markets, extension services and research as a starting point. In situations where the organic sector is fairly well developed, it might be timely to put in place an organic regulation that is suited to local production conditions but also allows exports to key external markets. Such a standard should be based on or make reference to an accepted OA international standard. Another element of a regulation could be a programme for supervision of organic certification bodies operating within the country. However, governments should carefully consider if they have the capacity for providing this oversight at a level that could gain international recognition.

The national OA action plan could also include government actions to support research on OA production and to address bottlenecks in the supply of OA production inputs or in transport and storage of OA products.

Governments can support the organic sector through micro-credit and micro-enterprise programmes, particularly during the conversion period. Beneficiaries could include not only small-holding farmers interested in producing organically, but also self-help groups of landless agricultural families, particularly women, for organic seed preparation, organic compost, bio-pesticides and bio-fertilizers.⁴⁶ Supporting the latter set of activities could also help alleviate any OA production input bottlenecks identified during the assessment.

Most of the investments in learning and transitional conversion/adjustment costs occur in the farmers' first two to three years of OA. This is the time when special government support programmes can play a vital role, such as covering certification costs, facilitating access to credit and organizing special training programmes. Certification and investment costs of OA during the first few years (or longer for smallholders) could be written off from taxes.

Governments can act to mainstream OA in the agricultural education system, in universities and agricultural extension worker training programmes.

Actions should also take into account the gender dimension and the potential of OA for helping female farmers. For example, in most developing countries women usually have responsibility for tending home vegetable gardens. Governments could train female agricultural extension workers to speak to the community's women about organic horticulture cultivation.

Governments "can facilitate the emergence of farmers' associations by publicly acknowledging their value and supporting their formation." (IFAD, 2005)

Education and R&D in OA should build upon farmers' knowledge of traditional agricultural practices and plant and animal varieties. It should further promote synergies and interactions between this traditional knowledge and practices and "modern" OA techniques. Participatory research programmes, in partnership with farmers, are particularly valuable in this context.

Governments can support the development of domestic markets, for example through activities aimed at raising consumer awareness of the benefits of OA, by convening regular organic product markets and through public purchasing of organic products for institutions such as hospitals and schools.

Governments can support their organic sector's efforts to move up the value chain into processed and semi-processed organic products.

Governments should also promote exports of organic products from their countries. This could involve assistance in identifying market opportunities, facilitating access to market information and helping organic producers to make contact with foreign buyers through normal trade promotion channels such as embassies abroad and participation in international trade fairs.

In countries with more developed organic production, governments could consider setting up a conformity assessment system for organic agricultural products. Having such a system is generally a prerequisite for facilitated market entry to developed-country markets. The costs of setting up such a system need to be weighed carefully against the benefits.

Governments should explore areas for regional cooperation including development of regional or subregional organic standards as well as an appropriate infrastructure for conformity assessment, storage and transport. Such cooperation could bring benefits in terms of economies of scale and a more stable supply of OA products.

Other actors and factors contributing to success

Community and village organization involvement and enthusiasm greatly enhance the chances of success. Local exchange of information and seeds between communities of farmers can be beneficial. Communities can also join forces to solve transport and water problems (for example through shared irrigation). Micro-credit/savings programmes can raise the small amounts of funds needed to purchase necessary improvements, such as irrigation pipes or farm tools.

Group certification is a good opportunity for smallholder developing-country farmers to benefit from the opportunities offered in the main OA markets.⁴⁷ For this, well-managed internal control systems (ICS) are needed (please see box 1). The initial investment in setting up ICS can provide benefits for many years, and it is preferable to base them on existing community organizational structures. Participatory conformity assessment schemes should also be explored.

It is important for OA exporters from developing countries to develop good long-term relationships with one or more importers in the main markets. These partners can provide valuable information on market trends and fluctuations, and help navigate the continuously changing maze of agriculture-related regulations and requirements.

2. Recommendations at the international level

The international community can facilitate the production and export of organic products from developing countries in a number of ways.

Facilitating market access and entry of OA products from developing countries

The World Summit on Social Development called on governments to "support voluntary WTO-compatible market-based initiatives for the creation and expansion of domestic and international

markets for environmentally friendly goods and services, including organic products, which maximize environmental and developmental benefits through, inter alia, capacity-building and technical assistance to developing countries.” (United Nations, 2002).

Developed-country governments and other stakeholders can take a range of measures to facilitate sales in their countries of OA products from developing countries. These include:

- Implement transparent and easily understandable rules and procedures governing OA imports;
- Pursue harmonization, mutual recognition and equivalence in the organic guarantee system (see below);

Box 1. Smallholder group certification based on internal control systems (ICS)

During the period 2001 to 2003, IFOAM commissioned a series of workshops on smallholder group certification that brought together the relevant certification bodies, competent authorities and producer groups. The goal was to agree on one global harmonized set of requirements for ICS for smallholder groups and how ICS should be evaluated.

This process defined an ICS as “a documented quality assurance system that allows the external certification body to delegate the annual inspection of individual group members to an identified body/unit within the certified operator. As a consequence, the main task of the certification body is to evaluate the proper working of the ICS.” The operator in this case is “the actor who signs the contract with the certification body and which is responsible for maintaining the ICS. The operator should have a legal form and structure. Main types of operators are co-operatives, farmers' associations or exporters that contract smallholder farmers.” (Van Elzakker and Rieks, 2003)

Elements of an ICS must include:

- A documented description of the ICS;
- A documented management structure;
- One person responsible;
- An internal regulation (production standard, conversion rules, sanctions, etc.);
- Conversion rules i.e. traditional farming/virgin land/known field history;
- A contract between the group and the certification body;
- Identified internal inspectors;
- Training of personnel, internal inspector;
- Some form of formal commitment of growers;
- Field records, maps;
- Annual inspection protocols;
- A farm inspection report/form, filled in per farm;
- An approval committee that decides to enter the producer on the Growers List;
- Use of internal sanctions;
- Regularly updated Growers List;
- Use of risk assessment to address risks, threats to integrity;
- Use of social control/community surveillance (depending on culture); and
- Documented post harvest procedures/product flow/quantities. (Van Elzakker and Rieks, 2003).

The workshops produced guidelines regarding definition of smallholders, non-compliance and sanctions, evaluation protocol, risk assessment and re-inspection (whereby the external certifier checks a number of producers to verify that the ICS is working properly. For more information, see Van Elzakker and Rieks, 2003). IFOAM has now also published an ICS guidance manual for producers and a training curriculum in ICS evaluation for inspectors and certification personnel. These are available at: www.ifoam.org.

- Include OA products from developing countries in preferential trade arrangements;
- Enforce non-discriminatory use of labels (e.g. at the very least, government-owned organic labels should be open to foreign producers who meet the production and processing requirements);
- Recognize group certification in the importing country's regulations;
- Recognize and take into account the special conditions of developing countries (certifiers, traders and importing countries' governments);
- Promote consumption of organic products, including those from developing countries;
- Refrain from engaging in "buy local" organic food campaigns;
- Gather and provide up-to-date market information on organic products of export interest to developing countries;
- Encourage certifying bodies within their territories to accept the results of other qualified certifying bodies and to make their labels available to OA products produced in developing countries;
- Reduce agricultural subsidies for products competing with developing-country exports, particularly OA exports;
- Consider the possible implications for developing countries of programmes and subsidies to support domestic OA production; and
- Support technical assistance/capacity-building programmes that encourage developing-country OA production and export, especially of high value products, including projects aimed at, for example, developing appropriate policy frameworks and improving market intelligence.⁴⁸

Harmonization, mutual recognition and equivalence

A major avenue of action is harmonization, mutual recognition and equivalence in the organic guarantee system. This can take place at different levels:

- Standards level, including private standards;
- Government level, including OA regulations and equivalency agreements;
- Accreditation level; and
- Certification level (e.g. agreement among certifying bodies to accept each others' inspection reports and evaluations).

Thus the concerned actors include governments, supranational government entities such as the EU, accreditation bodies, certification bodies, retailers (including those with their own private label and standard) and consumers.

Ifoam, FAO and UNCTAD decided to join forces to find solutions in this area. In February 2003, they launched the International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF), which has held five meetings to date, and adopted a strategy on solutions (UNCTAD/FAO/Ifoam, 2006). It is recommended that all major stakeholders participate actively in this opportunity for multi-stakeholder dialogue and act upon the resulting recommendations for action. Governments, for example, should consider adopting a multilateral approach to establishing equivalency with other governmental systems. At the standards level, one possible way for this to work would be that if an organic standard meets a set of internationally agreed minimum criteria (for example, if it complies with Codex Alimentarius Commission guidelines or Ifoam Basic Standards or meets an agreed set of common regulatory objectives for OA), stakeholders should accept this standard as equivalent to their own, even if it is not identical. An international impartial expert body could do the evaluation of each standard against the international standard.⁴⁹

Similarly, national systems of conformity assessment, such as inspection, certification and accreditation, could be evaluated against a set of internationally agreed minimum criteria in order to secure multilateral acceptance of conformity assessment results.

It is recommended that certifying bodies drop as many barriers as possible to accepting the results of each others' inspections and evaluations. Moreover, they should drop as many of their additional requirements as possible. In this context, efforts made under the multilateral agreement of IFOAM-accredited certifiers are important steps in the right direction, and further progress is called for. Certifying bodies should also consider allowing their label to be affixed to products that have been inspected by other certifying bodies that are party to the multilateral agreement, particularly where the certifying body enjoys a monopoly-like position in terms of consumer recognition in the national market.

At the accreditation level, for example, the International Accreditation Forum (IAF) is the world association of conformity assessment accreditation bodies. According to the IAF website, "its primary function is to develop a single worldwide program of conformity assessment which reduces risk for business and its customers by assuring them that accredited certificates may be relied upon." Its logo is "certified once, accepted everywhere." The IAF implements this objective through the Multilateral Recognition Arrangements (MLAs). IAF members who are signatories to the MLA are required to recognize the certificates issued by certification bodies that have been accredited by all other members of the MLA. For organic agriculture, it could considerably enhance organic trade if the International Organic Accreditation Service (IOAS), an independent, non-profit organization, were permitted to become a member of the IAF and signatory to IAF MLAs.⁵⁰ Development of an "organic MLA" should be explored.

Countries that have not yet developed organic regulations but are interested in doing so should consider making reference to an international standard. If their ecological and socioeconomic conditions are similar to those of neighbouring countries, these countries should actively consider developing a subregional or regional standard and, if possible, a common regulation. This could help prevent the creation of new trade barriers among the countries in the future, enlarge the size of the domestic market, and enhance bargaining power in possible future equivalence agreements.

G. Conclusion

Part I of this chapter has highlighted the multiple benefits that organic agriculture can offer developing countries in terms of export opportunities, improved livelihoods, food security, a better environment, community revitalization, improved livelihoods for women, respect for and preservation of traditional knowledge and traditional agricultural varieties, and better health and safety. While organic producers must face certain challenges in order to reap these benefits, evidence suggests that more and more of them are doing so successfully every year. The International Fund for Agricultural Development sums it up eloquently:

"For small and poor farmers, organics can be an effective risk management tool that reduces their input costs, diversifies their production and improves local food security. For rural communities it can provide improved incomes, better resource management and more labour opportunities. For agricultural competitiveness, it meets the increasing demands for improved food safety methods and traceability that are becoming the hallmark of high-value agricultural trade. For governments, organics reduce the possibility of environmental contamination, reduce the use of chemical inputs (often imported) and minimize the public health costs of pesticide poisoning. For nearly everyone involved in its production, processing and trade, organics quite simply earns more money." (IFAD, 2005).

Therefore, the answer to the central question of this paper, "Is organic agriculture a promising trade and sustainable development opportunity for developing countries?" is "yes".

ANNEX 1.

Estimates of land area (ha) under certified organic production by country, 2004

Land	Area	Land	Area	Land	Area
Australia	11 300 000	Netherlands	41 865	Croatia	3 530
Argentina	2 800 000	Estonia	40 890	Philippines	3 500
Italy	1 052 002	Indonesia	40 000	Azerbaijan	2 770
United States	930 810	New Zealand	40 000	Senegal	2 500
Brazil	803 180	Norway	38 176	Pakistan	2 009
Uruguay	760 000	Kazakhstan	36 882	Luxembourg	3 002
Germany	734 027	Tunisia	33 500	Belize	1 810
Spain	725 254	Colombia	33 000	Honduras	1 769
United Kingdom	695 619	Japan	29 151	Algeria	1 400
Chile	646 150	Ireland	28 514	Jamaica	1 332
France	550 000	Belgium	24 163	Bosnia and Herzegovina	1 113
Canada	516 111	Lithuania	23 289	Liechtenstein	984
Mexico	400 000	Slovenia	23 280	Lebanon	758
Bolivia	364 100	Dominican Rep.	22 151	Malaysia	600
Austria	328 803	Morocco	20 040	Bulgaria	437
China	298 990	Zambia	20 000	Sudan	430
Czech Rep.	254 995	Ghana	19 460	Malawi	325
Greece	244 455	Rep. of Korea	18 936	Syria	260
Ukraine	240 000	Egypt	17 000	Suriname	250
Sweden	207 488	Venezuela	16 000	Iran	200
Bangladesh	177 700	Sri Lanka	15 215	Fiji	200
Denmark	165 148	Serbia and Montenegro	15 200	Benin	197
Poland	159 987	Guatemala	14 746	Albania	192
Peru	150 000	Costa Rica	13 967	Mauritius	175
Uganda	122 000	Thailand	13 900	Cyprus	166
Portugal	120 729	Nicaragua	10 750	Madagascar	130
Hungary	113 816	Cuba	10 445	Guyana	109
Switzerland	110 000	Cameroon	7 000	Togo	90
Turkey	103 190	Russian Federation	6 900	Nepal	45
Paraguay	91 414	Viet Nam	6 475	Zimbabwe	40
Kenya	90 000	Iceland	6 000	Lao People's Dem. Rep.	35
India	76 326	Israel	5 640	Malta	14
Romania	75 500	Panama	5 111	Bhutan	13
Latvia	48 000	El Salvador	4 900	Jordan	7
South Africa	45 000	Papua New Guinea	4 265	Total	26 458 270

Source: Reproduced from Willer and Yussefi, 2005.

ANNEX 2.

Farm-gate prices of selected organic and conventional products
in the United States (April 2005)

Product	State	Unit	Organic (price in \$)	Conventional (price in \$)	Premium (%)
Grain					
Barley (feed)	M	Bushel	2.75	1.70	62
Barley (malting)	M	Bushel	3.75	2.45	53
Corn (#2 yellow)	S, F, M, Dt, D, O, SF	Bushel	6.11	2.31	165
Soy (feed stock)	M, D, O	Bushel	14.25	5.99	138
Fruit					
Apples (Fuji, Waf)	S, P, SF	72 Ct	28.98	21.50	35
Apples (Gala)	B, S, P, SF	88 Ct	39.36	18.75	110
Apples (Golden delicious)	B, P, SF	100 Ct	23.17	17.50	32
Apples (Granny Smith)	B, P	100 Ct	43.25	22.25	94
Apples (Red delicious)		100 Ct	27.75	16.00	73
Blueberries	B, S, P, SF	12 4.4-oz cups	44.61	31.88	40
Grapefruit (Ruby)	S, SF	48 Ct	27.98	17.00	65
Lemons	B, P, SF	140 Ct	29.00	24.50	18
Pears (Bartlett)	SF, S	90 Ct	40.98	35.00	17
Pears (Danjou)	B, S, P, SF	80 Ct	39.63	26.88	47
Raspberries	B, S, P	12 6-oz cups	51.82	26.67	94
Strawberries	S	8/1#	28.50	12.00	138
Herbs					
Basil	S	1 Doz	13.25	8.60	54
Chives	SF	1 Doz	11.50	5.00	130
Marjoram	SF, S	1 Doz	11.25	10.45	8
Oregano	SF, S	1 Doz	12	9.53	26
Rosemary	SF, S	1 Doz	11	7.1	55
Sage	SF, S	1 Doz	11.25	9	25
Sorrel	S	1 Doz	12.50	13.55	-8
Tarragon	SF, S	1 Doz	13.13	12.27	7
Thyme	SF, S	1 Doz	11	9	22
Vegetables					
Asparagus	B, S, P, SF	11#	49.86	24.63	102
Avacados (Hass)	B, P, SF	48 Ct	59.5	33.33	79
Broccoli	S	14 Ct	39.75	17.00	134
Cabbage (green)	SF, S	40#	25.38	12.50	103
Carrots	B, S, P	24x2#	29.42	14.67	101
Cauliflower (Cello)	SF, S	12 Ct	35.38	27	31
Celery	SF, S	24 Ct	49.23	25.5	93
Garlic (Super Col)	SF, S	30#	77.13	42.75	80
Green beans	S	25#	59.95	41.00	46
Lettuce (Green leaf)	SF, S	24 Ct	38.23	26.5	44
Lettuce (Red leaf)	SF, S	24 Ct	38.23	26.5	44
Lettuce (Romaine)	SF, S	24 Ct	43.88	27.25	61
Mushrooms (Portabella)	B, S, P, SF	5#	22.06	12.88	71
Mushrooms (Shiitake)	B, P	3#	20.25	13.00	56
Onions (Green)	S, P	48 Ct	48.88	24.50	99
Onions (Yellow medium)	B, S, P,	40#	28.98	11.75	147
Snow peas	SF	10#	26.00	13.00	100
Peppers (bell, green med)	B, S, P, SF	25#	56.03	19.13	193
Peppers (bell, yellow)	B, SF	11#	52.75	26	103
Peppers (Jalapeno)	B, S, P, SF	10#	26.06	11.63	124
Potatoes (Red A)	B, S, P	50#	33.48	13.33	151
Potatoes (Yukon, gold baker)	B, S, P, SF	50#	47.69	19.13	149
Potatoes (Russett)	B, P	70 Ct	27.5	11.25	144
Radish	B, P	24 Ct	33.25	11	202
Spinach	S, P	24 Ct	38.75	26.5	46
Squash (winter, acorn)	S, SF	35#	47.48	20.75	129
Squash (winter, butternut)	SF	35#	48.00	22.50	113
Squash (winter, spaghetti)	B, S	35#	41.38	21.5	92
Tomatoes	B, SF	2 layers 4x5	49.63	17.5	184
Zucchini	B, S, P, SF	20#	30.81	18.71	65

Source: New Farm (2005).

B: Boston; SF: San Francisco; #: pounds; D: Dallas; S: Seattle; Ct: count; Dt: Detroit;
O: Omaha; doz: dozen; F: Fargo; P: Philadelphia.

NOTES

- ¹ These activities include a component on organic agriculture in the UNCTAD intergovernmental Expert Meeting on Ways to Enhance the Production and Export Capacities of Developing Countries of Agriculture and Food Products, including Niche Products, such as Environmentally Preferable Products, held in Geneva in July 2001; the UNEP-UNCTAD CBTF Policy Dialogue on Promoting Production and Trading Opportunities for Organic Agricultural Products in Brussels February 2002; the ongoing CBTF project on Promoting Production and Trade of Organic Agricultural Products in East Africa; a Regional Workshop on Market Access, Environmental Requirements and Organic Agriculture in Costa Rica, March 2005; the studies and first five meetings of the FAO/IFOAM/UNCTAD International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF) in 2003-2005, as well as the initial conference on the subject in February 2002. For information on these and other relevant UNCTAD activities, see the website of UNCTAD's Trade, Environment and Development Branch, at: www.unctad.org/trade_env.
- ² The European Information System for Organic Markets (EISFOM) project aims to build a framework for reporting credible European organic production and marketing statistics (for more information, see their website at: www.eisform.org).
- ³ The survey was carried out by Stiftung Ökologie & Landbau (SÖL, or Foundation Ecology & Agriculture, Germany) between October and December 2004.
- ⁴ Mexico and Peru are the two largest producers of organic coffee in the world and account for more than half of the total world organic coffee production. The coffee is produced mainly by indigenous smallholders. Several Central American countries are also important producers of organic coffee (see part II of this chapter by Vossenaar and Angel).
- ⁵ In Argentina and Uruguay, about 99 per cent of certified OA land is devoted to livestock production.
- ⁶ See commentary on this chapter by Maamer Belkhiria and Ben Khedher in this *TER*.
- ⁷ Many of these were certified as farmers' associations using internal control systems.
- ⁸ The last two factors may apply to certified or uncertified OA.
- ⁹ In the context of OA, the price premium is the difference between the organic price and the price of its conventionally produced equivalent, expressed as a percentage of the latter. For example, if the price of a kilogram of organically produced carrots is 3 euros, and regular carrots is 2 euros, the price premium is $(3-2)/2 = 0.50$, or 50 per cent. One also needs to distinguish between the price premium received by farmers and the retail price premium paid by consumers.
- ¹⁰ The expected price premium equals the observable price premium multiplied by the probability of getting that premium. For example, the observable price premium may be 50 per cent; but a particular farmer may know that in recent years in the neighbourhood, only 80 per cent of the certified OA products were sold as organic and the remaining 20 per cent as conventional. The expected price premium is therefore $(0.8) \times (0.5) = 0.4$, or 40 per cent.
- ¹¹ According to a recent report published by the United States Department of Agriculture (USDA), "U.S. farmers do not experience a similar [to Europe] post-transition yield reduction, although yields for major crops may be lower over time because of organic crop rotation. Organic EU farmers, on the other hand, often continue to have yields below conventional producers after the 3-year conversion period....One possible explanation for this difference is that, for conventional production systems, land is farmed more intensively in Europe than in the U.S." (Dimitri and Oberholtzer, 2005; see also Liebhardt, 2001 for further information.).
- ¹² See also Pesticide Action Network North America website at: www.panna.org.
- ¹³ The relative profitability of organic versus conventional agriculture can be mathematically expressed as:
- $$\frac{\Pi_o}{\Pi_c} = \frac{(P_o + S_o) * Q_o - TC_o}{(P_c + S_c) * Q_c - TC_c}$$
- where Π is net profits, P is price per unit, Q is quantity and S is subsidy per unit, and TC is total costs (cost per unit * quantity).
- ¹⁴ Note, however, that OA is not included in the category of EPPs currently being discussed in the WTO negotiations under paragraph 31 (iii) of the Doha Ministerial Declaration, as the term organic refers to a production and process method.
- ¹⁵ Please see Chapter 1 in this *TER* for more information.
- ¹⁶ Although there can be some contamination from nearby conventionally farmed fields or groundwater, which are factors beyond the control of the organic farmer.
- ¹⁷ In 1997, United States organic food sales amounted to \$3.6 billion out of total food sales of \$443.7 billion. In 2003, these figures were \$10.4 billion and \$554.8 billion respectively (*Nutrition Business Journal*, 2004).
- ¹⁸ Some experts believe these figures to be somewhat overestimated.
- ¹⁹ There is currently an initiative to create a database of imports and exports that traders declare to be "USDA organic" as part of the Automated Commercial Environment, International Trade Data System, which is a multi-agency effort (USDA, 2005a).
- ²⁰ Moreover, a number of tropical products are not produced in the EU and must therefore be imported.
- ²¹ Zentrale Markt- und Preisberichtsstelle für Erzeugnisse der Land-, Forst- und Ernährungswirtschaft GmbH.
- ²² Estimates of the size of the Japanese organic market vary according to the source. The ITC estimates in table 3 above (\$350-\$450 million in 2003) tally with those of Sahota (2005) in table 4 (\$0.48 billion for Asia in 2003), but differ from IFOAM Japan's estimates of 114 billion yen in 2002 (which, using the average exchange rate for 2002 of \$1 = 125 yen, amounts to \$ 0.91 billion) (IFOAM Japan, 2004).

- ²³ For more information on the development of the organic sector in China, see commentary on this chapter by Xiao in this *TER*.
- ²⁴ OA products have occasionally been mentioned in the context of the WTO negotiations on “the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services” (EGS). Some developing countries have been disinclined to include OA products in these negotiations, as the definition of such products is based upon non-product-related production and process methods. These countries generally feel that the WTO regime should be based on product characteristics only, and not on how these products are produced. For more information on EGS negotiations, see UNCTAD, 2004b.
- ²⁵ This is the case, for example, for own-label organic products sold by the supermarket chain, Sainsbury’s, in the United Kingdom (Duxbury, 2003).
- ²⁶ Information on the EU and United States regulations was largely drawn from Commins and Kung Wai, 2003, and Bowen, 2005.
- ²⁷ This option has not been used.
- ²⁸ EEC Regulation No 94/92 of 1992 includes more detailed rules.
- ²⁹ The six countries are Argentina, Australia, Costa Rica, Israel, New Zealand and Switzerland. The Czech Republic and Hungary used to be on the list, but have now joined the EU.
- ³⁰ See part II of this chapter by Vossenaar and Angel for information on these first three countries.
- ³¹ This is in contrast to the situation in the EU, where private certifiers may have additional requirements and not accept each other’s certification decisions.
- ³² These comprise four in Argentina and one each in Bolivia, Brazil, Chile, Colombia, Costa Rica and Guatemala.
- ³³ Domestic support for agriculture is currently a key area of WTO negotiations.
- ³⁴ In 2003, the combined GDP of 49 LDCs (excluding Tuvalu) was \$221.7 billion (World Bank, 2005).
- ³⁵ Even in developed countries, it is only in the last decade or two that governments have started getting actively involved in promoting the organic sector.
- ³⁶ See part II of this chapter by Vossenaar and Angel, and the subsequent commentary by Maamer Belkhiria and Ben Khedher for information on government policies and initiatives that promote development of the organic sector in Costa Rica and Tunisia respectively.
- ³⁷ For example, with the export price of organic robusta coffee in May 2005 at \$1.35/kg (*The Standard*, 2005), revenues for 80 kgs would be \$108. Thus, for this example, certification costs account for nearly 4 per cent of the export revenue generated. As farm-gate prices are lower than export prices, certification costs constitute an even higher share of the revenue received by the farmer.
- ³⁸ At any rate, the EU logo is not well recognized by consumers.
- ³⁹ See for example Duxbury, 2003.
- ⁴⁰ See for example www.farmerslink.org.uk/wtbsf.htm; www.wwf.org.uk/core/about/scotland/sc_0000001318.asp; <http://homepages.poptel.org.uk/nfn/links-ethicaltrade.html>; www.organicconsumers.org/starbucks/buylocal021605.cfm.
- ⁴¹ This is an important issue even in developed countries. For example, it was reported that in the Canadian province of Alberta, one third of organic farmers stopped being certified organic as the administrative procedures were considered too complicated to be worthwhile. These certification “drop-outs” were largely smaller farming operations (*The Organic Standard*, 2003).
- ⁴² Cambodia and Uganda provide illustrative examples of this; see, for example, Dao, 2004.
- ⁴³ Gunnar Rundgren’s commentary on this chapter provides more information, as does the EPOPA website at: www.grolink.se/epopa.
- ⁴⁴ In LDCs, the average literacy rate for males aged 15 years and older was 67.6 per cent and for females 44.4 per cent in 2002. In rural areas, these percentages would be even lower than the national averages (World Bank, 2005).
- ⁴⁵ Listed in endnote 1.
- ⁴⁶ Recommendation from CBTF workshop in Brussels, 2002.
- ⁴⁷ The resulting group certification also needs to be recognized in those markets. Today, group certification is, de facto, accepted in most major markets, although generally it is not written into the regulations.
- ⁴⁸ One example is the UNEP/UNCTAD CBTF project on Promoting Production and Trade of Organic Agricultural Products in East Africa, supported by the European Commission and the Swedish International Agency for Development. This project will assess the current situation regarding OA at the national level in Kenya, Uganda and the United Republic of Tanzania, and will draw up a national action plan to support the development of the sector. It is also a practical case study of harmonization in practice, as it will explore the possible development of a subregional organic standard. More information on this project is available in chapter 4 of this *TER*.
- ⁴⁹ Under the WTO TBT Agreement, national governments are required to notify the WTO of deviations from international standards.
- ⁵⁰ Until now, the IAF has rejected this request, since the IOAS only deals with one sector and is not a national government body.

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COMMENTARIES

Moses K. Muwanga

Coordinator, National Organic Agricultural Movement of Uganda (NOGAMU)

Part I of this chapter by Sophia Twarog brings to light important realities about the potential of organic agriculture to help developing countries attain sustainable national development. In devising appropriate development strategies, it is important to understand the unique but often disregarded socio-cultural dimensions that characterize developing countries. While producers in developed countries are sophisticated, literate and have access to inputs, support and markets, their counterparts in developing countries are largely small, in many cases illiterate, and have relied on traditional farming practices to sustain their production and livelihood. Thus, a shift to sustainable agricultural practices such as organic farming is not only appropriate for these resource-poor farmers, it is also already bringing enormous economic, socio-cultural and environmental benefits to communities in these countries.

Consider the case of Uganda, a least developed country (LDC) in East Africa. The adoption of organic farming in this country has resulted in improved incomes to many small, resource-poor farmers. Organic farmers participating in certified export projects have been able to obtain farm-gate prices for their products that are 40–200 per cent higher than farmers who use conventional methods. They have also been able to enjoy stable and more direct relationships with exporters and importers, unlike the conventional farmers. Small organic producers are registering increased gross income earnings in the range of 25–150 per cent from the same size of fields as their conventional counterparts. For the small producers involved in these projects, organic markets have created an opportunity to come together and market their products as a group, and this is facilitated by the establishment of internal quality management systems. An example is a group of 12,000 small organic cotton growers in northern Uganda, who have been able to export their products to Europe uninterrupted for the last 11 years. For these small farmers, organic farming is a source of livelihood in addition to the other benefits obtained such as an improved environment.

The notion that conversion to organic agriculture results in reduced yields is not valid for a number of situations in many developing countries. As Twarog points out, this depends very much on the state of the farm prior to conversion. In the case of Uganda, and indeed in many developing countries, conversion to organic farming has always resulted in increased rather than decreased yields. For example, organic farmers in Uganda obtain higher yields for their pineapple and banana crops than their conventional counterparts. This is probably why there are very few pineapple and banana farmers there who use synthetic inputs; it does not make economic sense in their situation, unlike in many developed countries where a long tradition of use of synthetic inputs results in initially reduced yields on conversion to organic agriculture. In many developing countries, on the other hand, little or no use of synthetic inputs in the past means that the soils respond well to organic farming practices. Thus converting to organic agriculture makes good economic sense for smallholder producers in a country like Uganda, where the use of synthetic inputs is among the lowest, at less than 2 per cent, compared to the sub-Saharan average of 9 per cent or compared to some of the developed countries where synthetic input use may even be above 40 per cent.

The increasingly stringent food quality and safety requirements in developed-country markets position organic farming as an ideal solution for the smallholder farmers because of its holistic approach to the production and marketing process. With the new legal and private sector market requirements in Europe and other developed markets, such as regulation EC178/2002 and EurepGap respectively, the gap between the market requirements and the social and economic realities of small producers in developing countries is becoming wider. Fortunately, organic farming, with its

holistic approach, overcomes these constraints. For example, the non-use of synthetic pesticides in organic farming gives the small producers an advantage to easily meet the legal requirements on the use and management of pesticides and compliance with maximum residue limits (MRLs) acceptable to the European and other developed markets for fresh produce, which would otherwise be a challenge in the smallholder farming set-up.

A random informal survey carried out in October 2004 in Uganda shortly before the coming into force of the mandatory traceability requirements for the EU market (EC178/2002, effective 1 January 2005), indicated that all certified organic projects would meet the requirement by the stipulated date, and that farmers were accustomed to issues of traceability because it is part of the transparency and trust enshrined in the organic farming system. In addition, the projects would meet over 70 per cent of the EurepGAP requirements as a result of not using pesticides. On the other hand, the requirements as a whole presented a completely new obstacle to the conventional smallholder farmers, so that quite a number of them were left out when the regulation came into force. The holistic approach used in organic farming and the incorporation of social and environmental issues in the production systems therefore make this type of farming an ideal solution for meeting increasingly stringent market requirements.

In conclusion therefore, organic farming provides a viable strategic development option for developing countries for improving the economic situations of smallholder producers, who constitute the majority of the population, while meeting the increasingly dynamic social and environmental challenges in their localities. In addition, the previously low use of synthetic inputs in the agricultural systems of many developing countries gives organic production a comparative advantage, and therefore an opportunity, to increase the competitiveness of products from developing countries in the global market.

Daniele Giovannucci
Consultant, World Bank

Organic agriculture and trade is a fast evolving field with potentially important implications for the work of development agencies and governments. Parts I and II of the chapter on organic agriculture by Twarog and Vossenaar, respectively, are useful contributions to the emerging, often considerably heated, debate on whether this sector indeed offers real opportunities for developing countries.

With the increasing adoption and importance of organics, which has become a global \$30 billion industry, it is useful to analyse the trade and sustainable development implications for organic producers and traders in developing countries. A range of potential benefits and also challenges currently exist in the areas of production, markets and policy that require careful analysis and thoughtful recommendations for action.

It is important to first make a distinction – as Twarog’s paper does – between organic agriculture, which can be defined by generally accepted standards, and traditional forms of agriculture that may not use synthetic agrochemicals but do not necessarily abide by the systemic principles of organic agriculture. Traditional forms of production which are generally characterized by limited productivity and low levels of agricultural income are often – erroneously – considered to be synonymous with organics. While it is true that organic agriculture relies partly on traditional or local understanding of natural cycles and tends to make use of local resources for fertilization and pest management, it also relies on a sophisticated use of biological products and processes. Well-managed organic farms can be considerably productive and extremely efficient in terms of risk management, but achieving this can be challenging.

Premium prices for organic products have in recent years become the main impetus for the adoption of organic agriculture, providing much needed income for producers in developing countries. However, the inherent volatility of what is a relatively small and somewhat fragmented market has also led to difficulties, especially for producers who invest in organic certification. Today, the premiums for certified products vary enormously by product and origin. For products that have been marketed for a number of years, such as coffee and cacao, the premiums are experiencing a downward trend as the markets mature, with more producers participating and bringing supply and demand into balance. For most products, it seems unlikely that today’s premiums – as high as 50–200 per cent for some products – will continue for very long, and this has considerable implications for farmers and development schemes. Initiatives based on current and historic premiums may not meet expectations as premiums adjust downwards. Nevertheless, there are a number of other reasons, besides premiums, for developing-country producers to embark on organic initiatives. A number of studies (Uphoff, 1999; Pretty, 1995; Burton et al., 1998; Yamauchi, 1995)¹ note some intrinsic advantages, which include:

- Improved ability to meet emerging trade standards such as traceability;
- Crop diversification and reduced input costs, that together minimize financial risk;
- Increased use and value of rural labour;
- Better natural resource management and biodiversity conservation;
- Improved crop resilience to climatic shocks such as drought and floods; and
- Fewer health risks due to potential mishandling of agrochemicals.

Many analysts believe that organics typically offer a “higher income”; while this appears often to be true, there is certainly more evidence for the other assertion that these markets offer higher prices. For some farmers, particularly those engaged in large and intensive conventional operations, these higher prices may not necessarily translate into higher total income due to often reduced yields and an increase in other cost factors – particularly during what could be a lengthy conversion process.

Accurately estimating farm income for organic agriculture can be difficult, as Twarog notes, because organic producers do not simply cultivate a monocrop for easy comparison. Multiple crops that are rotated annually, and that may not all be destined for the market, make it somewhat more difficult to calculate the overall value of farm production. Productivity is of course a vital element, and organic agriculture is often believed to deliver less than conventional approaches. There is in fact credible and rigorously estimated evidence for both sides of this argument. However, it seems clear that for smaller producers in developing countries, particularly poor or rural ones, there can be distinct advantages in terms of higher productivity, resulting primarily from better management practices and improved soil quality as a result of organic methods.²

Furthermore, the intangible benefits often credited to organics, such as improved soil fertility, absorption capacity, tilth and stability, are difficult to accurately evaluate, though any farmer would assert that they are considerable assets. It is equally difficult to place a value on local biodiversity that is promoted by organic systems, though recent efforts, including those by scientists of Stanford University and the conservation organization, World Wildlife Fund, have credibly estimated the monetary value of the pollination services provided by a local natural habitat rich in biodiversity in which many beneficial species are able to thrive.

A new effort initiated by three institutions - the International Institute for Sustainable Development (IISD), Centre de coopération internationale en recherche agronomique pour le développement (CIRAD) and the Sustainable Markets Intelligence Centre (CIMS)³ - seeks to use the most up-to-date techniques for estimating the actual costs and benefits at the environmental, social and economic levels, of not only organics but also five other standards that purport to foster sustainability. This effort will result in a scientific measurement tool for farmers or policy-makers to use for determining the realistic viability of adopting certified methods that conform to organic, fair trade or Eurep-GAP standards.

It is often asserted that organic markets tend to offer “more stable farm-gate prices and stable markets”, yet in reality this is difficult to demonstrate. It is clear that, historically, organic producers have had long-term relationships with their buyers, and this appears to continue in most markets today. There is, however, little evidence that farm-gate prices are indeed more stable for organic products; in fact indications from various markets, both developed and less developed, seem to point to significant volatility due primarily to the relatively small volumes being traded through comparatively less established supply chains. The notion that organic markets are more stable is also largely untested. In many cases, organic distribution channels are limited or involve very little competition among exporters, traders, processors, importers, or distributors, and could thereby create an oligopsony. Organic markets were probably more stable in their early phases, when they were more local and supported primarily by a core group of ideological supporters (Giovannucci, 2003)⁴. However, as such markets develop, more producers become involved and new and aggressive market channels are opened. As a result, the market tends to move in the direction of a more conventional business model, characterized by increased competitiveness and change.

Twarog clearly notes that organic producers in developing countries face nearly all the challenges of conventional producers, plus some additional challenges of their own. Field experiences in Asia and Latin America indicate that the major challenges to organics include:

Inadequate institutional support, especially at the rural level;

- Lack of adequate technical advice on production technology. Extension services in many developing countries are poorly funded, and the staff have little, if any, training in organic production techniques;
- Limited access to certification, the ability to pay for it, and to the learning that it involves;
- Increased demands of marketing to a niche export market and often the lack of both a domestic outlet and good market information; and
- Financing for the transition period.

Conversely, organic farming systems embody elements of sustainability that can make them useful as poverty reduction tools. These elements include:

- Processes that are knowledge-intensive rather than capital- and resource-intensive;
- Adaptation of traditional knowledge to modern methods such as bio-controls and efficient nutrient management;
- A long-term commitment to soil fertility, and elimination of soil degradation and erosion;
- The reduction of water use and external energy consumption; and
- An effective risk management tool – especially for small and poor farmers – to reduce input costs, diversify production and improve local food security.

Bilateral and multilateral agencies have been involved in considerable research and policy analysis on this subject in recent years. However, with rare exceptions, they have not yet taken the often positive conclusions of their analytical work and translated them into official policies or other credible forms of development assistance (i.e. significant project investments). In most cases, organic agricultural practices have evolved – at least in the initial stages – under conditions of more or less benign neglect from governments and large public bodies. As governments in Europe, Japan and the United States increasingly recognize the significant “public good” aspect of organic agriculture and invest in it, the groundwork and example is set for other governments and public institutions to foster it through supportive policies and targeted investment in applied research, technology training, and strategic market knowledge.

Private companies increasingly use certification systems to ensure that food safety, labour and environmental criteria are being met by their suppliers in order to reduce risks to their reputation or legal risks. As Twarog notes, systems such as organic certification can also help provide traceability, improve farm management, and alert both firms and farmers to potential problems in the field or along the supply chain. Clearly, there is a pressing need to prepare farmers for such requirements so that they can be competitive in a globalized trade climate that increasingly demands such standards. This will require more than obtaining simple organic certification. To enable the effective integration and participation of smallholders, especially poor farmers, greater attention should be given to strengthening the organizational and managerial capacities of their local institutions, such as trade associations, NGOs and cooperatives, so that these can more effectively serve farmers’ needs and better interact with their supply chain partners.

Xingji Xiao

Director, Organic Food Development Center, State Environmental Protection Administration, China

The development of organic agriculture (OA) can significantly help to guarantee the quality and safety of agricultural produce. It is therefore extremely important that China develop its organic food industry, in order to capture benefits such as protection and improvement of the rural eco-environment, securing a harmonious relationship between man and nature, and the promotion of sustainable agricultural development.

Part I of this chapter by Twarog is a comprehensive and useful information source for stakeholders of the organic sector in developing countries like China, especially governmental officials, organic producers and consumers.

Organic Agriculture: a good choice for long-term sustainable development

This chapter lists many benefits of OA to developing countries. Development of this form of agriculture in China is fast becoming an integral part of the country's socio-economic development and environmental protection. In the last century, "chemical agriculture" or "petro-agriculture" helped people meet their basic needs such as for food and clothing, but it also led to a series of environmental and food safety problems. This prompted the question as to how the agricultural economy could be developed in a way that would support environmental protection and human health. Hence, ecological farming or integrated farming (*Sheng-Tai-Nong-Ye*) made its debut and resulted in the establishment of ecological demonstration zones in almost every corner of the country. Today, these ecological farming bases and demonstration zones play a role in assisting the development of organic food production. In China, "organic food" has come to be associated with such issues environmental and health and safety concerns. More and more people have begun to consider organic food as safer, more nutritious and more environment-friendly than any other kinds of agricultural produce.

OA and environmental protection

In China, it was environmentalists who spearheaded the OA movement in an effort to find alternative ways to reduce rural environmental pollution and soil erosion, and improve agricultural ecosystems and biodiversity. Thus, the Nanjing Institute of Environmental Sciences (NIES) under the National Environmental Protection Agency (NEPA) has long been engaged in conducting research on and establishing eco-farming experimental sites and ecological demonstration zones. In 1994, NEPA authorized the NIES to set up an organic food development centre (renamed the Organic Food Development Center (OFDC) of the State Environmental Protection Administration (SEPA) in 1998). Since then, the OFDC has pursued a path of vigorous growth along with the development of the organic food sector.

OA as an export opportunity for developing countries

External demand from developed countries was the initial driving force behind organic production in China. About 12 years ago, the concept of organic food was completely new to the Chinese people. It only became understood in the late 1980s when the NIES joined IFOAM. Although we took the lead in introducing the concept of organic food to the country, we knew very little about it. It was not until April 1990, when a Canadian organic certification inspector, working for an organic certifying agency in the Netherlands, came to inspect tea production with NIES researchers that Chinese researchers began to get involved in organic food and organic certification. As a result of that inspection, China gained its first organically certified tea in 1990. From then, the phrase "organic food" became more widely understood and so began the development of what is known in Chinese as *You Ji Shi Pin*.

Chinese exports of organic produce have increased significantly, amounting to \$150 million in 2003 (though this represents less than 1 per cent of the world's organic food market). The main export products are soybeans, tea, vegetable, and cereals, and their major markets are the EU, Japan and the United States. In 1996, the first OFDC-certified organic producer from China took part in the BioFach international organic trade fair, and in 2004 more than 30 Chinese companies participated.

Market access, entry requirements and certification of OA

China has been making the necessary preparations to support its request for inclusion in the EU's third-country list, and has recently submitted an application to that effect. The preparation process has involved the formulation of organic standards and regulations in China and their implementation.

In 1995, the OFDC developed the first organic food rules – Regulations for management of organic (natural) food labels (provisional) and Technical criteria for production and processing of organic (natural) food – in an effort to incorporate both the experiences of western countries in developing their organic sectors and specific conditions in China. These rules were ratified by SEPA, and represented both the technical criteria for production of organic food and guidelines for the management of organic certification. With the technical support of GTZ (Germany), the OFDC compiled the first edition of *OFDC Standard for Organic Certification* in 2001, which was comparable to international standards. The success of these regulations provided the basis for the Technical Criteria for Organic Food (HJ/T80-2001) and Approaches to Management of Organic Food Certification (HJ/T80-2001), which formally promulgated by SEPA in 2001; HJ/T80-2001 has since become the first trade standard for organic certification in China.

In 2002, the State Council of China gave the Certification and Accreditation Administration of China (CNCA) responsibility for the administration of all certifiers – including organic ones – in China. Since then, regulation of the Chinese organic sector has become more stringent. On 19 January 2005, the China National Organic Product Standard (CNOPS) (GB/T19630-2005) was officially issued by the State General Administration of Quality Supervision, Inspection and Quarantine (SAQSIQ), and Standardization Administration of China, and took effect as of 1 April 2005. Organic Product Certification Management Rule (OPCMR) was promulgated after approval by the Bureau Affairs meeting of the State General Administration of Quality Supervision, Inspection and Quarantine on 27 September 2004 as decree No. 67 and took effect as of 1 April 2005. On 1 June 2005, the CNCA issued The Rule on Implementation of Organic Products Certification, which became effective the same day. It stipulates the implementation of organic certification in detail. Within CNOPS, there are separate national certification labels for “organic” and “organic-in-conversion” products (i.e. products from farms that utilize organic methods but which have not yet attained organic status). The OPCMR requires that the Chinese national organic or organic-in-conversion certification label be indicated on the product or the smallest package of the product along with the label or name of the certification body.

Before 2003, accreditation of organic food certifying agencies was carried out under the authority of the National Organic Food Certification and Accreditation Committee, which is affiliated to SEPA. As stipulated by the Regulations for Certification and Accreditation of the People's Republic of China, promulgated on November 1, 2003, the committee handed over this authority to the Certification and Accreditation Administration of China (CNCA). Any institution that intends to carry out organic certification must first apply to the CNCA for approval.

On assuming this responsibility, the CNCA began to adopt strict supervision, and conducted an overall investigation and evaluation of organic certifying agencies, organic production and processing enterprises and organic product distributors operating throughout the country. This laid a solid foundation for the centralized management of accreditation of organic certification. The China

National Accreditation Board (CNAB) has started to evaluate and accredit all institutions involved in organic certification within the country. Organic certification in China is therefore well advanced.

The potential for organic markets in developing countries

Although only a very small proportion of certified OA products are consumed in developing countries, there is enormous potential for the expansion of organic markets along with economic growth in developing countries.

In China, most organic food is produced in the eastern and northeastern parts of the country, due to their strong economic development. So far, China has developed a list of 250–300 types of organic products grouped into 19 categories, including vegetables, fruit, tea, cereal, oil crops, cotton, bee products, Chinese medicinal herbs, products collected from the wild, aquaculture, poultry and animal husbandry.

According to available statistics (albeit incomplete), about 300,000 ha of farms and 300,000 ha of wild harvesting areas were certified as organic in 2003. These produced about 2.5 billion yuan (\$309 million⁵) worth of organic products, of which 1.2 billion yuan (\$150 million) worth was exported, and 200 million yuan (\$25 million) worth was sold in the domestic market as certified organic produce. This indicates that a considerable portion of organic products were sold as other types of safe food or conventional food rather than organic products.

Before 1999, essentially no certified organic food was sold in the domestic market. Since then, the domestic organic food market has been developing so rapidly that customers can purchase organic vegetables at supermarkets in Beijing and Shanghai. Today, a variety of organic food products are available, including fresh vegetables, tea, rice, fruits and honey, which are all certified by the OFDC-China and other domestic certifiers.

In developed countries, organic food has progressed to such an extent that organic food markets no longer have “organic-in-conversion” products, but only “organic” products. According to international requirements, all farms must undergo at least a 12-month conversion period, and in most cases a 24–36 month period, before they are eligible to be certified as organic. Thus, after one to two years of organic management, a farm can only produce products termed “organic-in-conversion”, and in developed countries, such products can only be sold as conventional goods. In China, however, as the organic sector is still in its initial stage of development, a number of farms are still in their conversion period and are unable to supply the market immediately with “organic” products, as these can only be produced after they have completed the conversion of their farming and management systems. Nonetheless, owing to the pressing demand for safe food, consumers are ready to accept “organic-in-conversion” products, because they know that even though the products originate from farmland under conversion, they have never been treated with any chemical fertilizers or pesticides. Therefore, they are ready to pay price premiums even for these products.

According to a survey of the organic food markets in Beijing, Shanghai and Nanjing, the price of OFDC-certified organic-in-conversion vegetables in Nanjing is 1.5–2 times that of conventional ones, while that of organic vegetables is 3–5 times, and even 7 times, that of conventional ones in the supermarkets in Beijing and Shanghai. What is more, sales are good. Of course, this may be due to the scarcity of organic produce, which influences its pricing in the most developed cities of the country at this initial stage of the development of organic food. With the further development of organic farming, prices are likely to gradually fall, and with development of the market the supply of organic products will increase, providing more choices for customers and relatively lower prices. By then, consumers of organic food will significantly increase and so also will its market share. Assuming that currently food consumption amounts to 1,200 yuan (\$150)

per capita per year, sales of organic food account for only 0.015 per cent of total food sales: over 100 times less than the 2 per cent average for developed countries. With the development of organic farming and the organic food market, if the market share of organic food in China were to reach 1 per cent, expenditure on consumption of organic food could amount to 16 billion yuan (\$2 billion).

Challenges related to organic production and market development

The chapter by Twarog gives a good description of the challenges facing organic production and market development, most of which also apply to China, such as conversion periods, training, research and development, and organic inputs, as well as consumer education and information exchange.

In China, sharp differences exist between regions in terms of geography, history, economy, culture and various social conditions. This leads to the uneven development of organic production and poses several challenges to organic farming, especially in the context of inefficient agriculture, poorly informed rural areas and unorganized farmers.

In order to feed the huge Chinese population, the agricultural policy of “Grains is the Key Link” had been adopted since 1964. This policy aimed at maximizing China’s grain production through intensive farming. However, over the years it has led to the abuse of chemical fertilizer and pesticides, especially in the more developed regions of China, and this in turn has resulted in problems such as a decrease in agro-biodiversity, compacted soil, destruction of bio-systems, deforestation and reclamation of grassland for grain production, and overexploitation of natural resources. The resulting rise in agricultural production costs and decline in product quality is not easily remedied. Organic farming has the potential to contribute to solving these problems, but significant challenges remain.

The organic food market at present lacks adequate mechanisms such as information exchange, the ability to correct the balance between surplus and deficiency, improvement of organic food production through exchange and competition, and optimization of resource allocation. The international organic market remains dominated by trade in simple, unprocessed products and there is insufficient exchange of techniques, culture and knowledge of organic farming, organic food production and processing, and management of organic production.

Recommendations at the national level

This chapter’s comprehensive set of recommendations for action at the national level is equally applicable to China’s situation. Traditional agricultural practices are widely adopted in organic agriculture in China. Smallholder group certification in the country is done via farmer organizations as well as private organizations. Government support in promoting organic agriculture is one of the most important ways of developing the organic industry.

In recent years, all levels of government in China have begun to take an interest in the organic food sector. In late 2004, a total of 11 ministries and commissions, such as the Ministry of Commerce, Ministry of Science and Technology, Ministry of Finance, SEPA, and CNCA, jointly issued a document aimed at promoting the rapid development of the organic food sector in China. Some provinces have integrated development of the organic food industry with efforts to tackle wider problems related to farmers’ livelihoods and the rural environment. This has resulted in a series of incentives such as the provision of subsidies which aim to compensate for the costs of certification and agricultural materials, especially in the initial period of conversion to organic. As a result, organic food producers have become increasingly enthusiastic, and an era of rapid growth of organic food production can be expected.

Diane Bowen

Organic Guarantee System Manager, International Federation of Organic Agriculture Movements (IFOAM)

“When we try to pick out anything by itself, we find it hitched to everything else in the universe.”⁶ - John Muir.

American’s greatest conservationist, writing in 1911, defined the essence of Nature in the simple statement above. Modern jargon describes this concept as “holism,” a term often used when referring to organic agriculture (OA). Forsaking the jargon, we can also distinguish OA as respecting the fact that everything in the farming system is linked to everything else in the environment. Best practices in farming are tuned to nature’s rhythms, including nutrient recycling, biological competition and cooperation, and, in general, ecological balance. Respecting this balance extends to the relationships of farmers and other humans to the farming system, and therefore OA also incorporates the concepts of social and economic balance.

Defining organic agriculture

Part I of chapter 3 on organic agriculture by Sophia Twarog presents attempts by several organizations to define and explain the concept, including historical explanations of OA by the IFOAM. Recently, IFOAM has been working to enhance its explanation of “what is organic agriculture” through the elaboration of four basic principles. The first of these, the Principle of Health, states, *“Organic Agriculture should sustain and enhance the health of the soil, plant, animal and human as one and indivisible.”* Health is further described as the wholeness and integrity of living systems. The role of organic agriculture is to sustain and enhance the health of ecosystems and organisms from the smallest in the soil to human beings. In particular, organic agriculture is intended to produce high quality food that is nutritious and has a function in preventive health care.

Another organic principle, the Principle of Ecology, states, *“Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them, and help sustain them.”* This means that organic management must be adapted to local conditions, ecology, culture and scale. A third Principle is that of fairness, which states, *“Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.”* Natural and environmental resources that are used for production and consumption should be managed in a way that is socially and ecologically just, and should be held in trust for future generations. Fairness requires systems of production, distribution and trade that are open and equitable and which take into account the real environmental costs. Finally, the Principle of Care states, *“Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.”* Precaution and responsibility are the key concerns in management, development and technology choices in organic agriculture. These choices should be informed both by scientific and traditional knowledge, and by practical experience.

What is sustainable agriculture?

Agriculture that is consistently practiced in steadfast adherence to these Principles will be sustainable. However, the Organic Principles describe the aspirations of OA practitioners and other advocates and not necessarily what it always achieves. As with any quality system, the practice of OA represents various degrees of achieving the aspiration. Any single practice of OA is influenced by the ecology, economics, culture, and politics of the site, the region, and indeed, the globe. However the *practice* of OA, along with the Principles, aspires for agriculture to be sustainable. Accordingly, IFOAM’s goal is *“the worldwide adoption of ecologically, socially and economically sound systems that are based on the Principles of Organic Agriculture.”*

“Sustainable agriculture” is often a broad-brush term used to describe anything that is even a small step away from the chemical industrial model of producing sustenance. Twarog portrays

organic agriculture as a subset of sustainable agriculture, which includes an array of agricultural models. Individually, these models are “trying to be sustainable agriculture,” and differ greatly in their potential to really achieve it. OA is at the very high end of that potential, whereas some practices of so-called sustainable agriculture, including many of the practices of “integrated pest management”, are at the low end. Integrated pest management, as the term implies, is about pests, which is a fraction of the large picture of sustainability in agriculture. Some of the “brands” in the marketplace of agricultural models may be better described as “trying to appear as sustainable agriculture.” The organic movement is dismayed that global agribusiness and some powerful governments are now trying to sell genetically engineered agriculture as sustainable, when its practical implementation has so far failed to fulfil virtually every long-term measure of sustainability.

Potential contribution of organic agriculture to national sustainable development

Twarog outlines a lengthy list of benefits of OA to developing countries, grouped into four categories: economic, environmental, food security, and social and cultural. In each of these categories the following themes are addressed:

- Economic: Price, quantity, profitability;
- Food security: Diversified production, nutrition;
- Environmental: Less pollution, improved soil, less erosion, more biodiversity, mitigated climate change, landscape values; and
- Social and cultural: Women’s empowerment, traditional knowledge, rural-urban migration, health and safety.

As Twarog correctly points out, food security is related to economic factors. However, the interrelationships are more profound than that, and provide further illustration of the interrelationship of all things, including the issues which NGOs, governments and intergovernmental bodies all try to address. One could consider just one way to scramble the terms (and there are others):

- Economic: Improved soil, less erosion, landscape values (agro-tourism, for example)
- Food Security: Profitability, improved soil, less erosion, women’s empowerment, mitigated climate change, rural-urban migration, traditional knowledge
- Environment: Women’s empowerment, rural-urban migration, diversified production
- Social and cultural: Nutrition, more biodiversity, landscape values

Thus, “When we try to pick out anything by itself, we find it hitched to everything else.”

Organic agriculture as a trade opportunity

Part I of chapter 3 in this *TER* offers a useful primer on the rules for exporting products to the major organic markets in the United States and the EU. It consolidates recent organic market information in a way that is valuable not only to developing countries but to anyone who is interested in obtaining a broad perspective of worldwide markets for organic products. It dwells considerably on the premiums for organic products.

Will price premiums be sustained in organic markets? Surely this question is on the minds of many. The answer lies in why these premiums exist in the first place. Price premiums include a reflection of the “value added” by the organic nature of the production of the product. But let us turn this idea on its head. When considering the relationships of values and costs in the global economy, one could come to the conclusion, as have many progressive economists, that our current economic paradigm externalizes many “costs” from the system that it is quantifying. This means, for example, that the true costs of food and fibre to the consumer should, but does not, include the costs of the environmental and human health “clean-up” resulting from the current chemical-industrial agricultural system. The “cheap” price of food externalizes these costs. Instead, consumers in developed countries pay these costs in government taxes and health insurance, which provide the “clean-up” for the cheap industrial food system. In terms of personal

health, “paying externally for clean-up” means paying later, and probably a lot more. Many consumers in developed countries recognize this, and it is reflected in the results of numerous studies on the reasons why they choose to purchase organic products despite the higher retail prices. They consider them to be healthier for themselves and their families. They seek the immediate health benefits and avoidance of health risk. They do not process this idea in terms of economic modeling. Rather, they adopt it by instinct. They are thus employing the precautionary principle mentioned earlier in this paper.

It is a safe bet that until we change the food system, there will be organic price premiums.

Recommendations to governments

Twarog offers a comprehensive set of recommendations to governments on how to support the development of organic agriculture within their countries. Hopefully, these will be well received, because earlier sections of the paper seek to convince governments to adopt a policy supportive of organic agriculture.

The recommendations to governments are sound and comprehensive. To this, IFOAM can add some information about what it is doing to support governments with emerging organic sectors. Under a programme called “I-GO”, funded by the Dutch development organization, HIVOS, IFOAM is embarking on a programme of assistance to both governments and the private “movement” in countries with emerging organic sectors. IFOAM intends to develop a curriculum for training the governments and private “movement”, equipping them with what they need in order to develop their organic agricultural sector. For governments, this includes information on standards-setting, supervision of organic certification bodies, requirements for export to the EU and the United States, and advice on establishing organic extension training and other agronomic assistance to producers. The International Organic Accreditation Service (IAOS), which implements IFOAM accreditation, offers training courses for governments in the area of certification body supervision. For the private “movement”, training materials will include information on how to organize and interact with governments to establish favourable policies and programmes to support organic agriculture. Governments should be mindful that organic agriculture has arisen from the movement at the grassroots level, and that partnership with this movement in their countries will yield the best and most satisfying results.

International challenges

The challenge to developing countries to have their domestic organic standards and programmes recognized internationally cannot be overemphasized. As the chapter states, since implementing its organic regulations in 1996, the European Commission has recognized only eight countries as having equivalent organic regulations – Argentina, Australia, the Czech Republic, Costa Rica, Hungary Israel, New Zealand and Switzerland.⁷ Nine countries have made requests to be added to the list and are at various stages of consideration (Chile, Colombia, the Dominican Republic, Guatemala, India, Japan, Tunisia, Turkey and the United States). Some of these countries have been waiting for many years. The United States National Organic Program (NOP), which was implemented in 2002, has not forged any equivalence agreements, although it has approved five governments to supervise their certification bodies to conduct certification of compliance with the NOP standards. These are two provincial governments in Canada (British Columbia and Quebec), and Denmark, New Zealand and the United Kingdom.

As the chapter also states, the International Task Force (ITF) is hard at work to find ways to lower the trade barriers created by the importing countries’ regulatory requirements. IFOAM is also revising its Organic Guarantee System to afford certifiers and producers, especially those from developing countries, much easier access to it. By joining the IFOAM system, certification bodies gain a measure of increased recognition and market access, particularly into EU markets.

Funding from the Dutch development agency, NOVIB, enables IFOAM to organize an International Certification Body Forum and to support certification bodies from developing countries to participate in it. The objective of the Forum is to build the capacity of the certifiers, mutually solve problems and strengthen the system. It is hoped that the Forum will lead to greater recognition of and cooperation among certifiers, and therefore increase access of developing countries to the importing markets via actions in the private sector.

Until international recognition improves, developing countries with emerging organic sectors will have to find creative ways of exporting their organic produce. This will include choosing wisely those export products that need to be developed and promoted, and building stable and positive relationships with both importers and certification bodies in the target markets.

David Crucefix, Assistant Executive Director, and Ken Commins, Executive Director

International Organic Accreditation Service (IOAS)

Sophia Twarog poses the question: Is organic agriculture a promising trade and sustainable development opportunity? She concludes with a resounding “yes”. In arriving at this conclusion she raises a number of obstacles and challenges. We agree on the conclusion, and that obstacles remain in the way of OA fulfilling its potential.

In this commentary we would like to provide our perspective, both as individuals contributing to the work of the FAO/IFOAM/UNCTAD International Task Force on Harmonization in Organic Agriculture (ITF) and as an international accreditation body, the International Organic Accreditation Service (IOAS), which works solely in the field of organic agriculture. This perspective focuses mainly on national and international issues and solutions rather than the issues raised by the UNCTAD report at the farm level.

The so-called ITF “Solutions” paper (UNCTAD/FAO/IFOAM, 2006)⁸ sets out an objective and work plan to achieve harmonization by:

- The use and adaptation of existing structures and mechanisms of regulation, by both private and public sector;
- Creating production standards equivalent to a single international standard;⁹
- Having one international requirement for conformity assessment;¹⁰
- Laying down common international procedures for approval or accreditation of conformity assessment bodies, which would reduce duplication of work and enhance access to markets, including by countries in which regulatory infrastructure is absent or less well developed.

Without doubt, the IOAS sees itself as part of this future.

The initial draft of the “Solutions” paper proposed the establishment of some sort of supranational body to push the process along, but this was rejected in favour of using existing structures. Although nobody wants to add more bureaucratic layers, the worry is that there will be no agency to bully the process along. As has been said more than once before, “everybody wants to harmonize, but generally it’s assumed that you harmonize to me and not the other way round”. This is as true of government authorities as it is of the private sector. The move in June 2005 by Japanese authorities to allow only direct accreditation of conformity assessment bodies, performed by themselves and no other country or body is one more step in this direction. One solution, proposed in the work plan by the ITF, and the subject of recent work by the IOAS, can best be phrased as “one assessment, multiple markets”.¹¹ This should work at the farm certification level and can operate in a number of ways.

The worst way for this to happen (which is where we are now) is that the farm works to the various standards required by its markets and the conformity assessment body (CAB) conducts multiple standard checks to ensure compliance. Although having said this is the worst option, it is at least an improvement on the still common option of inspection by more than one conformity assessment body. Accreditation or approval of the conformity assessment body is currently done by every “market” to which the farm (the client of the CAB) wishes to sell. An improvement on this would be for one accreditor to assess against all requirements. This is beginning to happen through IOAS collaboration with a number of accreditors and national authorities. The result is lower accreditation costs for CABs, which in turn means lower certification costs for farms and traders, which in turn means lower cost organic products for consumers. IOAS is currently working on developing monitoring systems that can handle multiple standards and conformity assessment requirements that will deliver the “one assessment, multiple markets” goal. It is hoped that authorities in the EU, Japan and

the United States will increasingly utilize the services of an expert body like IOAS, at least to perform oversight of “foreign” CABs if not those operating domestically.

A better option is for the farm to work to one standard, appropriate to its environment and stage of development, that is recognized as equivalent to an international organic standard such as that proposed by the ITF. This would avoid confusion for the farmer in complying with standards, would bring more farmers into OA because the standards are developed for their situation, and would result in a better quality of inspection and certification because the inspector would not have to think about two or three norms at one time. Accreditation of the conformity assessment body would also be simplified, and should of course provide access to all markets. This is common sense, but we have some way to go before this can prevail, because it requires both a change of mindset towards equivalence and the further development and implementation of the practice of judging equivalence: something which, though much talked about, is not yet in play.

The IOAS has expended and continues to expend much energy on being a key organization in the field of harmonization. For a small, non-profit organization we believe we have achieved excellence and substantial respect in this field; for example, in August 2004 our competence was recognized by the United States Department of Commerce’s National Institute of Standards & Technology. Nevertheless, the IOAS remains in a “no-mans land” of formal acceptance by government authorities. As a result, our work is respected and used, but not acknowledged. This is not only frustrating for us in the IOAS but also confusing for our clients, and their clients in turn. Twarog’s paper calls upon the International Accreditation Forum (IAF) to approve IOAS’ membership application, which has been before them for over two-and-a-half years.

The IOAS does not see itself as *the* solution, just part of it. Government authorities should seek to work more closely with bodies such as the IOAS in order that public and private sector expertise can jointly achieve an orderly and considered expansion of organic agriculture, and so exploit the trade and sustainable development opportunity discussed by Twarog.

Florentine Meinshausen
Institute for Marketecology (IMO)

In order to be marketed as “organic” in the major export markets, agricultural products must be certified by accredited certification bodies. This requirement, which is not well known even to consumers in Europe, often comes as an unpleasant surprise to producers and traders in developing countries. In addition to detailed production rules (which include much more than just non-use of chemicals) and tedious documentation requirements, certification implies an annual inspection of all production steps and chemical analysis of the final product. Yet this is the only way such producers can sell their “naturally grown” products as “organic” in the major markets, which fetches them a premium price.

Nowadays, organic certification is widely accepted as a necessary quality assurance step. It provides consumers in an anonymous global market with a guarantee that the product for which they pay a price premium has in fact been produced according to agreed rules. But what are those agreed rules?

Since the EU took the lead more than 15 years ago in formally regulating the use of the term “organic”, all the major markets for organic products (Japan, Switzerland and the United States) have followed with their own regulations. A large number of producer countries worldwide are also in the process of establishing regulations and standards. In addition, there are many private organic standards which often predate government regulations and today serve as marketing tools through labels indicating to the consumer that the product is organic (e.g. Naturland, Demeter, Bio Suisse).

From rather simple and short documents that indicate the main principles of organic production (which a well-informed consumer might also associate with organic farming) and include a few additional requirements to enable inspection, organic standards have developed into regulatory texts of more than 100 pages. Many farmers and traders, let alone consumers, are barely able to read and understand such complex, specialized requirements. Some requirements have become very formal, entailing increasing bureaucratic processes, and are extremely difficult to implement. In addition, the standards are written for the agricultural, economic and ecological conditions existing in consuming countries/regions (mostly Europe and the United States), and hence are, in some instances, almost impossible to implement in developing countries where the conditions are very different.

Taken together with steadily increasing requirements from the food industry regarding food safety and traceability, the result of such requirements is that organic certification is becoming more and more burdensome for producers and manufacturers worldwide. Moreover, producers in developing countries receive the lowest overall prices for their (mainly unprocessed) products, not to mention the enormous difficulties in the practical implementation of certification requirements. Therefore, it is the developing-country producers that suffer the most from the burden of certification.

Certification bodies find themselves in a similar position, squeezed between the difficulties for the farmers on the one hand and market expectations in importing countries on the other. The proliferation of standards for different markets has led to the absurd situation that many producers need to be certified according to many different organic standards, as well as related schemes such as EurepGAP. To offer these multiple certifications, the certifier must have many different accreditations. Even large international certification bodies like the IMO find it almost impossible to afford the many different, often very costly accreditations and ever-growing formal requirements. The result of having to undertake so many bureaucratic procedures and expensive accreditations is that the costs of certification remain relatively high, even when only local inspection personnel are used.

The IMO, an organic certification body that is active in more than 60 countries worldwide, has chosen a unique new way to address this challenging situation. The local IMO inspection offices develop full expertise and know-how in organic inspection and certification in years of interaction with the head office. Finally, they become ISO-accredited certification offices within the IMO group. All of IMO's local inspection and certification staff work according to the same basic quality manual. The IMO's organizational structure guarantees the clients of any IMO office access to the many different standards and services offered by the overall group, and the organization's high reputation in consuming countries can secure its clients market access to the major organic markets. At the same time, it offers clients strong support as well as a reduction in certification costs. By contrast, local, small certification bodies that lack major, continuous external support are often unable to meet all of the challenges described above, in particular multiple accreditations and market recognition in consumer countries.

A concept that has considerably helped reduce certification costs in developing countries is smallholder group certification. For more than a decade, IMO and the private certifier Naturland have together developed and promoted a system whereby a small or large group of small farmers (instead of individual farmers) in the same region are certified as a group. As a group they run an internal control system (ICS), which ensures both the implementation of some formal quality assurance requirements (e.g. documentation of activities) and compliance by each farmer with the actual production rules. The organic inspection then focuses on the proper functioning of the ICS through a close examination of the quality system as well as re-inspection of a certain number of farmers.

The group structure is also of considerable importance in improving farmers' knowledge of organic production methods through continuous training. Further, it can be instrumental in improving overall product quality, and can result in farmers taking more initiative to organize themselves and the wider development of their communities. While some certifiers continue to emphasize the inspection of all or a large percentage of farmers, and do not require a fully functional ICS, IMO stresses the promotion of group certification as the best structure for certification in developing countries.

Although smallholder group certification is well known and well accepted, it has sometimes been argued that ICSs are too complicated for farmer groups to implement on their own. IMO presently certifies more than 350 smallholder groups, most of which have set up their internal control systems without too much external input; assistance is often provided through some rather basic guidance documents and by learning from other groups in the region. However, this is mainly the case in Latin America, where many well-organized cooperatives exist. While these organizations can incorporate the organic ICS into their already existing procedures and structures, in Africa and Asia there is the additional challenge of organizing farmers into a marketing group. This is often achieved only by traders or NGOs that "contract" farmers for organic production and set up the ICS.

In IMO's experience, ICS in relatively small genuine farmers' groups (e.g. 50-100 farmers) is fairly easy and straightforward to set up if the groups receive good initial training. Often the group needs a good leader and some dedicated individuals within it to run the basic ICS. For example, an IMO expert trained four farmer groups (50-150 farmers per group) in Indonesia on ICS for one week, using the new IFOAM ICS training curriculum for producer groups; the first inspection six months later showed that all groups that had implemented the ICS by themselves had managed to fulfil the certification requirements. The only group that had problems was the one receiving support from a local NGO that was supposed to act as the ICS provider.

On the other hand, often the major difficulties for such small, "genuine" farmers' groups concern product quality management and the handling of marketing and exports, as well as the high certification costs per farmer. Since minimum re-inspection rates relate to the total number of

farmers, and since the effort required for certification of a group does not increase proportionally to the size of the group, certification costs per farmer normally decrease considerably with any increase in size of the group. Big groups, however, face different challenges. Implementing an ICS at the same time as handling production quality and purchases may require highly educated and skilled personnel, and expert input may therefore be needed over long periods of time.

In conclusion, IMO's experience suggests that small groups need comprehensive training at the start, and some continuous support in the first year. Most of all, however, such groups require major funding support in order to bear the cost of certifications until they are able to sell their products at premium prices. Normally, small groups also need a trading partner with the capacity to improve the marketing of their products, as they often have relatively poor capabilities in this area; otherwise they will require support in setting up marketing links and acquiring sufficient product quality expertise. Larger groups also tend to need funding for the costs of setting up an ICS with professional staff, for covering the conversion period (larger groups tend to include more farmers who may need further time to qualify as organic) and for expert consultant support over the first period of activity. Although marketing support is also needed for some products, the general marketing capacity of larger groups is generally better than that of small groups.

Group certification is one of the few aspects of international certification in which some improvement has been achieved for producers in developing countries. IFOAM played a major role in securing formal acceptance of group certification in the EU and other markets. Unfortunately, the situation with regard to other aspects is far less positive. The number of standards which are a "must" for international trade continues to increase each year, both with regard to organic regulations and other standards emerging in areas such as food safety. Although standards such as HACCP and EurepGAP are voluntary in a formal sense, in reality they are often imposed on producers in developing countries by their buyers, who will only accept certified produce. The Utz Kapeh coffee certification scheme attempts to provide more benefits for developing-country producers, including a simplified certification process, but it is also bound by benchmarking to EurepGAP, and hence is not very flexible.

Although certifiers have taken up this issue by developing one-stop solutions to certification (i.e. offering multiple certifications as a package, carried out by the same inspector), the present system remains very complicated and expensive, both for certifiers and consumers. All standards require laborious and expensive accreditations and entail specific formal requirements regarding inspection staff, how to evaluate compliance and so on. In spite of much talk about harmonization, every scheme still has its own "rules of the game". So far, it has been up to certifiers and producers to find ways to bring the schemes together in order to facilitate implementation and control. This task is often far too complex for farm managers, ICS staff and inspectors in developing countries, even if they are well trained. Better solutions must be found, both to combine schemes at the top level and to adapt them to the specific situations of developing countries.

Finally, it seems important to mention that certification and its costs are definitely not the only obstacles preventing small farmers in developing countries from accessing the organic world market. In many developing countries, it is said that if only certification costs were low or even non-existent, small farmers could immediately sell their products at organic premium rates on the world market. However, this is clearly not the case. In most cases lack of group management, quality control and marketing skills is a much bigger bottleneck. Product quality nowadays is a much more important issue than it used to be. Organic products must meet the same high requirements as premium-quality conventional products. In addition, supposing that certification and quality challenges could be overcome, demand for organic produce would still be a limiting factor. At current prices, global demand is nowhere near sufficient to provide a market for the total production of all small farmers were they to convert to organic methods.

When discussing certification costs, it is also important to bear in mind that certification is also a marketing tool. It is only worth going to the trouble of obtaining organic certification if the

premium price obtained for the certified product exceeds any extra certification, production and management costs incurred. If this is not the case, it may make more sense to adhere to organic principles – which bring the other benefits of organic production described in this chapter – while at the same time avoiding the administrative burdens and costs of organic certification by simply selling the produce on the conventional market, possibly as a premium-quality product.

Gunnar Rundgren

Chief Executive Officer, Grolink AB

Exports of organic products improve livelihoods of thousands of farmers

Chapter 3, part I by Sophia Twarog covers a lot of ground and demonstrates most of the potential of organic farming. Producers in developing countries that seek benefits from the organic market fall into two quite different categories. On the one hand, there are advanced producers who have close contact with the markets, often supermarkets in the importing countries. They see that organic products are in demand and that general requirements for production in the food sector are moving in a similar direction as that of organic products (i.e. the need for well defined production standards, traceability, certification, record-keeping and transparency). They therefore believe they might as well opt for organic production. On the other hand, there are smallholders, who some consider as having been “left behind” in the move to modernization. They have no contacts with distant markets, most of them have never heard the word organic, but their production systems are in many – but not all – cases quite similar to organic. Therefore, with just minor changes to their production systems, and given an operating trading structure, they can reap the benefits of the growing organic markets.

The Export Promotion of Organic Products from Africa (EPOPA) programme was established by the Swedish International Development Cooperation Agency in 1997. It was based on a fairly simple line of thought: since many African smallholders cannot afford to buy the inputs that currently form the basis for conventional farming (i.e. chemical pesticides and artificial fertilizers), why not turn this into an advantage, and let them access the organic market which gives them higher prices? In addition, it was recognized that the smallholder farmers themselves are not able to cope with export requirements or finance the export operation, and therefore a qualified exporter is needed to liaise between the farmers and the markets. Due to its success, the programme was extended first in 2002, and recently, has again been extended to 2008.

The EPOPA programme develops exports of organic products from Africa. It helps participating countries to increase and diversify their exports. At the same time, the agricultural sector is taught innovative and environmentally sound farming techniques. Prices paid for certified organic products are higher than for conventional products. On average this results in a premium of 15–40 per cent on the prices paid to the farmers. In most cases, farmers respond with higher productivity and more attention to their crops. At present, 20 export projects are being implemented, most of them in Uganda and the United Republic of Tanzania, and one in Zambia, the latest country to be included in the programme. Products range from typical export commodities, such as coffee, to processed products such as lemon grass oil or bark cloth.

Box 1. EPOPA support to farmers and exporters

EPOPA support to farmers and exporters includes:

- Management assistance;
- Staff training;
- Field officer training;
- Advice on organic agriculture; field extension services and setting up of demonstration gardens;
- Development and revision of an internal control system;
- Farmer mobilization techniques and inputs;
- Provision of seed money for farmers' inputs;
- Setting up of tree/crop seedling nurseries;
- Technical consultancy and agricultural improvements;
- Product quality management and quality improvement measures; and
- Development of new crops and products.

Market surveys and buyer contacts

The four main areas of EPOPA activities are:

- Quality and production development;
- Market links;
- Organic production; and
- Certification.

As the organic market grows, so does competition. To assume market success just because a product is organic is naïve. However, it is not too difficult to find markets for *quality* organic products. Quality improvements in production, post-harvest and processing are an important focus of EPOPA. The programme provides marketing assistance to the participants, ranging from matchmaking between the exporter and the markets for its commodities, to the development of pre-packed retail products. EPOPA provides market information and initiates market contacts, for example at organic trade shows. Once a business relationship is established, it is up to the exporter to maintain the contact, although EPOPA continues to provide backstopping and follow-up support with buyers, where necessary, to ensure reliable and stable trade relations.

In many parts of Africa where government extension services are virtually non-existent, EPOPA has shown that it is possible for exporters, through field staff, to provide and finance such services instead. Apart from assuring the organic aspect, the exporters have discovered that taking on such a role is necessary to ensure high quality produce. EPOPA's experience has shown that the exporters need assistance to get accustomed to this new role, especially in the first years, and that they require additional sets of skills apart from mere trading.

Organic production is characterized by strict inspection and certification. There are far too many farmers in most EPOPA projects (the largest ones comprising more than 10,000 farmers) to allow a system where each farmer is annually inspected by an external inspector as is common in the North. In addition, even with higher prices, the total income for many farmers is just \$100–\$500, which cannot pay for individual external inspections. Already in the first EPOPA projects the system of group certification was introduced, and EPOPA, together with the Swedish certification body KRAV and the Swiss-based Institute for Marketecology (IMO), developed internal control systems (ICS), which allow for smallholder group certification (discussed in more detail in chapter 3, part I of this *TER*).

While EPOPA works with exporters, its real target is the smallholder farmer. The programme managed to improve the livelihoods of over 27,000 small farmers in 2004. They gained from securing 15–40 per cent higher prices for their cash crops. Higher prices result not only from the organic nature of the products but also from their better quality. In some cases the higher prices result from more direct trading structures. After a few years of farming organically, the farmers have also reported a significant increase in productivity due to better and more intensive crop management. Earlier, EPOPA had supported another 30,000 farmers involved in export projects, and today they no longer require the programme's support, which is probably the best indicator that it is sustainable.

Given the increased value of the exports, the majority of EPOPA interventions are paid back in four to five years from the start of the support. Most exporters would not be willing to take the risk because of their lack of knowledge about the organic market and its development. Assistance by EPOPA allows them to enter this market and set an example to other exporters.

Institutional development and capacity building

The first seven years have shown that the Programme's premise, development through organic trade, has true potential. At the same time, the organic export sectors of countries should not be

Box 2. What happens to food production when farms are converted to organic agriculture?

In reality this varies considerably, depending on the conditions before conversion. In “traditional” smallholder agriculture in rain-fed areas, organic agriculture normally leads to increased yields. This increase in productivity is due to several reasons:

- Greater crop diversity, which has the added benefit of more varied diets, and lowers the risk of harvest failure for the farmers;
- Improved organic matter management through the use of green manure crops, resulting also in better water retention;
- Improved on-farm recycling of nutrients and better use of organic materials from the surrounding ecosystem;
- More attention to soil and nature conservation, and therefore less soil erosion and no deforestation; and
- It is a system that is understood by and accessible to the smallholder farmers.

islands of development. EPOPA encourages the development of local and regional markets and the development of local organic certification bodies. It provides training programmes for the sector at large and supports the local organic movements in the programme countries. In addition, it engages in policy dialogue with the governments and other stakeholders.

Developing national certification

UgoCert and TanCert are the first national certification bodies for organic agriculture in Uganda and the United Republic of Tanzania respectively. Developing certification, standards, certification procedures and training of inspectors is crucial to ensure sustainable local and international trade in organic products. UgoCert and TanCert are both stakeholder-based organizations that engage in local and international certification. To date they are not internationally recognized, but they operate in close cooperation with a European certifier. However, they both intend to apply for IFOAM accreditation soon.

Locally based certification bodies often initially play a prominent role in the local development of the sector and for the formulation of locally adapted standards. A branch of a foreign body is rarely engaged in local development in the same way, and as the service it offers is generally uniquely for the export market, it has little interest in developing the local market. For producers wanting to access the home market, the only certification available is therefore from a foreign agency and at a cost more adapted to the export sector. Therefore there are some development-related arguments for supporting local bodies. In some regards, a local body can also exercise more efficient controls; only an organization with a local presence can follow the market on a day-to-day basis and react quickly to important developments – such as pest outbreaks or government pesticide distribution programmes – that can affect certification.

Conclusions

EPOPA has shown that it is possible to organize farmers to undertake organic farming, to set up a group certification system and to initiate export businesses that are rewarding for all parties. However, it should be recognized that all economic activities naturally go through cycles of good and bad times. To develop sustainable agriculture, more time is needed, and solid trade relations only develop over time. There is potential for more EPOPA-type projects, also in other countries. At present, the programme benefits only a few selected exporters.

More policy support is needed from international agencies and national governments to make organic agriculture a major component of their development strategies, for reasons ranging from

poverty eradication via food security to sustainable resource management. This would mean not only considering special programmes and incentives for organic producers, but also seeing how overall agricultural policies affect organic producers. For example, a number of developing countries still have subsidies for agro-chemicals, or other special programmes to promote their use. This clearly puts organic producers at a disadvantage. Unfortunately, often the initial government reaction to an emerging organic sector is to regulate it (i.e. introduce market regulations such as the ones in the EU or the United States). There is no evidence that this is the best policy response; on the contrary, a premature regulation may stifle the development of the sector. Other actions as outlined by Twarog should also be given priority.

Standards and certification requirements are currently posing the greatest challenge for the sector, especially for those dependent on many export markets, such as the producers in the EPOPA programme. The lack of operational equivalence, both in the private sector and among governments, is creating an inefficient market and keeping a number of potential producers out of the sector. Standards and certification requirements developed in the main markets are not readily applicable all over the world. One could imagine a system that uses locally adapted standards, based on an international baseline (IFOAM or Codex Alimentarius), where organic certification bodies work in mutual recognition of agreed requirements. The government's role would mainly involve oversight to ensure honest marketing (labelling) claims and focusing on deterring fraudulent and deceptive practices.

In addition, it is somewhat absurd that the producers who are *not* using dangerous technologies, such as pesticides or genetically modified organisms, should need certification and pay for the costs, while those adopting risky practices are considered as being "normal". In the longer term it seems to be a more logical development if organic is seen as "normal" and the other products have to undergo all the additional procedures and associated costs. The road towards this goal is surely not by constantly increasing certification requirements for organic producers.

Felicia Echeverría Hermoso

Special Adviser on Organic Agriculture to the Minister of Agriculture and Livestock, former Manager of the National Organic Agriculture Programme, Costa Rica

Introduction and background

First of all, from the perspective of someone who during the past seven years has worked directly with small farmers, national institutions, NGOs and other stakeholders in a joint effort to support organic agricultural development in Costa Rica, I would like to point out that part I of the chapter on organic agriculture by Sophia Twarog does an excellent job of highlighting (and updating) the main issues to provide a better understanding of the dynamics of the “organic agriculture world”. This commentary first briefly describes the organic situation in Costa Rica in order to provide the context for my comments on the issues most relevant to that situation.

Costa Rica has a territory of 51,100 sq. km. and a population of nearly 4 million people;¹² 25.6 per cent of its land constitutes environmentally protected areas, while farming is done on 56 per cent (2,845,000 ha.). In 2004 there were 10,682 ha. of farmland certified as organic at the official registry of the Gerencia Técnica de Acreditación y Registro de Agricultura Orgánica del Ministerio de Agricultura y Ganadería (GTRAO, or Organic Agriculture Accreditation and Registry Office of the Ministry of Agriculture and Livestock). This area represented 2.1 per cent of total cropland for that year. The main organic products currently being exported include: bananas (mashed for baby food and dried), cacao, coffee, blackberries, raw sugar, mango, pineapple (fresh and dried), orange juice and concentrate, and passion fruit. The domestic market for organic products is still very small but has been slowly growing over the past five or six years. As well as the items listed above, domestic sales of organic produce comprise almost everything that the regular consumer needs, including animal products, although output is not sufficient to satisfy current demand. Organic products are sold mainly at local community markets, weekly farmers’ markets and supermarkets.

The national organic movement, now organized as Movimiento de Agricultura Orgánica Costarricense (MAOCO), has been growing for the past 10 to 15 years. As in many other countries around the world, small farmers and NGOs were the first to get involved, a number of them supported by projects undertaken by academic groups or NGOs, as well as by a few intermediaries (mainly for the export markets). During the past seven years, more active involvement from the public sector and a greater openness to developing alliances among the different actors involved has resulted in a considerably stronger organic movement in which the Government operates along with the other stakeholders. MAOCO has also developed a long-term action plan, the National Strategy for Organic Agriculture Promotion, based on wide-ranging consultation.

As mentioned in part II of the chapter, by René Vossenaar and Amy Angel, at the governmental level there are currently two offices in charge of organic agriculture-related issues. These are the Programa Nacional de Agricultura Orgánica del Ministerio de Agricultura y Ganadería (PNAO, National Organic Agriculture Programme) and the GTARAO. Both offices are under the Direction of Phytosanitary Protection in the Ministry of Agriculture and Livestock (MAG), although they have quite different mandates. PNAO’s main objective is to promote production, transformation, international trade and local marketing of organic products. It helps to identify national organic farmers’ needs, and coordinates with public and private institutions in charge of supporting agriculture, as well as with national and international financial and technical cooperation organizations. PNAO works to ensure that these organizations cater for the needs of organic farmers in the same way as they do for conventional farmers.

The national organic guarantee system is managed by GTARAO through the following activities:

- Accreditation of certification bodies;
- Maintenance of a registry of certification bodies, inspectors, certified farmers, processors and others; and

- Supervision and auditing of the entire organic guarantee system, based on the following national laws and regulations:
 - Environmental Law No. 7554 of 1995;
 - Phytosanitary Protection Law No. 7664 of 1997 and the Organic Agriculture Regulation Decree No. 29782 of 2001.¹³

Costa Rica was included in the EU's "third-country list" (section 1, article 11 of the CEE Regulation No. 2092/91) on March 2003, which means that the EU recognizes Costa Rican regulations and its conformity assessment system as equivalent to its own. Costa Rica is also on Switzerland's third-country list, and the processes for equivalency recognition from the United States and Japan are under way.

There are currently two national certification agencies (EcoLogica and AIMCOPOP) and four international ones (BCS Oko Garantie, OCIA, Ecocert and SKAL) accredited by GTARAO. A national seal to back up the official certification system has been developed by the Ministry of Agriculture and Livestock, and it may be used at no charge by those who are certified by any of the accredited bodies.

To what extent have we been able to take advantage of organic agricultural production as a new trade opportunity for Costa Rica?

Unfortunately, studies that would be necessary to measure the impact of trade in organic products on, for example, export opportunities for small farmers or sustainable development indicators during the past 15 years are not available. However, to address the above-mentioned question, some concrete examples provide evidence for what could be considered more a perception than a scientific conclusion.

Grasping the new trade opportunities afforded by OA is not easy. As Twarog points out, some of the challenges related to organic exports – especially those concerning the lack of harmonization – have an adverse impact on the possibilities for production growth. This means that once a country has certified and is exporting a certain "natural base" of easily accessible organic products, the sector can face certain constraints that make it difficult to increase production levels for new export products in order to take advantage of new trade opportunities.

Without wanting to sound too confident, it seems that the hard work of many actors from both the private and public sectors have put Costa Rica in the lead in addressing certification issues that are considered crucial to facilitate trade in organic products. Costa Rica's achievements in this area include: the development of a national organic guarantee system (which includes the less expensive option of group certification); recognition of equivalence with one of the main markets (the EU); and an internationally recognized national certification body. In fact, according to a recent study by Els Wynen (2005)¹⁴ for the FAO/IFOAM/UNCTAD International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF), farmers in Costa Rica currently enjoy one of the lowest certification costs in the region.

In order to achieve this, much coordination, hard work and investment in studies and capacity-building activities for both government officials and local certification bodies was required. Other sectors of the organic movement were also involved in the process: in 2000, organic regulations were reviewed by a national committee comprising participants representing all sectors (e.g. farmers, NGOs and the academic sector). The challenge was to adapt the national regulation that already existed in order to suit local conditions better and still comply with EU requirements. The discussions were intense and, in order to be "eligible" for the third-country list, some compromises had to be made to the detriment of local farmers' needs and of local development of organic production and marketing. For example, an important limitation on local organic production and marketing is the fact that organic certification has to be mandatory, even if the farmers' operations

are very small and their produce is sold at nearby markets where most consumers know them. In such cases, certification is still too costly for small farmers, as local consumers usually are not prepared to pay a price premium for certified products.

According to local certification bodies, the main advantage of having the Costa Rican guarantee system recognized as equivalent by the EU is that it simplifies the process of exporting organic products to the EU. In addition, some producers participating in BioFach in 2003 and 2004 report greater confidence in Costa Rican organic products. As a result of this simplified process, and growing confidence, producers are receiving higher levels of interest from importers in buying Costa Rican organic produce.

However, formal recognition does not necessarily translate into marketing reality. Local Costa Rican certification bodies are not necessarily recognized in EU markets, and many farmers are still asked to certify under different European certification bodies to meet clients' preferences (as pointed out by Vossenaar and Angel with reference to organic bananas). This continues to raise certification costs for local farmers, sometimes by as much as 100 per cent. We believe this need for multiple certifications does not originate so much in the public sector, but rather is the result of a lack of transparency and sometimes even alliances between importers and private European certification bodies.

In promoting new trade opportunities for organic products from developing countries, it is vital that this problem be addressed. Even if harmonization efforts were to be successful, with equivalency agreements between governments of all countries and fully implemented legislation, unless there is a concerted effort to support certification bodies from developing countries, organic farmers will continue to face unfairly high certification costs when they attempt to export.

In addition to these multiple certification problems, lack of international harmonization has the further consequence that farmers who wish to export to several countries often have to comply simultaneously with several sets of different regulations (which may even be contradictory). The result is that our farmers end up having to comply with the most restrictive aspects of the different sets of regulations. This only considers what happens with government regulations; in addition, if a buyer in one of the importing countries asks for a specific certification body, this private body may have its own standards of certification. Thus the farmer has to comply with multiple layers of standards, each additional requirement restricting more and more the techniques and technologies that the farmer can use.

For most small farmers in Costa Rica, other negative aspects associated with the present organic guarantee system are: the indirect costs of the system (farmer training, time dedicated to record-keeping and administrative costs of the internal control system for groups); farmers becoming discouraged because of "too much complication and not enough compensation" especially during the transition period (complicated regulations required to be learned and followed, too much detail in record-keeping, a long transition period with no price premium); and lack of appropriate technical assistance (certification bodies tend to tell farmers what they are not allowed to do but offer no help for improving techniques, while most local technicians find it hard to follow up on the immense variety of regulations and standards).

Organic agriculture and sustainable development in the field

Twarog's comprehensive summation of the potential of organic agriculture to generate the economic, environmental, social and cultural benefits that are expected to accrue from national sustainable development is an important contribution to an understanding both of the breadth of this activity and of the importance of adequate policy development to support it.

In examining the benefits described, it becomes easier to establish a clear relationship between these benefits and certain technological and cultural practices implicit in the kind of “model” utilized by small farmers in developing countries. Key features of the kind of organic agriculture described include: the highly efficient use of farm resources, including family labour, with little or no external input utilization; diversified cropping (providing a good source of food for the farm family, as well as favouring an ecological balance of species) and the high priority accorded to soil and water conservation practices, the protection of natural resources, the development of local market initiatives and family and community involvement (often resulting in the development of farmer-consumer alliances). This is indeed an alternative rural development model in itself, in line with what many in Latin America now call the agro-ecological approach.

These small and unspecialized production units are much more profitable for small farmers than the high-input, high-yield monoculture model. Furthermore, there exist hundreds of examples in the field to show that this model, spontaneously developed by the farmers themselves, does work in a sustainable fashion. It is common to hear about farmers who, when working a conventional monoculture farm, cannot earn enough money to live solely from their land. After converting to an organic, diversified and integrated model, however, and once past the difficult transition period, such farmers can not only live completely from the farm, but often are also able to increase their income and quality of life.

It is, however, important to note that not all organic agriculture being practiced and even certified in developing countries fits with the “model” just described. Indeed, very often, and especially when a specific organic product is highly oriented to an export market that demands high volumes (e.g. organic orange juice from Costa Rica), the organic production is carried out under an “input substitution” model, with little crop diversification or agro-ecological balance and high dependence on expensive organic external inputs. This type of organic agriculture is being implemented mainly by large holdings, and is dependent on high premiums for profitability. By contrast, agro-ecological initiatives are not dependent on high premiums, at least in Latin America (where in any case the domestic market does not provide them). Profits are mainly derived, instead, from cost reductions and increased farm yields.

There are important sustainability issues involved in these different approaches, and more economic and technical research needs to be done to arrive at figures and facts that can guide us when trying to draft the best policies to promote the most sustainable forms of organic agriculture in developing countries.

Importance of promoting public and private sector alliances for policy and strategy development and implementation

Although a consensus exists on the sustainable nature of organic practices, most policy-makers and government officials working in the agriculture sector have only very basic knowledge about organic agriculture. In particular they have little knowledge about the wider agro-ecological interrelations that play an important role in ensuring that the benefits of OA effectively accrue to small farmers in developing countries. For example, when government officials, extension workers and researchers first get involved in organic agriculture, they often perceive it primarily as an activity aimed at avoiding contamination from synthetic pesticides. As a result, their main concerns when trying to put in place conditions for the development of OA are related to the availability of input substitutes, subsidies for inputs and/or infrastructure, and certification.

Though these are important issues, they do not cover the wider challenges faced by organic farmers. For the design of effective policies, a more thorough understanding of the holistic nature of sustainable organic agriculture (including a number of factors not necessarily related to inputs) is needed, particularly an awareness of the fact that, as Twarog notes, it is “knowledge-intensive as opposed to external-input-intensive”. If government initiatives fail to take into account the wider

social, ecological and economic relations in which organic practices are rooted, efforts to ensure the necessary conditions for small farmers to access national and international markets, as well as to enjoy the collateral, and, most importantly, the benefits of OA will fail. This is especially true for approaches on research and technology transfer, credit lines and incentives, among others.

One crucial way of ensuring that policies, legislation and strategies address the real needs of small organic farmers is the promotion of strong and open alliances between the public sector and local organic movements (including small farmers, NGOs, certification bodies and universities). By involving a range of stakeholders in the policy-making process, particularly those with experience and expertise at the farm level, governments can benefit from a pool of knowledge that can be used to broaden their understanding of OA. As a result, initiatives aimed at supporting the development of OA are more likely to target the most important obstacles faced by the sector, and thus will be more effective.

This is especially important now that governments in developing countries are increasingly being approached by international institutions, organizations and cooperation agencies with proposals for legislation and policy development aimed at supporting organic agriculture and taking advantage of related trade opportunities.

National organic movements, whether organized or not, can play an indispensable role in giving policy- and decision-makers the correct policy orientation with regard to the long-term strategies and legislation needed to benefit the majority of those working in the productive organic sector in developing countries: small farmer families. The Costa Rican experience with national policy development through MAOCO's Regional Organic Agriculture Strategies and, more recently, the drafting and negotiations for the submission of a Law for the Promotion of Organic Agriculture to the national congress, are examples of the potential positive outcomes of such alliances.

Mohamed Ben Kheder

Director, Technical Center of Organic Agriculture, Tunisia

Samia Maamer Belkheria

Department of Agricultural Production, Ministry of Agriculture, Tunisia

Organic agriculture in Tunisia – a success story*Introduction*

Organic agriculture is relatively new in Tunisia. The development of OA began in the mid-1980s through private initiatives, and the sector continued to evolve slowly until 1997. Recent years have seen a large increase in the area farmed and in the number of farmers using organic techniques, as well as greater crop diversification and better organization of the organic sector. These important developments have been the result of policies aimed at supporting the sector and underlined in a national strategy based on the following aspects.

National regulation

Tunisian legislation makes reference to organic standards such as the IFOAM Basic Standards, EU regulations on organic production and Codex Alimentarius Organic Guidelines¹⁵. National regulations were implemented during the period 1999-2004, and are being extended to cover aspects of processing and labelling. The main regulations are: the law related to organic agriculture, a decree related to certification, Order of the Minister of Agriculture related to Organic Plant Production, Order of the Minister of Agriculture related to Organic Animal Production, Order of the Minister of Agriculture related to Processing and Labelling (in preparation)

Tunisia presented the EU with dossiers of information related to its organic regulations and practices in March 2000 and January 2003 in order to apply for inclusion on the EU's third-country list referred to by Twarog.

The competent authority is the National Commission for Organic Agriculture, which is composed of representatives of government ministries, farmers, industry, consumers and certification bodies. Its main tasks are to: prepare proposals for organic agricultural promotion and support; study all files and documents related to organic agriculture; and approve or withdraw certification bodies.

Inspection and certification bodies

Four inspection and certification bodies are operating in Tunisia following approval from the Ministry of Agriculture, Environment and Natural Resources. They are ECOCERT SA, Instituto Mediterraneo di Certificazione (IMC), LACON Ltd. and BCS Öko-Garantie GmbH. They seek to ensure compliance with IFOAM standards, EU regulations and Tunisian legislation, and each has a representative bureau in Tunisia.

*Incentives and subsidies**Tax breaks*

Like other agricultural investments, those in organic farming benefit from the following tax reductions:

- Tax deductions for all investment income and benefits during the first 10 years;
- Tax deductions on incomes and benefits reinvested as part of the initial capital investment in an OA company or as an increase in such investment, including invested benefits in the company;

- Exemption from customs duties and suspension of value added tax (VAT) for imported equipment that does not have a locally manufactured equivalent, and suspension of VAT for locally produced equipment;¹⁶ and
- Reimbursement of contract fees incurred as a result of investing in agricultural land. The purchaser must submit a request for reimbursement no later than one year after the declaration of the investment.

Moreover, organic agriculture projects that are entirely export-oriented also receive the following benefits:

- Exemption from customs duties and suspension of VAT for the acquisition of equipment and supplies necessary for production;
- Possibility of assistance for local marketing at the rate of 30 per cent of the production value. This is authorized by the national regulation for the Tunisian exporting societies; and
- Recruiting of four foreign supervisors without prior agreement.

Financial benefits

- Subsidies related to project study fees equivalent to 1 per cent of the invested amount and up to a maximum of 1,500 Tunisian dinars for B category investments and 5,000 Tunisian dinars for C category investments;
- Investment subsidies fixed at 30 per cent of the value of equipment and tools specific to organic projects; and
- Annual subsidies over a five-year period to cover inspection and certification fees, equivalent to 70 per cent of the cost, provided that the overall value of the subsidies does not exceed 5,000 Tunisian dinars.¹⁷

Research

Adaptation of research results

Many results of national and international research applicable to organic agriculture are being adapted at experimental stations and in organic farm trials (e.g. relating to fertilization and plant protection).

Research projects

Universities and research institutions are conducting new research projects that focus on organic agriculture, including variety testing (vegetables), compost quality, use of various organic matter (farm by-products and manure), plant cultivation techniques (e.g. grafting), disease and pest control (e.g. relating to olives, date palms and vegetables), and organic animal farming techniques.

Training

Academic training

Some modules in organic agriculture are being offered to students (agricultural technicians and engineers) in different agronomic institutes, and there are plans to introduce specialization in OA for engineers. Two Master of Science level programmes are being offered in sustainable agriculture and organic agriculture.

Professional training

Many training days, short sessions and short courses in various OA topics have been offered to technicians, engineers and farmers. This training has led to the setting up of regional networks.

Table 1: Growth in organic area and number of operators

	1997	1998	1999	2000	2001	2002	2003	2004
Area (ha)	300	7 201	15 036	15 036	16 533	18 638	33 500	100 000
Number of operators	10	63	141	141	294	481	580	660

Each region has:

- Three technicians/engineers representing the regional agricultural service, the regional agricultural training centre and the regional union of agricultural farmers. These technicians are in charge of information extension and training;
- Professionals involved in OA, including production, processing and marketing.

Structures and organizations

There are various structures and organizations involved directly in OA. At the administrative level these are the National Commission of Organic Agriculture, the National Bureau of Organic Agriculture, the Technical Center of Organic Agriculture, technical regional networks in organic agriculture, organic units in inter-professional organizations, as well as other organizations and institutions involved indirectly or partially in organic agriculture. At the professional level, are the National Federation of Organic Agriculture and many organic farmers' associations

Organic agricultural sector

Tables 1, 2 and 3 show respectively the increase in area farmed organically and the number of farmers, the crop area and production levels. Organic farms vary in size, from 1 ha to over 28,000 ha. Most of the organic date farms are smallholdings (1–2 ha), while organic olive farms are much larger. With organic livestock farming still in its infancy, the number of animals reared organically is low.

As for geographic distribution, this is mostly in the centre and the south, with only a little found in the north of the country.

Table 2: Area under organic crops (2004)

Crops	Area (ha)*	%
Olives	83 791	83.79
Almonds	1 251	1.25
Date palms	1 035	1.03
Other fruit trees	3 030	3.03
Aromatic plants/jojoba	6 563	6.56
Vegetables	80	0.54
Cereals	1 110	1.11
Forage	74	0.07
Cactii	304	0.30
Other crops	2 762	2.76
Total	100 000	100.00

* About 71 per cent certified and 29 per cent in conversion

Table 3: Organic plant production (2003)

Crops	Production (tons)*	%
Olives	33 170	87.25
Dates	3 300	8.67
Vegetables	480	1.26
Aromatic plants / jojoba	303	0.79
Cereals	578	1.52
Other crops	194	0.05
Total	38 025	100.00

* There are about 20 processing units, located mostly in the centre and the south and a few in the north of the country.

No organic farms are owned by foreign companies, though partnerships between Tunisians and foreigners exist in a few farms (of about 400 ha).

Soil fertility

In Tunisia the soil quality is generally poor (low organic matter content, low biological activity and poor structure). The main problems of soil fertility are being addressed by the introduction of green manure in rotation programmes, training farmers in compost management, and the supply of authorized organic and mineral fertilizers (in sufficient quantity) in the country.

The low level of organic matter in most soils, the need for farmers to harvest two to three vegetable crops per year from the same plot, and the frequent intercropping of fruit trees and annual crops with palm date trees means that organic agriculture requires a high amount of nutrients. The application of compost and extensive manure has increased the olive yield of different organic olive farms from 14 to 40 per cent after the conventional period.

Pest and weed control

The control of some pests and diseases is not efficient, because many authorized products cannot be found in the country and those that exist are not yet registered. In this connection, a list of registered products is being prepared. Farmers do not always adopt crop rotation for weed control. Working towards biological equilibrium and restoring biodiversity should be considered integral to the organic approach to agriculture.

Table 4: Organic plant production (2004)

Crops	Production (tons)	%
Olives	23 000	63.88
Dates	4 600	12.77
Vegetables	130	0.36
Aromatic plants / jojoba	6 950	26.80
Cereals	620	1.72
Other crops	700	1.05
Total	36 000	100.00

Inputs for OA

There are some constraints to the import of important inputs: the list of recorded inputs authorized in organic agriculture is short and incomplete, and farmers are not familiar with the equipment and techniques used in organic agriculture (i.e. compost and weed management).

The main authorized materials for soil fertilization, protection and processing are:

- local organic matter;
- natural minerals allowed by EC regulations;
- sulfur products;
- copper products;
- mineral oils;
- *Bacillus thuringiensis*;
- pheromones in traps;
- methaldehyde in traps;
- local natural predators and enemies (i.e. beneficial insects); and
- additives and processing aids allowed by EC regulations.

A complete list of authorized material has already been prepared.

Seeds, seedlings and other propagating material used in organic agriculture are both local and foreign, and are either organically certified or just not chemically treated. Olive and date production relies on plants that were planted in the past.

Local firms are beginning to produce materials for organic production, but as yet such enterprises exist only on a very small scale. Some farmers' associations have begun to produce compost and local predators. Other projects are being prepared.

Market aspects

Tunisian organic products are produced under sustainable agro-ecosystems and thus are of good quality.

Most of the production is directed to the export market and is sold as being typically Tunisian. The main products are olive oil and dates (table 4). Organic olive farmers receive a price premium ranging from 10 to 20 per cent. Production of other crops is still low and is aimed mainly at the local market. However, there is not yet a real local market for organic products. A strategy is being prepared to encourage local marketing and consumption of organic products. Moreover, a new initiative relating to domestic market promotion involving vegetable and fruit farmers and five supermarket chains has been launched, and the initial results are promising.

The main foreign markets for the major Tunisian organic exports (listed in order of importance) are:

- Olive oil: The United States, Italy, Spain, France;
- Dates: Germany, the United Kingdom, the Netherlands, France, Switzerland;
- Vegetables: France and the United Kingdom;
- Jojoba: Switzerland; and
- Aromatic plants: Italy and France.

Recently, some companies have started to export organic products from Tunisia, including CHO, Med Gold, Borges, Sfax huile, Agro CRC and CCF. In addition, some farmers' associations such as Zayatine Sfax and Beni Ghrib continue to export their products. At the same time, some farmers both produce and export organic products, while other farmers are under contract with exporting companies.

The marketing of Tunisian organic products has been improving gradually since 1999. The main export constraints are related to the lack of market assessment and marketing planning (i.e. evaluation of opportunities, estimating future demand and prices of organic products), as well as the lack of efficient regional and national marketing networks in organic products.

Most of the organic olive oil farmers sell their organic olive oil at an acceptable price premium to exporters who have experience in marketing conventional olive oil. However, the exporters still experience some difficulties in exporting their entire supply of certified oil, probably because of their lack of experience and knowledge in exporting organic products. Organic products are also promoted through participation at national and international fairs. A strategy is currently being prepared to promote the marketing of organic products abroad.

International cooperation

The Tunisian OA sector has established relationships with the following organizations with regard to expertise, training and information exchange: Mediterranean Agronomic Institute of Bari (Italy), Technical Institute of Organic Agriculture (France), Research Institute of Organic Agriculture (Switzerland), FAO, IFOAM, and International Society of Organic Agriculture Research (ISOFAR)

Conclusion

Many crops and regions in Tunisia can be converted easily to OA owing to favourable conditions: climatic conditions that are conducive to pest and disease control, combined with favourable levels of biodiversity and traditional cultural practices. The national strategy covers all aspects of OA and aims at promoting coordination and cooperation among all partners.

The major needs for the development of OA in Tunisia are: training of technicians and farmers; supply of organic fertilizers and authorized products for use in plant and animal production; establishment of farmers' associations; promotion of marketing at national and international levels; and registration of Tunisia on the EU third-country list.

Table 5: Production and export of the main organic products: olive oil and dates

	Year	Olive oil	Dates
Production (tons)	2001	1 700	1 750
	2002	3 450	2 200
	2003	33 000	3 300
	2004	23 000	4 000
Export (tons)	2001	340	740
	2002	370	760
	2003	180	789
	2004	2 200	1 393

NOTES TO COMMENTARIES

- ¹ Uphoff, Norman (1999). Agroecological implications of the System of Rice Intensification in Madagascar. *Environment, Development and Sustainability*, 1(3-4): 297-313;
Pretty JN (1995). *Regenerating Agriculture: Policies and Practice for Sustainability and Self-Reliance*. Earthscan Publications: London;
Burton, M., D. Rigby, T. Young, and H. de Souza Filho. 1998. The Adoption of Sustainable Agricultural Technologies in Parana, Brazil. *Revista de Economia e Sociologia Rural: Brazil*, 36(4);
Yamauchi, M. (1995) Country Report: Japan. In: *Appropriate Use of Fertilizers in Asia and the Pacific*. Asian Productivity Organization and the Food and Fertilizer Technology Center, Tokyo.
- ² Giovannucci, Daniele. 2005. *Organic Agriculture and Poverty Reduction in Asia*. IFAD: Rome.
- ³ These are the lead agencies in a consortium-based global effort to measure the actual costs and benefits of adopting sustainability standards in agriculture, beginning with coffee (see www.iisd.org/trade/commodities/sci_coffee.asp.org).
- ⁴ Giovannucci Daniele (2003). *Emerging Issues in the Marketing and Trade of Organic Products*. (Monograph). Report on the proceedings of the OECD Workshop on Organic Agriculture, September 2002. Paris, OECD.
- ⁵ At the September 2005 exchange rate of \$1 = 8.1 yuan.
- ⁶ Muir's original entry in the journal that became the basis for his book, *My Summer in the Sierra*, is wordier, but additionally illuminating: "When we try to pick out anything by itself we find that it is bound fast by a thousand invisible cords that cannot be broken, to everything else in the universe."
- ⁷ Hungary and the Czech Republic were removed from the list after their accession to the EU.
- ⁸ UNCTAD-FAO-IFOAM (2006) *Strategy on Solutions for Harmonizing International Regulation of Organic Agriculture, Volume 2, Background papers of the International Task Force on Harmonization and Equivalence in Organic Agriculture* (forthcoming).
- ⁹ This envisages regional or national standards that relate to, and are equivalent to, a single international standard.
- ¹⁰ The requirement for conformity assessment refers to the guidelines established for how conformity assessment bodies should be structured and how they should perform their work of inspection and certification.
- ¹¹ This has the same aim as the IAF "certified once, accepted everywhere" slogan, and could, in theory, be achieved under such a system if agreement could be reached on standards and conformity assessment. However as Twarog's chapter points out, it is impossible to have one organic production standard for the whole world; other, more sensitive mechanisms are required.
- ¹² 3,906,700 ha according to the last national survey in 2001.
- ¹³ This Decree modifies No. 25834 of 1997 and 29067 of 2000.
- ¹⁴ Wynen E (2005). *Impact of organic guarantee systems on production and trade in organic products*. In: UNCTAD/FAO/IFOAM, *Harmonization and Equivalence in Organic Agriculture, Vol. 1, Background papers of the International Task Force on Harmonization and Equivalence in Organic Agriculture* (revision March 2005). Bonn.
- ¹⁵ FAO/WHO Codex Alimentarius Commission Guidelines for production, processing, labelling and marketing of organically produced foods, 2001, available at www.fao.org/organicag/doc/glorganicfinal.doc
- ¹⁶ Decree number 1030 of May 2, 1994 and amending decrees.
- ¹⁷ \$1 = 1.35 Tunisian dinars

3

Chapter

Part 2

ORGANIC AGRICULTURE: EXPERIENCES OF CENTRAL AMERICA, CUBA AND THE DOMINICAN REPUBLIC

René Vossenaar, formerly with the UNCTAD secretariat, and
Amy Angel, Salvadoran Foundation for Economic and Social Development (FUSADES)

A. Introduction

Part II of this chapter on Organic Agriculture complements Twarog's analysis in Part I by examining relevant experiences of Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama), Cuba and the Dominican Republic.¹ It draws on research by the authors as well as on studies conducted under a joint project of UNCTAD and the Foundation for International Environmental Law and Development (FIELD) entitled "Building Capacity for Improved Policy-Making and Negotiation on Key Trade and Environment Issues".² The UNCTAD/FIELD project was funded by the Department for International Development (DFID), United Kingdom.

The region provides prime examples of the opportunities and challenges faced by organic agriculture in developing countries. On the one hand, experiences of the region confirm that organic agriculture provides good opportunities for producers, including small farmers, not only to take advantage of niche markets to obtain higher and generally more stable prices, but also to derive a range of economic, social and environmental benefits. On the other hand, they also illustrate the many obstacles facing the long-term development of organic agriculture, and various difficulties with regard to institutional development and technical assistance for the sector.

Organic production in the region emerged through initiatives led by small producers and supported by international donors and non-governmental organizations (NGOs). According to the International Fund for Agricultural Development (IFAD), over 90 per cent of all organic producers in the region are small producers, working on 50 to 80 per cent of the total certified organic area in the different countries (IFAD, 2003). In some countries, such as Guatemala, however, large producers account for a major share of certified organic production. Production is largely for export markets, principally the United States and Europe, with some going also to Japan.

For a long time, governments in the region paid relatively little attention to organic agriculture. Small farmers were successful in producing and selling organic products well before governments developed regulations and created specialized agencies (IFAD, 2003). Cuba is a unique case. As pointed out in box 2 below, this country provides perhaps the best example in the world of large-scale government support to organic agriculture (El-Hage Scialabba and Hattam, 2002). Yet, while Cuba has successfully promoted urban agriculture to address food security problems, policies on certified organic agriculture for export still need a more coherent strategy and better coordination between government ministries, producers and other stakeholders.

A general view held among experts in the region is that Central American countries could more fully exploit the potential offered by organic and other forms of sustainable agriculture. There is also a view that lack of supply may be a greater problem than lack of demand. Yet it is not uncommon for certified products to be sold in markets for conventional products, without a price premium.³ Strengthening links between supply and demand may increase the supply to markets for certified organic products. Such links could be strengthened, for example, through the development of business-to-business (B2B) and public-private partnership (PPP) strategies and through market information systems.

Several countries still lack a clear policy, and many observers believe there is insufficient support for the sector, which still depends largely on the initiatives of donors and NGOs. Alliances are needed between the public and private sector to: (a) create or strengthen organic guarantee systems based on appropriate legislation and inspection, and (b) create an institutional framework to support the long-term development of the organic agricultural sector. National commissions for organic agriculture and proactive national organic agricultural movements can play a key role in guiding, accompanying and supporting the implementation of policies and legislation as well as in creating an institutional framework capable of promoting the development of the sector (Cussianovich, 2004).

The organic agricultural sector in the region is now at a crossroads; countries are seeking a new development paradigm for the sector with clearer national policies. This part of chapter 3 analyses how countries have addressed the need to develop both a legal infrastructure and specific extension services to support the long-term viability of the sector. It also describes some, albeit still modest, efforts to integrate organic agriculture into overall agricultural development policies, and to enhance the capacity of the sector to respond more fully to fast-growing international demand and changing market characteristics. It is hoped that the experiences of the region may provide useful lessons for other small developing countries, for example, in helping to define government policies on national and regional approaches to harmonization and equivalence issues.

Most government efforts so far have sought to create national guarantee systems, the most successful being in Costa Rica, Guatemala and Honduras. And there have been renewed efforts to promote regional cooperation in harmonizing organic agricultural regulations and inspection, in particular through the creation of the Central American Commission of Competent Authorities in Organic Agriculture. Some progress is also being made in designing and implementing institutions and national strategies to promote the organic sector. These include enhancing awareness of the benefits of organic agriculture, training, technology, market intelligence and trade promotion. Costa Rica, for example, already has a comprehensive system in place, based on stakeholder dialogues and inputs from different regions. But further efforts are required, especially in terms of national and, where relevant, regional policies to strengthen institutions that promote the development of the organic sector.

Lack of systematic and reliable statistical information is a major problem for analysis and informed policy-making in the region. This paper reviews available statistical information on the size of the sector, in particular relating to areas under certified organic production and export values. It pays special attention to the current status of implementation of legislation concerning organic guarantee systems, and provides examples of ongoing initiatives to support the development of the sector and reduce certification costs. In addition, it adds a regional perspective to some of the solutions suggested in part I of this chapter concerning harmonization and equivalence. Finally, it provides some recommendations for government policies, private sector initiatives and regional cooperation.

B. Organic agriculture in the region

Several factors have contributed to the development of organic agriculture in Central America, particularly since the mid-1980s (Amador, 2001; *Organic Standard*, 2001), including:

- Support to small farmers by international donors and NGOs through technical cooperation projects;
- Efforts of farming families who have traditionally produced without synthetic chemical inputs; and
- Demand for organic agricultural products in international markets and the possibility of obtaining price premiums.

The studies carried out under the project list a range of additional factors that have continued to generate interest in organic agriculture in the region, such as: depressed prices of traditional agricultural commodities, availability of land suitable for organic agriculture, the need to develop agricultural areas that currently face difficulties in finding market outlets, the desire to incorporate small growers into organized production and to improve the standards of living of the rural population, the need to prevent degradation of agricultural land and recover soil fertility, the potential of organic agriculture to contribute to conservation policies,⁴ and efforts to diversify exports and enhance the quality of exported products (Chaves, 2005).

Donors and NGOs continue to play a key role in supporting organic agriculture in Central America and the Caribbean. Nevertheless, some progress has been made in developing national

policies that support organic agriculture. Efforts by governments to create national guarantee systems and supporting institutions further promote the development of organic production and export of organic agricultural products. Costa Rica is currently the only country in the region that is included in the EU's "third-country list" of countries with organic agriculture standards recognized by the EU as being equivalent to its own. Uncertainty surrounding the future of the EU import regime for products originating in countries that are not on the list has induced other countries in the region to accelerate their efforts to create national organic standards with a view to seeking inclusion in the EU list.⁵

1. Organic production

Estimates of the area under certified organic production in the countries in the region vary considerably, from around 83,000 hectares (ha) to around 165,000 ha, depending largely on data from Nicaragua and the Dominican Republic (table 1). According to Willer and Yusseffi (2005), in Nicaragua the area under certified organic production or in the process of conversion is about 10,750 ha. In the National Strategy for the Promotion of Organic Production in Nicaragua (Ministerio Agropecuario y Forestal, et. al., 2005), however, it is estimated that there was already an area of 54,721 ha under certified organic production or in the process of conversion in 2002-2003 (of which 13,867 ha was taken up by the livestock sector⁶). Similarly, the Coordinadora de Certificadoras Orgánicas (CCO) in the Dominican Republic estimates that the area under organic production in the Dominican Republic is several times higher than that mentioned in the study by Willer and Yusseffi (2005) cited in part I of this chapter. In Honduras, almost 8,000 ha have been registered with the Department of Organic Agriculture as being under certified organic production. In Costa Rica in 2004, 10,682 ha were registered as certified organic with Gerencia Técnica en Acreditación y Registro en Agricultura Orgánica (the Technical Department for Accreditation and Registration in Organic Agriculture). In all, the area under certified organic production is small. However, compared to other countries in Latin America and the Caribbean, this area as a proportion of the total area used for agricultural production is relatively high: around 4 per cent in the Dominican Republic and around 2 per cent in Costa Rica. In Nicaragua it is only 0.87 per cent. However the area dedicated to the production of organic products for export represents 10 per cent of the total area dedicated to export crops.

The organic sector in the countries in the region consists largely of small producers. In Costa Rica, for example, large companies dominate the production and export of conventional bananas, while it is largely small producers that grow organic bananas (Chaves, 2004). In the Dominican Republic, almost all of the approximately 16,800 (certified and uncertified) organic farmers are small producers.⁷ According to the above-mentioned study by IFAD (2003), small farmers cultivate around 80 per cent of the total organic area in the Dominican Republic, compared to 50 per cent in Costa Rica and 60 per cent in Guatemala. In Cuba, 104 cooperatives, bringing together around 800 producers, 200 independent producers and 9 State farms, supply Cuba's exports of organic orange and grapefruit juice (Revilla Alcazar, 2004).

Although most producers are aware of the environmental and social benefits of organic agriculture, the greatest incentive to shift to certified organic production is increased long-term profitability and the expectation of receiving price premiums. Part I of this chapter provides ample information on price premiums, in particular in developed-country markets. For the countries in the region, it is important to analyse current and possible future price premiums for products of export interest to them. A recent study on trading opportunities for non-traditional exports from El Salvador found premiums in the United States and Europe of 20–40 per cent for organic pineapple, approximately 30 per cent for organic papaya, 5 to 50 per cent for organic cashew, 10–15 per cent for sesame and sesame seed oil, and more than 50 per cent for spices (Ministry of Agriculture and Livestock (MAG), El Salvador, the Sustainable Markets Intelligence Centre (CIMS) and the Inter-American Institute for Cooperation on Agriculture (IICA), 2005)

The price premiums producers and exporters receive for organic products vary considerably depending on market developments. According to CIMS (2004), producers of certified organic

Table 1. Area under certified organic production or in the process of conversion

Country	Area (ha)	No. of farmers	Principal export products
Costa Rica	10 682 ^a /13 967	6 000	Bananas (principally for baby food and dried), cocoa, coffee, blackberries, raw sugar, mangoes, pineapples, orange juice (including concentrated) and passion fruit.
Cuba	10 445/17 245 ^b		Orange and grapefruit juice, sugar
Dominican Republic	22 151/45 090 ^c	8 953	Banana, cocoa beans, coffee, mangoes
El Salvador	4 900/7 105 ^d	1 000	Coffee, cashew nuts, sesame
Guatemala	14 746	2 500	Coffee, macadamia nuts, honey, cardamom, cashew nuts
Honduras	1 769/7 856 ^e	3 000 ^f	Coffee
Nicaragua	10 750 /54 721 ^g	6 390	Coffee, cashew nuts, honey and soya beans
Panama	5 111		Cocoa beans
Total	83 077/159 754		

Sources: Area under organic production: Willer and Yusseffi (2005), unless indicated otherwise (see notes below).

Number of producers: Costa Rica: Eco-Lógica; Dominican Republic: CCO (see note c to this table) and García, 2002.

Principal export products: UNCTAD, based on several studies.

^a Echeverria (2005), personal communication.

^b Cuba: This includes some 6,800 ha of certified organic production of coffee, coconuts and mangoes. (Cueto, personal communication)

^c This covers areas certified by BCS Öko-Garantie GmbH, Germany, the Institute for Market Ecology, Switzerland, SKAL, the Netherlands and Suolo e Salute, Italy, against R.D. 820, UE 2092/91, National Organic Programme (United States) and the Japanese Agricultural Standard of Organic Agricultural Products. It includes some 30,900 hectares under organic cocoa production and almost 4,000 ha under organic banana production. The CCO also lists 5,341 ha as certified, but not under production, thus indicating a total certified area of 50,431 ha.

^d GTZ, 2005

^e Department of Organic Agriculture (Sandra Elvir, personal communication, 2005).

^f A total of 1,116 organic producers are registered with the Department of Organic Agriculture (Department for Organic Agriculture, personal communication, September 2005).

^g MAGFOR, et. al. 2005.

coffee (as distinct from conventional coffee produced in the same regions) received price premiums that varied between 14 and 122 per cent, with an average premium of 39 per cent, for the 2003/04 harvest. Although price premiums for organic coffee and bananas have fallen in recent years, continued opportunities exist for organic coffee that obtains additional certifications, such as Fairtrade, or is reputed for its high quality. The premium for double-certified (organic and Fairtrade) coffee varied between 72 and 144 per cent, or an average of 108 per cent (CIMS, 2004). With regard to cocoa, the average price of high-quality cocoa at the New York Stock Exchange has been around \$1,500 per tonne in recent years (2000–2004), subject to fluctuations. The average international price of Fairtrade cocoa has been at least \$1,700 per tonne plus an additional \$200 for Fairtrade cocoa certified also as organic. Domestic producers in Nicaragua capture a significant price premium. Members of the cooperative, Cacaonica, for example, are reported to receive high prices.⁸

The case studies carried out under the DFID-funded project show premiums that vary considerably from one country to another. Revilla Alcazar (2004) mentions that exports of Cuban organic fruit juice are profitable despite high certification costs, and that producers receive the prices the market is paying for organic juice even before the process of conversion to certified organic production is fully completed. According to Chaves (2004), organic banana producers in Costa Rica receive a premium, but recently have been dissatisfied with its level and have looked for alternative market outlets. She further observes that although Costa Rica's tubers sector (e.g. *malanga, ñame*) has the right conditions to shift to organic production for export to ethnic markets in the United States, in this case price premiums are not expected. This is because the specific consumers do not perceive a benefit from organic products and therefore are not willing to pay a higher price. Interestingly, another study (International Trade Centre of UNCTAD/WTO, 2002) notes that demand in the United States for certain ethnic organic products offers important business opportunities for some developing countries.

In addition to certified organic areas, it is likely that much larger areas in the countries in the region could be classified as uncertified organic. Where producers cannot afford conventional fertilizers and agrochemicals, they are engaging in de facto organic production even though they have no formal controls in place and lack certification. Uncertified organic agriculture can make an important contribution to food security and play an important role in domestic markets for organic agricultural products. It can also result in healthier products for domestic consumers in particular since pesticides (which are poorly managed in several countries in the region) are not used. However, price premiums for such products are limited or non-existent, although in some countries that lack regulations for marketing organic agricultural products, they may be sold with a self-claimed organic label.

Cuba's urban agriculture is often cited as an example of the important contribution of uncertified organic agriculture to food security. Regardless of whether or not it is considered a form of uncertified organic agriculture, it made an important contribution to alleviating Cuba's food shortages in the early 1990s, in particular through the production of fruit and vegetables (see box 2). One key element of urban agricultural policy in Cuba has been to encourage the cultivation of idle land in and around Havana and other cities by (a) creating "*organoponicos*": raised beds filled with a mixture of compost and manure-rich soil and often built on artificial surfaces, normally in areas with infertile soils; (b) bringing fertile land currently lying fallow under food production, either through State-owned farms producing for the market or "*autoconsumos*" (i.e. gardens and small farms belonging to and producing food for workers); and (c) cultivating the patios and yards next to people's houses (Reynolds Wolfe, 2004). Another innovative element of urban agriculture is the "*huerto intensivo*" (intensive garden, consisting of raised beds with a high ratio of compost to soil and run either through a State institution or by private individuals), a system that employs intensive gardening methods to maximize yield in small areas. By the end of 2002, the goal of providing every settlement of over 15 houses with its own food production capacity – whether through *organoponics*, group gardens or individual plots – had essentially been met, and over 18,000 hectares were being cultivated in and around cities (Koont, 2004).

According to Reynolds Wolfe (2004), urban agriculture alone (not counting small gardens and individual farms) provides 215 grams of vegetables per day per person throughout Cuba (i.e. more than 70 per cent of the 300 grams recommended by the FAO as the daily minimum intake). According to Koont (2004), by mid-2000, sales of vegetables and fresh herbs nation-wide had reached a level of 469 grams per day per capita, well above the FAO recommended amount. By March 2003, Havana province was producing 943 grams per day per capita (Koont, 2004). The Cuban Government has played an important role in this process. For example, the State supplies organic inputs (primarily compost) through a series of urban agricultural stores, as well as extension services (see also box 2).

2. Exports of certified organic produce

A large proportion of organic produce in the region is exported, principally to the EU, the United States and, to a lesser extent, Japan. However, in general, reliable information on the value or volume of organic exports is difficult to obtain. The Centre for Export and Investment of the Dominican Republic produces detailed statistics on organic exports. Nicaragua's National Strategy for Organic Agriculture includes an ambitious effort to generate comprehensive statistics, including on exports. Some other countries are also trying to improve data collection. In El Salvador, the Centro de Trámites para la Exportación (CENTREX, or Centre for Export Procedures) has registered organic exports separately from conventional products for several years and the Government is currently implementing a new system of registration of all organic producers and exporters (Angel, 2004). Nicaragua's CENTREX started to differentiate between registration of organic and conventional coffee from early 2003 (López López, 2004). In Honduras, organic producers and others involved in the production, processing or sale of organic products were required to register with the Department of Organic Agriculture of the National Animal and Plant Health Service by December 2004 to facilitate the collection of information (Suazo, 2004). As for Costa Rica, the need to improve data on exports of organic products was expressed in the context of the process leading to its inclusion in the EU third-country list (see box 3). Some of the data provided here are based on information obtained from certification bodies or contained in consultancy reports.

Some institutions working at the regional level are also seeking to improve data on trade in organic and other environmental and/or socially preferable products. CIMS⁹ is a leader in this field and in market intelligence, having undertaken a series of studies on the market for organic and sustainable products. Similarly, the Servicio de Información Mesoamericano sobre Agricultura Sostenible (SIMAS, or Mesoamerican Information Service on Sustainable Agriculture) provides useful online information and analysis. Nonetheless, improving statistical information on production and exports remains a major challenge.

Available data shows that among the countries in the region, the Dominican Republic is by far the largest exporter of organic agricultural products. The value of its organic exports increased from \$20.9 million in 2000 to \$34 million in 2002 and \$29.3 million in 2003 (exports of fresh bananas reached \$19.5 million and those of cocoa beans \$9 million, representing 66 per cent and 30 per cent, respectively, of the value of its total organic exports).¹⁰ Box 1 explores the reasons for the country's success.

In Costa Rica, estimates of the value of organic agricultural exports in 2003 ranged from \$4 million (*El Nuevo Herald*, 2004) to \$10 million and domestic sales amounted to \$1.5 million in 2003 (*La Prensa Libre de Costa Rica*, 2005).¹¹

The National Strategy for the Promotion of Organic production in Nicaragua estimated the value of exports of organic products at \$8.6 million in 2002-2003 (MAGFOR et. al., 2005), representing 2 per cent of the country's total exports of agricultural products. Coffee was by far the leading export (81.6 per cent), followed by tobacco (5.5 per cent), cashew nuts (5.2 per cent), honey (4.1 per cent), cacao (2 per cent) and soya (1.5 per cent).

There are no official data on the value of organic exports from Guatemala. However, the Asociación Gremial de Exportadores de Productos No Tradicionales (AGEXPRONT, Association of Exporters of Non-Traditional Products) estimates that the value of certified organic exports (largely coffee) may have reached some \$9 million in 2002 and is likely to have further increased since then (Eduardo Calderón of AGEXPRONT, 2005, personal communication). More recent estimates by AGEXPRONT put the value of 2004 exports of specialty coffees at \$15 million and of "ecological products" at \$9 million. Both categories include certified organic products (primarily coffee), but also other (i.e. non-organic) products.

Box 1. Dominican Republic: a success story in exporting organic products

An ITC/FAO study (2001) found that the initial phase of organic production in the Dominican Republic was supported mainly by private foundations and the Government. However, the subsequent growth of the industry was market-driven. The following are some of the main factors responsible for the country's successful exports of organic products:

- Favourable growing conditions, few threats of disease (from black sigatoka in the case of bananas) and a tradition of low use of inputs in agriculture (ITC/FAO, 2001);
- Initiatives undertaken to address key certification issues (also discussed in this chapter);
- A strong relationship between farmers' associations and production and marketing firms, with contracts that cover not only marketing but also the provision of technical assistance and credit (IFAD, 2003);
- Addressing the implications of the erosion of trade preferences, in particular for sugar and bananas. For example, the crisis in the sugar sector (falling prices and limited quotas) led COOPCANA (a cooperative grouping 12,000 families) to convert half of its sugar production into certified organic products (3,000 tonnes in 1999) (Scialabba, 2000);
- A Government campaign to develop organic production nationally, focusing on farmer training and technical assistance;
- Training and research promoted by the Department for Agricultural Extension and Training, with support from the Japanese International Cooperation Agency. There are also well-established NGOs supporting research and extension activities (ITC/FAO, 2001).
- Ample availability of locally produced organic fertilizers and pesticides (Rib-Bejarán, 2005)
- Support provided by producer organizations, such as the Asociación Dominicana de Productores de Banano) the Confederación Nacional de Cacaocultores de la Republica Dominicana and the Comisión Dominicana de Café (Rib-Bejarán, 2005).
- The country is well suited for organic cocoa cultivation, which requires shade. Certified processing plants are available in the country. Five exporters, of which the producer cooperative CONACADO is by far the largest, supply approximately half the world market (Koekoek, 2003).

Cuba has been successful in increasing its exports of organic citrus fruit juices to the Swiss market; their value was amounted to around \$1 million in 2004 (Jorge Cueto, personal communication). That country's experience is further analysed in box 2.

Organic coffee is of particular interest to most countries in the region. Central American countries are exploring options to combine organic certification with the production of both high-quality specialty and commercial grades of coffee (including Fairtrade, ethical, *Utz kapeh* and bird-friendly coffees). Guatemala is the largest producer and exporter. According to the Consejo Salvadoreño del Café (Salvadoran Coffee Council), the value of organic coffee exports from El Salvador reached \$1.5 million in 2003/04 (including certified organic coffee sold as Fairtrade or sustainable coffee), which represented around 1 per cent of the value of total coffee exports and 9 per cent of the exports of specialty coffees (including coffee certified by the Rainforest Alliance). However, in 2004/05, the value of organic coffee exports fell to \$1.2 million, in line with the overall decline in coffee exports. The value of El Salvador's other organic exports is still small. In 2003, its exports of organic sesame and cashew nuts amounted to \$556,000 and \$154,000 respectively. In each of these two cases, approximately 20 per cent of the area of production was certified organic (Angel, 2004).

A further aspect that should be taken into account is that in Central American and Caribbean countries production and commercialization of organic agricultural products, particularly coffee, cocoa and bananas, often take place in the context of other projects aimed at promoting fair trade or sustainable agriculture. Fairtrade projects may be particularly helpful during the process of conversion to organic agriculture since a good proportion of Fairtrade products, particularly coffee, also tend to be certified as organic. Moreover, Fairtrade producer organizations are also a vehicle for the marketing of organic products.

Box 2. Organic agriculture in Cuba

In sharp contrast with the experience of Central America, in Cuba the Government has played a decisive role in promoting organic agriculture. Following the collapse of trade with the former Soviet bloc in 1990, imports of pesticides dropped by more than 60 per cent and of fertilizers by 77 per cent. The Ministry of Agriculture and the Cuban Association of Organic Agriculture took far-reaching steps to promote organic agricultural systems and establish research programmes for food self-sufficiency. For fruit and vegetables this was done through organic management that depended heavily on locally produced bio-fertilizers and bio-pesticides (Scialabba, 2000). The transformation of the Cuban agricultural sector in the 1990s is often considered the most widespread conversion to organic agriculture of any country (Funes-Monzote, 2001).

Key elements included the promotion of organic agriculture and forestry in vacant municipal, State and private lands, recycling of all "green waste" material into compost, and the creation of a variety of markets for local produce. Two basic innovations have been the adoption of (i) agro-ecological techniques in the countryside, and (ii) organically-based urban agriculture.

Cuba's agricultural transformation has included the substitution of imports by technology. According to Koont (2004), "Cuba has become a gigantic laboratory for farming without petroleum and petroleum derivatives. From pest control to fertilization and soil preparation, chemistry is out and biology is in." The Crop Protection Institute operates over 220 centres that provide cheap and plentiful beneficial insects and micro-organisms that attack plant pests. Hundreds of centres produce one million tons of natural compost per year to improve poor quality urban and rural soil. The Ministry of Agriculture has been supporting this process with a network of extension agencies and supply stores.

While the results have been impressive, they are not uniformly positive. For example, animal-sourced protein production (beef, pork, eggs and milk) has lagged behind. Some observers have noted that agro-ecological techniques have allowed Cuba to move past its agricultural crisis, but that labour shortages may be a limiting factor to large-scale, agro-ecological production in the long run. On the other hand, if Cuba's products were to be certified as organic, they could be exported to niche markets. The organic agricultural sector is already generating foreign exchange earnings. In addition, the Ministry of Agriculture has had some success in its efforts to increase the quality and reliability of food delivery to tourist hotels, but the results remain well below potential.

A Cuban case study (Revilla Alcazar, 2004) analyses progress in exporting certified organic sugar and fruit juices. Four Unidad Básica de Producción Cooperativa (UBPCs, Basic Units for Cooperative Production) and a State-owned farm produce organic raw sugar, which is processed by the sugar company, Carlos Baliño. The International Sugar Company, Compañía Azucarera Internacional SA, exports both conventional and certified organic sugar. Organic fruit juices (orange and grapefruit) are more important than organic sugar in terms of certified areas under cultivation, exports and employment. Apart from UBPCs, cooperatives for credit and services and cooperatives for agricultural and livestock production, there are a large number of individual producers of organic fruit. The Group of Fruit Enterprises of the Ministry of Agriculture processes its products into fruit juices which are exported by Comercial Cítricos Caribe, which is part of the Group. Cuba's ability to find technology solutions to its problems has been an important factor in its success.

The Central American-Dominican Republic Free Trade Agreement with the United States (CAFTA-DR) may have implications for exports of certain products, whether organic or conventional.¹² Nicaragua, for example, will enjoy a sizeable tariff rate quota (TRQ) for beef in the United States market, which may provide an incentive for its future exports of organic beef¹³. Central America and the Dominican Republic will enjoy duty-free access to the United States market for several fruits and vegetables, which would enhance the competitiveness of both organic and conventional products, provided that SPS and quality requirements can be met. One of the provisions of the Agreement explicitly refers to organic agricultural products. Under the CAFTA-DR, Costa Rica successfully negotiated additional access to the United States market through a TRQ of 2,000 tonnes of organic sugar (as part of the United States specialty sugar TRQ). How-

ever, most products currently exported as organic (as well as conventional), including coffee, cashew nuts and bananas, will experience no change in market-access conditions because these products already benefit from duty-free entry into the United States market.

C. Challenges

Part I of this chapter already lists several constraints on organic agriculture in developing countries. Some of the most frequently mentioned ones in the Central American case studies are:

- Insufficient legal frameworks in some countries;
- Absence of clear development policies for the organic sector in most countries;
- Poor organization of the sector, in particular insufficient progress in creating associations of small producers;
- Exports are relatively recent and are not yet sufficiently dynamic;
- Lack of any significant domestic demand;
- Lack of information on external markets;
- High certification costs, although these have been reduced in some countries;
- Insufficient government support to the promotion of organic agriculture;
- Lack of special credit lines for organic agriculture; and
- The need for specialized knowledge about organic agriculture during the transition period, as well as during full organic production, because of the higher risk of plagues and diseases.

National policies in support of the organic agricultural sector are required to address these challenges. Key elements include: the creation of a legal framework, organization, production, certification, research, information and commercialization (Roettger, 2005). This section reviews the current status and progress made in the region concerning: (a) the development and implementation of organic guarantee systems, including regulations, the designation of competent authorities for inspection, accreditation and the approval of certification bodies; and (b) policies aimed at promoting the development of the organic agricultural sector, including organizing producers (in particular the creation of associations of small producers), and initiatives aimed at reducing certification costs (particularly for small producers), and promoting research, information and marketing.

National councils for organic agriculture and national organic movements play a role in preparing, guiding and supporting the implementation of policies and legislation as well as in promoting an institutional framework capable of promoting the development of the sector. In Guatemala, for example, the Comisión Nacional de Agricultura Ecológica (National Commission for Ecological Agriculture) a multi-stakeholder entity of representatives of the public and private sectors, as well as academic institutions, has broad responsibilities in the field of standards and in the elaboration of policy proposals for the development of organic agriculture (Soto de Pontaza, 2004). Honduras has an independent National Committee for Organic Agriculture under the presidency of The National Animal and Plant Health Service. The Dominican Republic recently created the Consejo Nacional de Agricultura Orgánica (National Council for Organic Agriculture), and El Salvador has created the Comisión Nacional de Agricultura Orgánica (National Commission for Organic Agriculture). However, different departments tend to be responsible for legislation and inspection on the one hand and organic sector development issues on the other (although both may be within the ministries of agriculture). In Costa Rica, for example, two departments have been created within the Ministry of Agriculture and Livestock: the Technical Department for Accreditation and Registration in Organic Agriculture for inspection and the National Programme for Organic Agriculture for promotion.

1. Organic guarantee systems

The Annex shows the status of organic guarantee systems in the region as of August 2005. Costa Rica, Guatemala¹⁴ and Honduras have completed their national legislation (at least for organic

plant products), designated competent authorities for inspection and put in place systems for the accreditation of certification bodies. Other countries in the region are still developing their national systems, although they do have pertinent regulations in place, except for Cuba (Alonso Villalón, 2005).

In Nicaragua, the Ministry of Development, Industry and Commerce and the Nicaraguan Institute for Agricultural and Livestock Technology, with technical assistance from the Inter-American Institute for Agricultural Cooperation, have been promoting a national standard (Norma Técnica Obligatoria Nicaragüense de Agricultura Ecológica), using the Costa Rican and EU regulations as a reference. It has also issued the Norma Técnica Obligatoria Nicaragüense en Producción Animal Ecológica.

In August 2004, El Salvador issued the Reglamento para la Producción, Procesamiento y Certificación de Productos Orgánicos (Regulation for the Production, Processing and Certification of Organic Products). Among other things, this calls for the creation of a national commission for organic agriculture and the registration of certification bodies, organic production units, those involved in commercialization, exporters and importers. The Regulation on the National System for Sanitary and Phytosanitary Accreditation will establish the conditions under which national entities can be accredited to carry out inspection and certification.

Panama has established a legal framework for organic agriculture, but according to Vergara de Brugiatti (2004), its concepts are not fully compatible with international mechanisms for conformity assessment, and are not equivalent to the organic guarantee systems of the EU and the United States. She adds, however, that the National Accreditation Council recently initiated joint activities with the Ministries of Agricultural Development and Health with a view to applying existing accreditation mechanisms in Panama to food inspection systems. This will create favourable conditions for the creation of adequate accreditation in the area of organic agriculture and for making the necessary adjustments in Panama's legislation.

In the Dominican Republic, attempts to be included in the EU third-country list have been accompanied by the creation of the Consejo Nacional de Agricultura Orgánica (National Council for Organic Agriculture), el Programa Nacional para Agricultura Organica and the establishment of the Oficina Nacional de Control de Agricultura Orgánica (in the Ministry of Agriculture) as the competent authority for registration and inspection. So far, the country has depended on certification by foreign certification bodies, accredited by foreign accreditation bodies. Currently, the competent authority is working on the registration of all operators in the organic sector, as per the EU requirements for inclusion in the third-country list.

Cuba is still in the process of preparing national regulations for organic agriculture. A Technical Committee has been established to prepare a draft standard. The National Standards Office now proposes to establish a standard based on the EU standard (Revilla Alcazar, 2004).

Guatemala, Honduras and the Dominican Republic have formally requested to be included in the EU's third-country list under Article 11.1 of Regulation (EEC) 1992/91.

2. Systems and institutions to promote the development of the organic sector

Countries in the region have made uneven progress in designing and implementing policies for the promotion of organic agriculture. In several countries, national organic councils and national organic agricultural movements have played an important role in this process. One successful example is the Movimiento de Agricultura Orgánica Costarricense (Costa Rican Organic Agricultural Movement), which has brought together producer associations, civil society organizations, universities, the Government and providers of technical cooperation (such as GTZ and IICA) to elaborate a national strategy to promote organic agriculture. In Nicaragua, the National Strategy

for the Promotion of Organic Production seeks an integrated approach to organic agricultural development, supported by the generation of reliable information (MAGFOR, et. al. 2005).

The public agricultural sector has also become more actively involved in the promotion of organic agriculture. For example, in Costa Rica, the Programa Nacional de Agricultura Orgánica (National Organic Agriculture Programme), launched in 1995 with support from the IICA, promotes development within both the public and private sectors, by:

- Conducting awareness-raising activities for farmers, technicians and consumers;
- Providing specialized information services to facilitate decision-making processes;
- Promoting training and capacity-building activities for farmers, technicians and consumers;
- Supporting and giving orientation to organic agricultural research, through the Programas de Investigación y Transferencia de Tecnología Agropecuaria en Producción Orgánica (Research and Transfer of Agricultural and Livestock Technology Programmes in Organic Agriculture) or PITTA-PO programmes;
- Facilitating joint initiatives and coordination between public and private organizations in support of organic agriculture; and
- Helping to identify domestic and international market opportunities.

As mentioned in box 2, Cuba has taken several initiatives in support of organic agriculture, although further steps are needed to support certified organic agriculture for the export market. Guatemala also has advanced significantly in organizing support activities, although primarily through the private sector and NGOs. Box 1 analyses the case of the Dominican Republic. In the other countries studied, government support has been limited. It is interesting to compare the experiences of the Dominican Republic and Costa Rica. Costa Rica's legislation relating to organic agriculture began more than a decade ago, but it has not seen the same growth in certified areas as the Dominican Republic, which only recently enacted legislation. This is probably because the Dominican Republic has been more active in supporting organic producers with technical and marketing assistance, while in Costa Rica a more effective support programme was not put in place until 1999 (Echeverría, 2002). Progress in some countries could be attributed to assistance to organic agriculture from their public and/or private sectors, rather than to their legal frameworks, perhaps because of the important role of private international certification bodies in helping them gain access to the EU market for organic products.

Organization

In general, organic producers in Central America need to be better organized. This requires strengthening producer associations and institutions aimed at promoting the marketing of organic products. IFAD (2003) points out that producer associations play a major role in promoting the adoption of organic agriculture by small farmers in several ways: (a) by achieving economies of scale in managing volumes and marketing; (b) training and the adoption of technologies; (c) reducing certification costs and managing internal control systems; and (d) mobilizing support from government agencies and NGOs. The large majority of Nicaragua's 6,390 organic producers are grouped into 90 associations, which reflects the good organizational capacity of the sector (MAGFOR et. al., 2005). An example of a producers' association is the Asociación de Organizaciones de Productoras y Productores Orgánicos de Nicaragua (Association of Organic Producers Organizations of Nicaragua) created in 2005.

The case studies carried out under the UNCTAD/FIELD project analyse some examples of progress in strengthening associations of small organic producers. In Costa Rica, for example, four associations in the province of Talamanca bring together more than 7,000 families dedicated to (certified and uncertified) organic farming. While small producers generally do not directly engage in export activities, the Asociación de Pequeños Productores de Talamanca (Association of Small Producers of Talamanca), through a pilot project, has started exporting small quantities of organic bananas. A promising initiative in Talamanca is the creation of the Comisión Coordinadora

para la Comercialización de Banano Fresco (Coordinating Commission for the Marketing of Fresh Bananas) that brings together some 2,000 producers (Chaves, 2004). The Asociación de Productores Agroindustriales Orgánicos de El Salvador (APRAINORES, Association of Organic Agro-industrial Producers of El Salvador) aims to support the organization of those involved in the organic production of cashew nuts. Small growers have managed to create a society entitled Sistema Agroindustrial de Marañón Orgánico (SAMO, Agro-industrial System for Organic Cashew) to undertake quality control, Hazard Analysis Critical Control Point (HACCP), and traceability and to ensure that, apart from requirements for organic certification, other requirements in external markets are also met (Angel, 2004). In Honduras, around 1,000 producers of different organic products created the Asociación Hondureña de Productores Orgánicos Limitada (APROHL, Honduran Association of Organic Producers Limited), which became legally established in May 2004. In addition, some 67 cooperatives group together more than 1,200 small coffee growers that produce certified coffee, generally on farms of less than 5 hectares (Suazo, 2004). In Panama, the cooperative, Servicio Múltiple de Cacao Bocatoreña, brings together 2,500 small producers dispersed over an area of approximately 6,000 hectares of cocoa in Bocas del Toro province, and some 100 small producers work together in the agro-forestry project, Ngöbe-Buglé (Vergara de Brugiatti, 2004).

In Nicaragua, a private-public partnership between private sector cocoa producers and donors was created in 2002 to support the production and commercialization of high-quality organic cocoa from the Biosfera Bosawas Reserve. Foreign partners include the German chocolate manufacturer, Ritter Sport, and GTZ. Organic agriculture plays an important role in a strategy to help reactivate Nicaragua's cocoa sector. In 2004, producers, the Government, various institutions, traders and some donors created the Grupo Cacao (Cocoa Group), and cocoa became one of the priority products in the National Development Plan. The target for the period 2005–2009 is to increase cocoa production to 2000 tonnes per year, 50 per cent of which will be organic (Dilger, personal communication, 2005).

However, more efforts are needed to reach out to organic producers. In Costa Rica, for example, the Corporación Bananera Nacional (CORBANA),¹⁵ and other industry associations have not effectively included the organic sector, and there are hardly any links between organic and conventional banana producers (Chaves, 2004; Sergio Laprade, CORBANA coordinator for environmental protection, personal communication).

Production

One of the key challenges facing Central America is to ensure a larger and more stable supply of organic products as well as to move into more value-added products. Organic markets increasingly require sufficient quantities, a high quality and stable commercial relations. Domestic measures and those aimed at facilitating intraregional trade may help to secure commercially viable volumes of exports. There should also be increased efforts to inform associations of producers and exporters of technical and food-safety requirements in external markets, and train them to meet such requirements. One particularly promising trend in the region is the promotion of cooperation through supply chains, from small producer organizations to exporters and importers. The private sector can play a key role in promoting production and marketing of organic products.

As mentioned earlier, the sector needs to enhance its capacity to respond to fast-growing international demand and changing market characteristics. This concerns in particular the growing participation of institutional buyers in organic markets. While this trend may help to sustain long-term growth of organic markets, it also could result in declining price premiums and more stringent requirements in terms of quality and sufficient and stable supply. A recent study on bananas and coffee argues that strong growth of the market for sustainable food products and larger volumes have the effect of moving organic production from a niche market to the mainstream. Consequently, many food companies that before had been working only with conventional food prod-

ucts have entered the organic food market. The entry of major food companies, often via the acquisition of traditional, but small, organic companies, has led also to a change in the organic markets' business philosophy, by placing a greater emphasis on business and profit-making (Kilian et al., 2005). Giovannucci (2003) also analyses the shift of organic agriculture from production for niche markets towards the mainstream, and suggests some implications for growers.

Research and development, and training

A well-organized organic agricultural sector should also provide incentives for training, research and technological development. In Costa Rica, for example, the objective of the PITTA-PO is to coordinate the activities of public and private institutions and donors in the areas of research and transfer of technology in order to meet the needs of the productive sector. In Honduras in 2003, more than 600 producers of fruit, vegetables and coffee were trained in aspects such as the regulation of organic agriculture and the competitive advantages and disadvantages of such agriculture. Similarly, in Cuba R&D and training have played a key role in the development of organic agriculture.

Marketing

The UNCTAD/FIELD case studies have emphasized the need for marketing intelligence concerning supply and demand for relevant organic products – those already in production and other viable products – as well as for greater government support. Progress made in some countries could be replicated in others. Public sector institutions in Costa Rica that promote the commercialization of organic agricultural products (among others) include Promotora de Comercio Exterior, the foreign trade promotion body of the Ministry of External Commerce and the National Production Council.

Private sector organizations, such as producer and exporter associations and NGOs, also play an increasingly important role in some countries. In Guatemala, a number of producers and exporters of organic coffee and other products (such as macadamia nuts, honey, cardamom and cashew nuts) are organized under the Subcomisión de Productos Ecológicos (Sub-Commission of Ecological Products) of AGEXPRONT, created in 1995. The strategy of AGEXPRONT and its Comisión de Cafés Diferenciados (Commission for Specialty Coffees) has been to disseminate opportunities generated by niche markets to (potential) producers and exporters. Other organizations, such as the Federación de Cooperativas Agrícolas de Productores de Café de Guatemala (FEDECOCAGUA, Federation of Agricultural Cooperatives of Coffee Producers of Guatemala), an umbrella organization for producer cooperatives, take a similar approach for their members.¹⁶ The experience of the Dominican Republic illustrates the importance of production and marketing companies working closely with organic producers.

Information

The UNCTAD/FIELD case studies have also highlighted the need to improve information flows. The first step in disseminating information to organic producers is to have a reliable list of these producers. A thorough registration system is therefore essential, and in most countries such a system is in place or in development. Second, aside from advice on production technologies, the most strategic type of information is on market opportunities. The studies by CIMS, mentioned earlier, are an interesting contribution, but additional efforts are needed.

Removing biases against and creating incentives for organic agriculture

In Part I of this chapter, Twarog has highlighted the existence of certain biases against the organic agricultural sector and the need for specific incentives. Some of the case studies show that the organic sector has often been marginalized from overall agricultural development policies and, in

some cases, also from sector-specific associations of (largely conventional) producers (e.g. Costa Rican banana producers). There is a need to incorporate organic agriculture into agricultural development policies and policies aimed at promoting exports of non-traditional agricultural products. El Salvador, for example, has included certain specialty coffees – as well as organic coffee – in its non-traditional products that are eligible for fiscal incentives for export¹⁷. All coffee had initially been excluded from the programme. The need for specific credit facilities for small organic producers, in particular during the conversion period, has also been recognized.

3. Certification

High certification costs and the multitude of certification requirements remain issues of concern. According to IFAD (2003), one of the main problems with certification is that the bulk of the work and expenses come precisely during the transitional period when farmers are least able to cope with it. Some progress has nevertheless been made in reducing certification costs. In El Salvador, for example, such costs have been reduced by around 30 per cent by using regional agents rather than international agents, although the regional agents represent the same international certification bodies.¹⁸

Chaves (2004) has noted that the certification fees charged by different national and international certification bodies operating in Costa Rica vary between \$130 and \$425 per day for field inspection, and between \$250 and \$500 per year for follow-up and documentation. Two certification bodies charge a commission of 0.025 per cent and 0.5 per cent respectively of the value of the sales of products certified by the certification body in question.¹⁹ Three of the certification bodies recover other expenditures from applicants, per invoice.

In the case of the Dominican Republic, Rib-Bejaran (2005) has found that BCS ÖKO-Garantie charges each farm the following amounts for certification for the domestic and international markets respectively

Several other avenues are available to reduce certification costs, in particular for small producers. These include:

- *Group certification and the creation of internal control systems.* Since small growers play an important role in organic agriculture in the region, group certification may be the only viable option for certification. The aim is to reduce the costs of external inspection by creating internal control systems. For example, organic sesame producers who are members of a cooperative in El Salvador are certified as a group, which has greatly reduced their costs. Apart from inspection costs, group certification also reduces other costs.²⁰
- *Donor assistance.* In El Salvador, for example, the NGO, Cooperative League of the United States of America, subsidized certification costs during the initial years of the organic movement (Angel, 2004). The Cámara Agropecuaria y Agroindustrial de El Salvador (Chamber for Agriculture, Livestock and Agro-industry), with IDB funding, previously had a programme to finance up to 60 per cent of initial certification costs, which benefited in particular coffee producers. A project by the United States Agency for International Development covers up to 70 per cent of certification costs, depending on the size of the beneficiary producers. A programme of the Fundación Salvadoreña para Investigaciones del Café (Salvadoran Foundation for Coffee Research), which is funded by Lutheran World

Market/farm size	Small	Medium	Large
Domestic	\$75–\$100	\$200–\$400	\$400–\$800
International	\$300–\$500	\$600–\$1 600	\$1 000–\$5 000

Action, covers up to 100 per cent of the certification costs of two cooperatives and three community groups of small coffee producers in El Salvador. And in Costa Rica, the Humanist Institute for Cooperation with Developing Countries of the Netherlands pays, through Eco-Lógica, up to 50–75 per cent of the cost of certification of small organic producers.

- *Cost-sharing with customers.* Ideally, the cost of certification is recovered with the sale of the organic product, through the price premium paid by the final consumer. However, some buyers may be willing to implicitly share part of the certification cost.
- *Training of local inspectors and personnel.* In Cuba, a Swiss certification body, Bio Inspecta, carries out certification of citrus fruit juices exported to the Swiss market. The Cuban Instituto de Investigaciones en Fruticultura Tropical (Institute for Research on Tropical Fruit Production) carries out local inspection. The institute employs six inspectors who have been approved by Bio Inspecta, and they receive additional training when experts from the international certification body visit the country for final inspection (Revilla Alcazar, 2004). In the Dominican Republic, BCS ÖKO-Garantie (Germany), which carries out around 90 per cent of the certifications in the country, has established a national office with qualified personnel to undertake certification activities (Rib-Bejaran, 2005).
- *The creation of a national certification system.* Despite the Dominican Republic's success in organic exports, it has been working on a national certification programme in response to the demands of small producers, who lack the resources to use international certification bodies (Rib-Bejaran, 2005). A national system can also be beneficial for development of the local market for organic products by providing credible, low-cost certification. The Fundación para la Cooperación y el Desarrollo Comunal para El Salvador (Foundation for Cooperation and Community Development for El Salvador) has expressed an interest in becoming accredited as a national certification body.
- *Enhancing the role of national and regional certification bodies.* National certification bodies play an important role in reducing certification costs, as do regional bodies such as Biolatina.²¹
Enhancing transparency and competition. Producers should carefully compare the costs of certification and weigh the advantages and disadvantages of using specific certification bodies. Regulations concerning organic products can enhance transparency by obliging certification bodies to publish tariff structures.²² In general, such information is available on the Internet.
- *International accreditation of national or regional certification bodies.* The National Organic Programme (NOP) of the United States Department of Agriculture has accredited some certification bodies with headquarters in Central American countries, such as Eco-Lógica in Costa Rica and Mayacert in Guatemala.

4. Harmonization and equivalence

The benefits of harmonization and equivalence are analysed in part I of this chapter. Until recently, efforts in Central American countries have focused on establishing equivalence with EU standards. As mentioned earlier, Costa Rica was added to the EU “third-country list” in 2003 (box 3), and the Dominican Republic, Guatemala and Honduras have made formal requests to be included in that list under Article 11.1 of Regulation (EEC) 1992/91, while El Salvador and Nicaragua have yet to begin the formal process for inclusion.

Regional cooperation

Regional cooperation on organic standards can bring many benefits. In 2002, the Organismo Internacional Regional de Sanidad Agropecuaria (International Regional Organization for Plant and Animal Health) published a draft Regional Directive for the Production, Processing, Labeling and Commercialization of Organic Products to assist its member States (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama) in developing harmonized regulations for organic agriculture, promoting regional trade and complying with requirements of

Box 3. Costa Rica's inclusion in the EU third-country list

In February 1999, Costa Rica submitted a request to be included on the EU equivalence list of third countries, and submitted documentation on its production rules and inspection system. An inspection team visiting the country from 6 to 10 November 2000 concluded that the minimum requirements for organic farming laid down in the Costa Rican legislation were, in general, equivalent to Council Regulation 2092/91. However, it recommended that the Costa Rican authorities take appropriate measures to address certain inadequacies in the inspection system. In response, the competent authorities in Costa Rica decided to strengthen the Gerencia Técnica en Acreditación y Registro en Agricultura Orgánica (Technical Department for Accreditation and Registration in Organic Agriculture), increase the frequency of monitoring visits to the inspection bodies to comply with the EN 45011/ISO 65 standard, amend the organic farming regulation to adapt it to organized producer groups and receive updated lists of certified groups from the inspection bodies, address issues of parallel (organic and conventional) production, and improve data on organic exports.

Costa Rica was included in the third-country list in March 2003 for the usual period of three years (i.e. until 30 June 2006, to be extended subject to review). This has simplified the process of importing Costa Rican products into the EU and has also more or less automatically facilitated access to the Swiss market. It has also contributed to reducing certification costs. Furthermore, it is expected to facilitate the possible negotiation of future equivalence agreements with other countries, such as Canada, Japan and the United States (Valverde, 2003). These benefits are of considerable importance to further the development of organic agriculture in the country. Yet the process has taken more than three years, involving significant costs. According to Chaves (2004), adjustments made to gain access to the EU third-country list may also have had some drawbacks: increased cost of obtaining an organic label may have produced some adverse effects on domestic sales, and more complex documentation and registration requirements may have discouraged some producers from seeking certification, resulting in their selling their products in traditional markets that have less stringent requirements. Moreover, there is a perception that more stringent requirements favour larger producers.

Some European companies buying organic products from Costa Rica still require certification by European agencies, arguing that those agencies are better known to consumers. For example, Gerber (a United States-based food company specializing in baby foods), which buys organic bananas, continues to require certification by Ecocert and BioSuisse.

international markets. However, it has not been possible to issue a regional directive with a binding character; in practice the organization's members have developed their own regulations, although Costa Rican legislation is frequently used as a reference.

Nevertheless, regional harmonization efforts continue. The first regional meeting of competent authorities in organic agriculture was held in San Pedro Sula, Honduras, in October 2004, with the support of the GTZ Programme for Social and Environmental Standards.²³ The meeting resulted in the creation of the Comisión Centroamericana de Autoridades Competentes en Agricultura Orgánica (CCACAO, Central American Commission of Competent Authorities in Organic Agriculture), now called the Comisión Centroamericana, Panama, Republica Dominicana y Caribe de Autoridades Competentes en Agricultura Orgánica. However, the Commission is not an official entity created through an intergovernmental agreement. At a second meeting held in Santo Domingo, Dominican Republic, 11–16 April 2005 with the support of GTZ and IICA,²⁴ it was decided, among other things, to carry out a comparative analysis of the legislation concerning organic agriculture in the different countries and to continue work on a harmonized procedures manual for the competent authorities in charge of the control of organic agriculture.²⁵ The Commission launched some conceptual work on issues such as minimum requirements for certification bodies and for internal control systems as well as the promotion of organic agriculture. The countries are also exploring coordination and cooperation in the context of their discussions with the EU and their participation in international institutions dealing with issues of organic agriculture.

D. Conclusions and recommendations

The experience of Central America, Cuba and the Dominican Republic indicates that organic agriculture can indeed provide many economic, social and environmental benefits. The UNCTAD/FIELD case studies and other research provide several examples of such benefits, but they also highlight obstacles that need to be overcome to allow the region to more fully exploit the potential offered by organic and other forms of sustainable agriculture. Low volumes of production are often cited as a major constraint. Further development of the organic agricultural sector needs clearer government policies in some countries, along with regional cooperation in promoting greater harmonization of legislation and control.

The National Strategy for the Promotion of Organic Production in Nicaragua provides an interesting proposal for the development of the organic agricultural sector (MAGFOR et al., 2005), which may provide useful elements for other developing countries that still need to develop their own strategies. First, it calls for the strengthening of institutions based on three interrelated elements: (a) an entity responsible for promotion, (b) an entity responsible for inspection and the implementation of a legal framework, and (c) the establishment or consolidation of a well-organized and proactive organic movement to facilitate the implementation and monitoring of a strategy for the development of the organic sector. Second, it calls for strategic policies relating to areas such as technological development, access to external markets, the development of local markets, incentives and financing, education and capacity building, and information. Third, it calls for differentiated policies, where relevant, for various geographical areas.

More information and analysis is needed to enable informed policy decisions concerning the organic agricultural sector. A better understanding of the potential of the sector may help convince government institutions other than the ministries of agriculture to adopt proactive policies.

The creation of the CCACAO is a potentially important step in promoting regional harmonization of standards that may bring benefits, in particular to countries that still have to complete the setting up of their national organic guarantee systems. It may also strengthen cooperation and coordination among countries in the region in the context of their efforts to be included in the EU third-country list and in international discussions on harmonization and equivalence. However, the CCACAO is not an official entity resulting from an agreement between governments; rather, it is the result of project-based activity supported by GTZ, and now needs to be confirmed as an official entity. Greater efforts should be made at the national and regional levels to strengthen institutions and policies aimed at promoting organic agriculture, including through the strengthening of associations of small producers and through policies aimed at reducing certification costs, and promoting research, information and marketing.

Based on the results of studies carried out under the DFID-funded UNCTAD/FIELD project and discussions at a regional workshop held in San José, Costa Rica (30 and 31 March 2005), a number of recommendations are made. For practical reasons they are grouped as recommendations for action at national and regional levels as well as recommendations for further project implementation. Implementation of recommendations at the national level, however, would have to take into account relevant developments at the regional and multilateral levels. Similarly, certain recommendations at the regional level assume that appropriate action will also be undertaken at the national level.

National level

Countries in the region need to strengthen alliances between the public and private sectors to (a) create or strengthen organic guarantee systems based on appropriate legislation and inspection; and (b) create an institutional framework to support the long-term development of the organic agricultural sector. National commissions for organic agriculture and proactive national organic

agricultural movements should play a key role in guiding, accompanying and supporting the implementation of policies and legislation, as well as in creating an institutional framework capable of promoting the development of the sector.

Organic guarantee systems

Countries which have not already done so should:

- Create or complete national control and inspection systems, based on commonly accepted international IFOAM or Codex standards;
- Develop the necessary scientific and technical knowledge and management capabilities; and
- Assess the potential benefits of inclusion in the EU third-country list.

Certification

- Promote the training and enhancement of national experts in certification and internal control. These experts could be employed by national and international certification bodies operating in the region as well as within the framework of technical assistance and training programmes. It is also important to promote the establishment of national certification bodies and encourage international certification bodies to employ national representatives;
- Assess the options for reducing certification costs. Assess how market opening measures and the strengthening of control systems of each country can facilitate the operation of a larger number of certification bodies, as increased competition would create pressure to reduce certification costs;
- Promote producer organizations. Group certification may be the most viable and affordable way to obtain certification, in particular in the short term. Producer organizations will have to implement schemes and procedures for internal controls, as well as provide economies of scale and facilitate marketing; and
- Explore, through cooperative efforts of various institutions, options for facilitating financing and special credit lines to support producers, in particular smallholders, during the conversion period.

Systems and institutions to promote the development of the organic sector

- Create or strengthen institutions for the promotion of the sector; and
- Support national organic movements.

Markets and supply

- Consolidate and support associations of organic producers and strengthen organic segments of agricultural producer organizations;
- Assess options to promote domestic markets for organic products, taking into account food security considerations;
- Carry out studies on supply and demand for relevant organic products, both those currently in production and other viable alternatives;
- Seek to secure a larger and more stable supply of organic products, in particular by organizing producers;
- Strengthen links between supply and demand through B2B and PPP strategies and enhance cooperation through the supply chain;
- Develop national market information systems for product groups;
- Government support;
- Incorporate organic production in policies aimed at supporting the national agricultural sector, including through subsidies and other forms of assistance, while ensuring consistency with WTO rules; and
- Promote exports of organic products, for example by supporting the participation of producers and exporters in international trade fairs.

Regional level

- Support initiatives (by national Governments and donors) aimed at creating and institutionalizing a regional entity to promote harmonization and mutual recognition of national organic agricultural systems in the Central American and Caribbean region;
- Carry out an assessment of the current status of organic agriculture and national promotion policies in different countries in the region with a view to identifying strategies for regional policies to promote the development of organic agriculture;
- Explore regional cooperation to assist countries that have already requested inclusion in the EC third-country list in meeting the relevant requirements;
- Promote regional cooperation to achieve commercially viable volumes for export; and
- Promote information exchange relating to organic markets.

In the context of the UNCTAD project

- Promote a dialogue between Central American and other Latin American countries to facilitate the effective participation of countries in the region in multilateral discussions on issues of harmonization and equivalence;
- Prepare, in cooperation with relevant institutions, a feasibility study to improve statistics on production and export of organic products;
- Promote, in cooperation with relevant institutions, workshops to disseminate the results of the UNCTAD/FIELD project relating to organic production, market requirements and strategies to support the development and competitiveness of the organic agricultural sector; and
- Explore, in cooperation with GTZ and other interested institutions, options for continued support for facilitating implementation of relevant recommendations resulting from the UNCTAD/FIELD project.

ANNEX

ORGANIC GUARANTEE SYSTEMS IN THE REGION

Costa Rica

Legislation: Costa Rica adopted a series of laws in the mid-1990s. Environmental Law No. 7554 of 1995 designates the Ministerio de Agricultura y Ganadería (MAG, Ministry of Agriculture and Livestock) as the agency in charge of drafting and implementing policies concerning organic agriculture, creating norms and procedures, supervising certification bodies and promoting research and dissemination of technologies. It requires organic products to be certified by a national or international certification body registered in Costa Rica. Other legislation includes the Phytosanitary Protection Law No. 7664 and the Organic Agriculture Regulation Decree No. 29782 of 2001 (which modifies Decrees No. 25834 of 1997 and 29067 of 2000).

Competent authority: The Gerencia Técnica en Acreditación y Registro en Agricultura Orgánica (Technical Department for Accreditation and Registration in Organic Agriculture) functions within the Directorate of Plant Protection of the MAG.

Certification bodies: The MAG has accredited the following certification bodies:

National and regional:

- Eco-Lógica;
- Asociación Instituto Mesoamericano para la Certificación de Productos Orgánicos y Procesados.

International:

- OCIA International (United States);
- BCS OKO Garantie International (Germany);
- Ecocert International (France/Germany); and
- Skal International (Netherlands).

Cuba

National legislation: Cuba is still in the process of preparing a national regulation for organic agriculture.

Dominican Republic

National legislation: Regulación de Agricultura Orgánica was approved in 2003 through *Decreto* 820-03.

Competent authority: Oficina Nacional de Control de Agricultura Orgánica (National Office for the Control of Organic Agriculture) en el Departamento de Agricultura Orgánica (DAO) in the Ministry of Agriculture).

Certification bodies: The Department for Organic Agriculture has not yet approved certification bodies.

El Salvador

National legislation: The Regulation for the Production, Processing and Certification of Organic Products was officially adopted in 2004.

Competent authority: The Dirección General de Sanidad Vegetal y Animal (DGSVA, General

Directorate for Plant and Animal Health) in the MAG is responsible for registration.

Certification bodies: The Reglamento del Sistema Nacional de Acreditaciones en Materia Sanitaria y Fitosanitaria (Regulation of the National System for Sanitary and Phytosanitary Accreditation) establishes the conditions under which national entities can be accredited to carry out inspection and certification of organic products.

Guatemala

National legislation: Ministerial Agreement 1317-2002, which became effective in January 2003, regulates the implementation of organic agricultural production systems (*Sistemas de Producción de Agricultura Orgánica*) and designates the competent authority.

Competent authority: The Ministerio de Agricultura, Ganadería y Alimentación, MAGA (Ministry of Agriculture, Livestock and Food, Unidad de Normas y Regulaciones (Norms and Regulations Unit).

Certification bodies: The Oficina Guatemalteca de Acreditación (OGA, Guatemala Accreditation Office) has established an accreditation programme, but has not yet accredited any national, regional or international certification body.

Honduras

National legislation: Reglamento para la Agricultura Orgánica Acuerdo 146-03 (Regulation for Organic Agriculture 146-03) entered into force in 2003 (derogating Reglamento para la Agricultura Orgánica 135-02 of 2002).

Competent authority: The Servicio Nacional de Sanidad Agropecuaria (National Animal and Plant Health Service) in the Ministry of Agriculture and Livestock (MAG), through the Directorate for Organic Agriculture, is the entity responsible for the registration of operators and inspection.

Certification bodies: The MAG has formally recognized five certification bodies: Oregon Tild (United States), Biolatina (regional), BCS (Germany), OCIA (United States) and Mayacert (Guatemala).

Nicaragua

National legislation: Norma Técnica Obligatoria Nicaragüense de Agricultura Ecológica NTON 11010-03 (Compulsory Nicaraguan Technical Standard for Ecological Agriculture).

Competent authority: The Dirección General de Protección y Sanidad Agropecuaria (Directorate General for the Protection of Plant and Animal Health) in the Ministerio Agropecuario y Forestal, MAGFOR (Ministry of Agriculture, Livestock and Forestry), through the Unidad de Registro y Control de la Agricultura Ecológica, is responsible for registration and control of the production, inspection, certification, imports and exports of organic and other ecological products in accordance with the legislation in force (agricultura_ecologica@dgpsa.gob.ni).

Certification bodies: Oficina Nacional de Acreditación (National Accreditation Office) and the Unidad de Registro y Control de la Agricultura Ecológica are responsible for accreditation and registration. Regional and international certification bodies operating in Nicaragua, such as BIOLATINA and OCIA have so far not been requested to seek accreditation in Nicaragua (López López, 2004).

Panama

National legislation: The legal framework was established by Law 8 of January 2002 and regulated by Executive Decree 146 of August 2004.

Competent authority: *Ministerio de Desarrollo Agropecuario* The Ministry of Agricultural and Livestock Development.

Certification bodies: Consejo Nacional de Acreditación (National Accreditation Council) in the Ministerio de Comercio e Industrias (Ministry of Commerce and Industry) is responsible for accreditation.

NOTES

- ¹ Hereafter this group of countries is referred to as “the region”.
- ² As part of this project, the UNCTAD secretariat commissioned case studies and supported policy dialogues to examine opportunities for expanding the production and export of organic agricultural products, as well as to identify appropriate policies at national, regional and multilateral levels to support such efforts. The results of these activities were discussed at a regional workshop organized jointly by the Ministry of External Trade (COMEX) of Costa Rica and the UNCTAD secretariat in San José on 30 and 31 March 2005.
- ³ In Nicaragua, for example, a significant proportion of certified organic areas is underutilized. In many cases, an entire farm or production system is certified as organic. However, in practice only products offered for export may fetch a price premium, whereas products sold in domestic markets do not as there are only incipient domestic markets for organic products (MAGFOR et al., 2005).
- ⁴ For the contribution of organic agriculture to conservation, see Giovannucci, et al., 2000. In Honduras, many organic coffee farms are located in areas of ecological interest (protected areas) (Hernández, 2005).
- ⁵ The expiry date of the regime for imports from countries that are not on the third-country list has only recently been modified from 31 December 2005 to 31 December 2006.
- ⁶ This amounts to organic pastureland of 43 cattle farms. Calves of cows that have grazed on certified organic grassland eventually become eligible to be certified as organic beef, provided that relevant standards are met. Some 8,200 heads of cattle are in process of conversion. The National Cattle Raising Commission of Nicaragua (CONAGAN), the Cooperative League of the United States of America (CLUSA) and IICA have signed a collaborative agreement with MAGFOR, the Rural Development Institute and the secretariat of the Presidency to promote the production and export of organic meat (MAGFOR et al., 2005; USAID/Nicaragua, 2005).
- ⁷ There are about 12,500 organic cocoa producers in the Dominican Republic. The majority of them are members of the Confederación Nacional de Cacaocultores de la Republica Dominicana (CONACADO). Some 86 per cent of organic cocoa farms are smaller than 10 ha (Rib-Bejaran, 2005).
- ⁸ For more details, see Rosses M (2005).
- ⁹ At the Latin American Centre for Competitiveness and Sustainable Development (CLACDS) located at the Instituto Centroamericano de Administración de Empresas in San José, Costa Rica.
- ¹⁰ Data provided by the Centre for Export and Investment of the Dominican Republic (CEI-RD), 2005.
- ¹¹ Available on the SIMAS website at: www.simas.org.ni/noticia.php?idnoticia=1303.
- ¹² The United States Congress approved this FTA in July 2005 and the President signed it into law the following month. It has also been approved by the legislatures of El Salvador, Guatemala and Honduras. However, approval is pending in Costa Rica, the Dominican Republic and Nicaragua. The agreement shall enter into force on a date to be agreed upon by the parties.
- ¹³ For information on TRQs under the CAFTA-DR, see the CAFTA-Agriculture Factsheet issued by the Office of the U.S. Trade Representative, February 2004, available at: www.ustr.gov/assets/Document_Library/Fact_Sheets/2004/asset_upload_file793_5328.pdf.
- ¹⁴ Ken Commins, International Organic Accreditation Service (IOAS), lists Guatemala among “countries with finalized regulations not yet fully implemented”, meaning that “detailed standards and rules have been finalised, but the authority has not yet approved certification bodies or carried out certifications under the law” (cited in UNCTAD/FAO/IFOAM, 2005). However, the competent authority in Guatemala has started the registration of certification bodies. (MAGA, personal communication).
- ¹⁵ An institution created in 1971 with a mission to serve the national producers; the Government, State banks and all banana producers contribute equal parts to its capital.
- ¹⁶ FEDECOCAGUA was established in 1969; of its approximately 20,000 members, 70 per cent belong to indigenous groups from various regions of Guatemala. Most coffee is sold as Fairtrade coffee, but only a small proportion is certified organic.
- ¹⁷ For more information, see the 1999 reforms of the Export Reactivation Law (Ley de Reactivación de las Exportaciones), Legislative Decree No. 460, March 15, 1990, available at: www.camarasal.com/leyespdf/LEY%20DE%20REACTIVACION%20DE%20LAS%20EXPORTACIONES.pdf.
- ¹⁸ Similarly, in Mexico, producer groups have been able to get their smallholder coffee producers certified for as little as \$50 each (Daniele Giovannucci, private communication, 30 August 2005).
- ¹⁹ One of these certification bodies has recently discontinued its minimum commission of \$500, thus favouring small producers.
- ²⁰ For example, Eco-Lógica estimates that its annual certification cost for documentation and follow-up for a small farmer trying to get certified alone would be some 120,000 Costa Rican colones (\$250), but 25,000 colones (\$52) per farm for groups of between 5 and 25 producers, and 1,500 colones (slightly over \$3) per farm for groups of between 500 and 2,000 producers.
- ²¹ Biolatina specializes in the certification of the production, processing and marketing of ecological products, including organic products. It was established in 1997 as the result of a fusion of four national certification bodies in Bolivia, Colombia, Nicaragua and Peru. Its organic standards are based on the international IFOAM and Codex Alimentarius standards and are equivalent with EU regulation 2092/91, the United States National Organic Program, and the Japanese Agricultural Standards. Biolatina has been accredited by the competent

authorities in the EU through a German certification body and by the United States Department of Agriculture. It has an agreement with International Certification Services, Japan, which facilitates access to the Japanese market.

- ²² In Honduras, for example, the national regulation for organic agriculture (Agreement No 146-03) stipulates that the rates charged by certification bodies should be in the public domain (Article 77).
- ²³ Similarly, the First Andean Encounter of Competent Authorities of Organic Agriculture took place in Lima, Peru, from 24 to 28 May 2004.
- ²⁴ Apart from the members of the Commission (Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama), Haiti, Mexico and Saint Lucia participated as observers. Honduras was elected to coordinate the activities of the Commission in 2005-2006.
- ²⁵ Following a proposal by Guatemala. Other countries have approved and are using the manual (MAGA, personal communication).

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COMMENTARIES

Pedro Cussianovich, Instituto Interamericano de Cooperación para la Agricultura (IICA)

Vossenaar and Angel's analysis, based on extensive literature research and consultations with qualified experts, presents a coherent and accurate picture of the situation with regard to organic agriculture in Central America and two Spanish-speaking Caribbean countries. Apart from describing the main characteristics of OA and the principal benefits derived from organic production, the authors identify common constraints, largely of a structural nature, that impede the growth of the sector. They also present a structured approach to strategies for the development of OA. This is in contrast to many proposals that seek to address problems in specific areas, such as training, production, certification, information, marketing, research and government support, but which often lack an integrated, macro approach. While all of these issues are important and need to be addressed, an accumulation of isolated efforts in specific areas is likely to be insufficient to secure the integrated development of the sector.

The recommendations by Vossenaar and Angel deserve special mention. Several of these imply the need for governments to play a larger role, though this is not explicitly stated. The role of governments in the region has so far has been largely marginal, but they should now become key actors in a new development paradigm for the sector. In this context, there are four concrete proposals that tacitly require greater government participation: (a) the creation of public-private alliances; (b) the formulation of clear policies to support the development of OA; (c) the establishment and strengthening of institutions, both for inspection and promotion; and (d) harmonization and equivalence of regulations.

While Vossenaar and Angel present their recommendations within an overall, integrated structure, two comments can be made. First, all recommendations cannot be implemented simultaneously; it is necessary to establish an order of priorities and appropriate sequencing for their implementation. Second, the recommendations need to be complemented by an overall strategy to ensure that efforts in specific policy areas are well articulated and implemented in a consistent and complementary manner.

The following elements need to be considered in the development and implementation of a comprehensive and coherent strategy:

- The strategy needs to be based on participatory assessment in order to ensure that the realities of the sector are well understood by all concerned, and that it is supported by a visible and well-articulated organic movement. It is also necessary to assess the opportunities and constraints from the perspective of the different actors. A participatory process is particularly important in promoting dialogue with the government in the search for proactive policies and actions;
- It must have both short- and long-term visions that are developed through a participatory process to ensure both that the actors involved in the organic sector adopt ownership of the strategy, and that successive governments have a roadmap for supporting the development of the sector;
- It should contain clear policies and actions for the short, medium and long term that are consistent with the proposed vision and that respond to the challenges to and opportunities for OA in different countries;
- It must be implemented with the help of an institutional framework with responsibilities for: promoting the development of the sector; formulating proposals for programmes and projects; implementation and follow-up of appropriate actions; representing the interests of the sector in the process of taking relevant policy decisions; coordination of interagency activities; representing the sector in relevant forums; and the timely generation of information necessary for informed policy-making.

- The strategy should give priority to the establishment of a regulatory and technical framework for the sector that is equivalent to the organic guarantee systems of the principal importing countries of OA products.
- Such a framework needs to be complemented by a suitable institutional structure that allows producers and other economic agents involved in organic agriculture - through supplying inputs, processing, marketing, inspection, certification or otherwise - to monitor its adequate implementation.

The importance of having a clear strategy for the development of the sector can be illustrated by the issue of low volume of production, which Vossenaar and Angel list as one important constraint facing OA. Although its solution appears simple (increasing production), because of the nature and diversity of elements involved, it needs to be considered in the framework of a national strategy for the sector. A strategy aimed at increasing production requires at least two basic elements: (a) the appropriate combination of policies in a number of areas, such as information, training, legislation, research, technical assistance, finance, incentives, marketing, certification and processing; and (b) complementarities between the activities of public and private institutions to create synergies in promoting the development of the sector. In both cases this can be done effectively only in the framework of a national agenda.

By way of final comment, the analysis by the authors is in line with an important and desirable trend in approaches to the development of the organic sector: i.e., moving away from a micro approach and combining individual specific initiatives into a more integrated and macro-economic approach. However, the sector suffers from a lack of experience in the formulation of strategies which incorporate a range of different actions and actors through appropriate, integrated policies. The major challenge for the organic sector – which for a long time has been focusing on specific issues without much interaction with mainstream government actions – is to structure its proposals taking into account the way in which the key institutions operate.

As mentioned by Vossenaar and Angel, the National Strategy for the Promotion of Organic Production in Nicaragua (MAGFOR et al., 2005) is an example of an effort to formulate an integrated strategy for promoting the development of the organic sector at the national level. The proposed strategy is based on the recognition that organic production represents a viable economic and commercial option for Nicaraguan producers because of growing international markets and favourable conditions for organic production in the country. The strategy includes a vision for the development of organic agricultural production until 2015, based on extensive nationwide consultations. However, since it is not possible to predict and manage all variables involved in OA, priority is given to some strategic variables which are crucial to achieving the short- and long-term development of the sector.

Nicaragua's National Strategy calls for the strengthening of institutions in three interrelated areas: (a) an entity responsible for promotion, (b) an entity responsible for inspection and the implementation of a legal framework, and (c) the establishment of a well-organized and proactive organic movement to facilitate the implementation and monitoring of a strategy for the development of the organic sector. It also calls for strategic policies to promote OA in the short run, in particular in areas such as technological development, access to external markets, the development of local markets, incentives and financing, education and capacity building, and information. Finally, the strategy recognizes the need for differentiated policies for various geographical areas in the country, taking into account differences in agro-ecological, ethnic and other conditions. An important element of the strategy is the promotion of alliances between the public and private sector, complemented by a strong organic agricultural movement.

Vossenaar and Angel provide a good analysis of opportunities and constraints for the development of organic agriculture in the region. In the case of Nicaragua, the National Strategy's assessment of the potential for further development is based on factors such as: (a) the significant number

of farmers that apply production methods similar to organic agriculture; (b) demonstrated capacity to create producer associations; (c) the presence in the country of “economic agents”, including processors, marketing firms and associations, to support the development of the sector; and (d) the fact that many of the almost 6,000 certified farms are not accustomed to growing products sold as certified organic (in fact, the National Strategy indicated that some 75 per cent of certified areas are underexploited, and in some cases such as cocoa and cashew nuts, there is an unexploited potential of 90–95 per cent of certified areas); (e) the diversity of agro-ecological zones available to grow products for which there is demand; (f) the availability of extensive areas of natural grasslands with potential for production and exports of organic meat; and (g) the political interest of many government institutions in the development of the sector.

Major constraints identified in the case of Nicaragua include: (a) the predominant practice of using synthetic chemicals; (b) the absence of an institution for the promotion of the sector; (c) a low degree of articulation of actors involved in organic agriculture; (d) lack of information concerning production and export opportunities; (e) the absence of local markets; (f) the low value-added of organic products grown in Nicaragua; (g) limited finance available for the sector; and (h) lack of incentives.

The National Strategy seeks to exploit potential opportunities and overcome obstacles to the development of organic agriculture in Nicaragua in an integrated manner, as summarized above.

4

Chapter

OVERVIEW OF TECHNICAL COOPERATION/ CAPACITY BUILDING ACTIVITIES, 2004-2005

A. Introduction

This chapter reviews recent activities of UNCTAD's technical cooperation and capacity-building programme on Trade, Environment and Development (TED) covering the period January 2004 to December 2005. It also presents a short overview of recent UNCTAD secretariat publications on TED.

UNCTAD supports developing countries on issues at the interface between trade, environment and development through consensus building, policy analysis, technical cooperation (TC) and capacity building (CB).¹ Activities include monitoring of relevant developments in the international trading system, exchange of national experiences, implementing country projects, undertaking studies and organizing (sub)-regional seminars, national workshops and training on trade and environment issues of key interest to developing countries. The programme exploits potential synergies between TC/CB activities, policy analysis and intergovernmental work (including UNCTAD expert meetings), cross-fertilization between various TC/CB projects, as well as joint initiatives with other international organizations.

More information on each activity can be obtained from the TED website at: www.unctad.org/trade_env, the website of the UNEP-UNCTAD Capacity-Building Task Force (CBTF) on Trade, Environment and Development at: www.unep-unctad.org/cbtf, the website of the BIOTRADE Initiative at: www.biotrade.org, and the climate change website at: www.unctad.org/ghg.

B. Overview of TC/CB activities

The overarching long-term objective of the TED TC/CB programme is to enhance the capacities of developing countries to analyse issues at the interface of trade and environment and address them at the national, regional and international levels in a manner consistent with their development priorities. To achieve this, the more immediate objectives are to assist interested developing countries in:

- Improving policy coordination at the national level between ministries of trade and environment and between governments and other relevant stakeholders;
- Designing national policies to address specific trade and environment issues; and
- Participating effectively in negotiations and discussions on trade and environment in the WTO and other international forums.

In addition, UNCTAD promotes practical mechanisms aimed at addressing specific problems identified in UNCTAD's TC/CB or intergovernmental work. Examples are the UNCTAD/FAO/IFOAM International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF), created in 2003, the Consultative Task Force on Environmental Requirements and Market Access for Developing Countries (CTF), launched in 2004, the UNEP-UNCTAD Capacity-Building Task Force on Trade, Environment and Development (CBTF), launched in 2000, the BioTrade partnerships launched following the World Summit on Sustainable Development in 2002, and the BioFuel Initiative launched in 2005. This chapter also describes recent developments within these initiatives.

To make the best use of available resources, the UNCTAD secretariat has been pursuing a three-pronged approach in balancing the breadth and depth of issues in TED TC/CB activities.² First, in-depth TC/CB activities are being carried out on a limited number of key subjects and in a limited number of countries for greater impact. Second, a wider group of developing-country policy-makers have benefited from (sub)-regional and international workshops and the secretariat's cooperation with other organizations and national governments. Third, information generated for and from TC/CB activities is disseminated as widely as possible through publications, such as the *Trade and Environment Review* and the regularly updated TED website.

Current TED TC/CB activities focus on four priority areas:

- Environmental requirements, export competitiveness and market access (including trading opportunities for environmentally preferable products);
- Trade liberalization in environmental goods and services (EGS);
- Protection and sustainable use of biodiversity (including the BioTrade Initiative) and traditional knowledge; and
- Supporting active participation of developing countries in implementing the Clean Development Mechanism under the Kyoto Protocol as well as enhancing production and trade of developing countries in biofuels.

This chapter first provides an overview of TC/CB activities in each of these areas. It includes both activities carried out by UNCTAD alone and in the context of cooperation with other organisations such as UNEP and the WTO. Finally, it gives brief descriptions of some recent TED publications.

1. Environmental requirements and market access

A large proportion of the TC/CB activities on Trade, Environment and Development focus on the interface of environmental and health requirements, market access/entry and export competitiveness of developing countries. The UNCTAD/FIELD Project on Building Capacity for Improved Policy-Making and Negotiation on Key Trade and Environment Issues, funded by the United Kingdom's Department for International Development (DFID), has promoted sector-specific analysis and (national and subregional) policy dialogues in the period 2003 to 2005.

Box 1. UNCTAD/FIELD project, Building Capacity for Improved Policy-Making and Negotiation on Key Trade and Environment Issues (DFID-II).
www.unctad.org/trade_env/test1/projects/field.htm

This project assists selected developing countries in Asia and Latin America in building national and regional capacities to deal with trade, environment and development. The project has been implemented by UNCTAD, in cooperation with the Foundation for International Environmental Law and Development (FIELD), with financial support from DFID. The project assists beneficiary countries in: (a) effectively participating in the WTO negotiations and discussions on trade and environment and (b) developing long-term policies aimed at promoting sustainable development through trade.

East and South-East Asia

Beneficiary countries: Bangladesh, Cambodia, China, the Philippines, Thailand and Viet Nam.

Thematic issues: environmental requirements, market access and export competitiveness in three sectors: leather and footwear, horticulture, and electrical and electronic goods.

The project has a separate training component for two LDCs (Bangladesh and Cambodia) and Viet Nam.

Central America and the Caribbean

Beneficiary countries: Costa Rica, Cuba, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama.

Thematic issues:
 (i) environmental requirements in key export markets, and market access for agricultural products, including the promotion of trading opportunities for organic products^a.
 (ii) trade liberalization in EGS^b.

^a See chapter 3, part II by Vossenaar and Angel in this Review.

^b Experts from the region and UNCTAD staff prepared an overview article analysing the lessons learned from the project in the area of EGS for the UNCTAD Trade and Environment Review 2003.

Environmental requirements present both challenges and opportunities for developing countries. The need to address capacity and institutional constraints in these countries to enable them to respond to environmental requirements in international markets and to take advantage of new production and export opportunities was acknowledged during the Expert Meeting on Environmental Requirements and International Trade, held in Geneva from 2 to 4 October 2002.³ Following this meeting, UNCTAD, in cooperation with other institutions, launched the Consultative Task Force (CTF) on Environmental Requirements and Market Access for Developing Countries at UNCTAD XI in 2004. The exploratory and early implementation phase of the CTF has benefited from the financial support of the Government of the Netherlands, as well as from synergies with the DFID-funded project.

As outlined in Box 1 above, TC/CB activities of the Asian component of the DFID-funded project have been focusing on environmental requirements, market access and export competitiveness in three sectors. A large number of sector-specific studies with a country focus were prepared. For each sector, national and subregional workshops were held. In addition, national training workshops were held for the horticulture and leather and footwear sectors in Bangladesh, Cambodia and Viet Nam. Besides officials from trade and environment ministries, these meetings involved a large number of other stakeholders, including the private sector, academia and NGOs.

The first chapter of this *Review* (by Hoffmann and Rotherham) builds on the outcomes of studies and policy dialogues on market access issues, in particular those carried out under the Asian component. The results of activities in the electrical and electronics sector are analysed in detail in the second chapter (by Vossenaar, Santucci and Ramungul).

The Central American component of the project has been focusing on selected food products. A regional workshop on Environmental Goods and Services and Market Access held on 27-29 April 2004, in Santo Domingo, Dominican Republic, revealed a strong interest in analysing trading opportunities for organic agricultural products. Some national case studies have focused on environmental requirements and market access as well as on export opportunities for organic agricultural products. In August 2004, a consultative workshop was held in San José, Costa Rica for the consultants carrying out the case studies. The results of the country case studies and a regional synthesis study were discussed at a subregional seminar held in San José on 30 and 31 March 2005. Chapter 3, part II, by Vossenaar and Angel, in this *Review* draws on the outcomes of the studies and policy dialogues on organic agriculture carried out under the Central American component of the DFID-funded project.

CBTF project on promoting production and trading opportunities for organic agricultural products in East Africa

Following on from several related UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development (CBTF) activities, a new CBTF project 'Promoting Production and Trading Opportunities for Organic Agricultural Products in East Africa' commenced in the 2004-2005 period, targeting Kenya, Uganda and the United Republic of Tanzania. The aim of the project is to contribute to sustainable rural development, food security and poverty reduction in the three countries by promoting the production and export of organic agricultural products, and regional cooperation in this sector. Activities include ongoing national and regional multi-stakeholder dialogues among relevant stakeholders; assessment of the current practices and situation regarding organic agriculture (OA) in these countries; identification of elements of a national OA policy and action plan; and exploration of the development of an East African organic standard that could facilitate trade within the region as well as access to overseas markets.

The project preparatory phase (September 2004 to May 2005) involved intensive consultations on the project concept with a wide range of stakeholders in the three countries as well as international experts and partner institutions. The Government focal points and the designated national

institutions in charge of the national integrated assessment studies were also identified. The implementation phase started in June 2005 with a number of national activities such as the formation of national steering committees. The project was launched regionally in October 2005, in Kampala, Uganda. The launch coincided with the first meetings of the project's Regional Steering Committee and Regional Technical Standards Working Group as well as national launching events in Uganda and Tanzania. A number of background papers are being prepared under the project including an overview of the current state of OA in East Africa and opportunities for regional harmonization; what developing country governments can do to promote production and trade in OA; OA and food security in Africa; and export development of organic products from East Africa (jointly with the International Trade Centre (ITC) UNCTAD/WTO). International project partners include IFOAM, ITC, FAO, and Grolink and AgroEco through the "Export Promotion of Organic Products from Africa" (EPOPA) Programme funded by the Swedish International Development Cooperation Agency (SIDA). Project activities were made possible through the generous support provided by the European Commission and SIDA to the CBTF.

Box 2. Main events under CBTF project on organic agriculture in East Africa during the period January 2004 to December 2005

Preparatory phase: September 2004 - May 2005

Nairobi, Kenya 26 September 2004	Consultations with regional standards group (EPOPA project) on proposed project
Nairobi, Kenya 27 September 2004	National multi-stakeholder consultations on proposed project
Dar es Salaam, United Republic of Tanzania 30 September 2004	National multi-stakeholder consultations on proposed project
Kampala, Uganda 5 October 2004	National multi-stakeholder consultations on proposed project
Kampala, Uganda 7 October 2004	CBTF side event at IFOAM Organic Coffee Conference: Consultations on proposed project
May - June 2005	CBTF advisory mission to the three countries

Implementation phase: June 2005 to date

June-August 2005	National Steering Committees convened in the three countries
Geneva 19-23 September 2005	Participation of representatives from the three East African countries in Integrated Assessment and Planning training seminar, and regional meeting
Kampala, Uganda 19 October 2005	Regional Project Launching Workshop
Kampala, Uganda 20 October 2005	1st meeting of the project Regional Steering Committee
Kampala, Uganda 20 October 2005	Ugandan National Integrated Assessment Launching Workshop
Kampala, Uganda 24 October 2005	1st meeting of the Regional Standard Technical Working Group
Dar es Salaam, United Republic of Tanzania 25 October 2005	Tanzanian National Integrated Assessment Launching Workshop

Consultative Task Force on Environmental Requirements and Market Access for Developing Countries (CTF)

www.unctad.org/trade_env/test1/projects/taskforce.htm

The CTF is an open-ended, project-funded multi-stakeholder forum comprising representatives of governments, the private sector, NGOs, international organizations and academia. It aims to assist developing countries in analysing key trends of Environmental and Related Health Requirements (ERHRs) in export markets. It enables the exchange of national experiences on proactive approaches to meeting these ERHRs with a view to maintaining market access, harnessing development gains and safeguarding social welfare.

The CTF was launched at a pre-UNCTAD XI workshop on Environmental Requirements and Market Access for Developing Countries, organized jointly by the UNCTAD secretariat and the National Institute of Metrology, Standardization and Industrial Quality (Inmetro) of Brazil in Rio de Janeiro in June 2004.⁴ Participants, who were from governments, international organizations, the private sector, NGOs and academia, appreciated the particular added value of the CTF in: (a) placing policy and capacity constraint issues in a holistic and development-oriented context; (b) analysing and discussing voluntary environmental requirements of the private sector and NGOs, and thus providing a formal exchange mechanism between these stakeholders and governments; (c) linking the debates in the WTO's Committees on Trade and Environment (CTE) and Technical Barriers to Trade (TBT) with other relevant discussions at both international and national levels; (d) drawing into the discussion key stakeholders normally not involved in WTO debates on the subject; and (e) allowing a regular exchange of information among agencies and initiatives that provide TC/CB in those fields relevant to CTF discussions.

The CTF held its first substantive meeting in Geneva on 5 and 6 November 2004, back-to-back with a session of the WTO TBT Committee. Background documents included: (a) a feasibility study on an Internet-based "portal" that would facilitate access to and link existing international clearing houses, including those run by the private sector and NGOs, concerned with environmental requirements and market access; and (b) a study on transparency practices in the public and private sector in selected developed countries regarding pre-regulation and pre-standard-setting consultations. Discussions focused on two sectors: electrical and electronic equipment, and horticulture. The meeting recommended a number of specific CTF activities, several of which have already been implemented in 2005:

The Centre for the Promotion of Imports from Developing Countries (CBI) in the Netherlands, the FAO secretariat, Inmetro in Brazil and the Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD) in the Philippines have formed a working group to prepare a feasibility study on technical aspects as well as a business plan for the creation of an "Internet portal". The portal is intended to guide users on and facilitate access to existing online information systems of the three institutions and other interested partners that deal with environmental and related health requirements.

A project on environmental requirements and market access for electrical and electronic equipment is being implemented by UNCTAD in cooperation with the secretariat of the Basel Convention, UNESCAP, the UN University and the Sustainable Trade and Innovation Centre (STIC). Its work has been launched using existing extra-budgetary resources. The second Chapter in the *Trade and Environment Review* highlights the key issues in this regard.

A project to assist developing countries in the development of national or subregional codes on good agricultural practices (GAP) for horticultural produce that appropriately reflect national conditions and development priorities and that can be benchmarked to the GAP of the Euro Retailer Produce Working Group (EurepGAP). A study has been prepared by FoodPlus GmbH (the secretariat of EurepGAP), which analyses the concept and implementation of the benchmarking

option as well as the procedural requirements of the benchmarking process. In parallel, for several developing countries in which national codes on GAP are already under development, country case studies have been prepared that review policy and practical issues reflecting national conditions and development priorities in national GAP codes ultimately benchmarked to EurepGAP. The study by FoodPlus GmbH and the country case studies have been discussed in stakeholder dialogues in South-East Asia and South America. A stakeholder consultation for countries in East and Central Africa is planned for early 2006.

International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF)

www.unctad.org/trade_env/test1/projects/ifoam2.htm

UNCTAD work over the past five years has indicated that the plethora of government regulations, private standards and conformity assessment systems in the organic sector is a major barrier to developing country exports of OA products. UNCTAD joined forces with FAO and the International Federation of Organic Agricultural Movements (IFOAM) to launch the International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF) in February 2003. The ITF is an open-ended platform for dialogue between private and public institutions involved in regulatory activities in the organic agriculture (OA) sector. Its objective is to facilitate international trade and access of developing countries to international OA markets. After five meetings in 2003-2005, the ITF has now completed its review of the current situation and agreed upon a long-term strategic goal, whereby international OA trade would be based upon:

- Acceptance of local production standards equivalent to a single international reference standard;
- A mechanism for the judgement of equivalence to the reference standard;
- A common guideline for certification;
- A common international procedure for the assessment of competence of organic certification bodies (i.e. certification requirements).

At its fifth meeting (Hammamet, Tunisia, 5-7 December 2005), ITF discussions centred around five background papers on: equivalence and recognition in the OA regulations; approaches to common regulatory objectives (CROs); feasibility of setting up and maintaining an international database of organic standards and regulations; requirements for certification bodies; and cooperation between certification bodies. The ITF supported the use of organic inspection and evaluation for multiple purposes (accreditation and certification decisions) to reduce duplication and associated costs. The ITF 2006 workplan includes: a review of existing consumer studies as a first step in assessing consumer sensitivity to variations in organic standards; the development of a guidance document for judging equivalency of organic standards; defining CROs; a study on participatory guarantee systems; the development of a draft set of essential certification requirements to be discussed at a workshop; providing guidance to developing countries on ITF subjects; the exploration of an organic multilateral agreement (MLA) in conjunction with the International Accreditors Forum. Implementation of the 2006 workplan is dependent upon funding availability. The work of the ITF to date has been financed through the generous contributions of the Governments of Sweden and Switzerland.

From UNCTAD's perspective, ITF activities can contribute to a better understanding of the practical value and real use of the concepts of harmonization, equivalence and mutual recognition (as enshrined in the TBT and SPS Agreements and the GATT 1994) with the aim of facilitating market access for exports of organic products from developing countries. Lessons learned may also be relevant to other sectors.

Box 3. Main events on environmental requirements and market access during the period January 2004 to December 2005⁵

Manila, Philippines 18-20 February 2004	Subregional workshop on Environmental Requirements and Market Access for Exports of Electrical and Electronic Products from China, the Philippines and Thailand.
Ho Chi Minh City, Viet Nam 30-31 March 2004	National training workshop on Environmental Requirements, Market Access/Entry and Export Competitiveness for Leather and Footwear.
Geneva, Switzerland 27 May 2004	Workshop on Environmental Requirements and Market Access: An Update on Policy and Practice Inside and Outside the WTO, organized by UNCTAD, STIC and IISD.
Rio de Janeiro, Brazil 7-8 June 2004	Pre-UNCTAD XI workshop on Environmental Requirements and Market Access for Developing Countries, organized jointly by the UNCTAD secretariat and the National Institute of Metrology, Standardization and Industrial Quality (Inmetro) of Brazil during the Rio Trade Week.
San José, Costa Rica 17-18 August 2004	Consultative subregional workshop on Environmental Requirements and Market Access in Costa Rica.
Bangkok, Thailand 29 September-1 October 2004	Subregional workshop on Environmental Requirements, Market Access/Entry and Export Competitiveness for the Horticultural Sector in Bangladesh, Cambodia, China, the Philippines, Thailand and Viet Nam.
Dhaka, Bangladesh 4-5 October 2004	National training workshop on Environmental Requirements, Market Access/Entry and Export Competitiveness for the Horticultural Sector.
Brussels, Belgium 28-29 October 2004	Workshop between developing-country experts, the European Commission and European industry on the consultative process and impact assessment related to the proposed EU Chemicals Regulation (REACH). The workshop was jointly organized by UNCTAD and the Foundation for International Environmental Law and Development (FIELD).
Geneva, Switzerland 5 and 6 November 2004	First substantive meeting of the Consultative Task Force on Environmental Requirements and Market Access for Developing Countries (CTF)
Rome, Italy 17-19 November 2004	Third meeting of the UNCTAD-FAO-IFOAM International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF)
Phnom Penh, Cambodia 23-24 November 2004	National policy dialogue on Environmental Requirements, Market Access and Export Competitiveness of Horticultural Products from Cambodia
Manila, Philippines 2-3 December 2004	National policy dialogue on Environmental Requirements, Market Access and Export Competitiveness of Horticultural Products.
Nuremberg, Germany 28 February 2005	Fourth meeting of the UNCTAD-FAO-IFOAM International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF).

San José, Costa Rica 30-31 March 2005	Subregional seminar on Environmental Requirements, Market Access and Export Opportunities for Organic Agricultural Products (Costa Rica, Cuba, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama).
Bangkok, Thailand 25-27 May 2005	UNCTAD-UNESCAP workshop on Exchanging National Experiences Among the Key Exporting Developing Countries: Environmental Requirements and Market Access for Electrical and Electronic Goods (China, Malaysia, the Philippines and Thailand).
Phnom Penh, Cambodia 27-28 October 2005	National Training Workshop on Trade and Environment, focusing on trade aspects of ISO 9000, measures for environmental protection under WTO rules, and labeling for environmental purposes.
Hanoi, Vietnam 3-4 November 2005	National Training Workshop on Environmental Requirements and Market Access: The Case of Horticulture.
Managua, Nicaragua 8-10 November 2005	UNCTAD-FIELD Regional workshop on Trade, Environment and Sustainable Development.
Bangkok, Thailand 25-26 November 2005	UNCTAD-ITD National Workshop on Good Agricultural Practice and Benchmarking to EurepGAP
Manila, the Philippines 29-30 November 2005	Subregional Stakeholder Consultations on EurepGAP: Potential and challenges of EurepGAP in South-East Asia.
Tunis, Tunisia 5-7 December 2005	5th meeting of the UNCTAD/ FAO/ IFOAM International Task Force on Harmonisation and Equivalence in Organic Agriculture (ITF).
Havana, Cuba 6-7 December 2005	National Seminar on Trade, Environment and Development.
Rio de Janeiro, Brazil 18-10 December 2005	UNCTAD/ INMETRO Subregional Stakeholder Consultations on EurepGAP: Opportunities and Challenges for Central and Southern America.

This list excludes the activities carried out under the CBTF project on organic agriculture in East Africa, which are listed in Box 2

2. Environmental goods and services (EGS)

The immediate objectives of TC/CB activities in the area of EGS are:

- To assist beneficiary countries to participate effectively in WTO negotiations;
- To promote regional dialogue and identify national and regional interests in the area of EGS, for example with regard to classification and negotiating objectives; and
- To explore strategies to strengthen national and regional capacities in certain EGS sectors.

In the context of the DFID-funded project, a number of national studies on EGS have been completed, in particular for Cuba, the Dominican Republic, Honduras, Nicaragua and Panama. In the area of environmental goods, several beneficiary countries have expressed an interest in the development of illustrative lists of environmental goods that reflect the national and, where appropriate, regional sustainable development and export interests. Nicaragua has carried out a study on

ethanol and other environmental goods, and Cuba is preparing a study on photovoltaic cells.

The UNCTAD secretariat made a presentation in and submitted a briefing note to the Special Session of the Committee on Trade and Environment (CTESS) of the WTO in October 2004, including on ongoing and planned TC/CB work on EGS, in particular in the area of environmental goods.⁶ In February 2005, the secretariat briefed the CTESS on the outcome of the discussions on renewable energy equipment and biofuels held at the Expert Meeting on New and Dynamic Sectors of International Trade (Geneva, 7-9 February 2005). On both occasions, many WTO members encouraged the UNCTAD secretariat to intensify its assistance provided to developing countries interested in exploring conceptual and practical aspects of the negotiations and their implications for national discussions on EGS. UNCTAD has subsequently provided such assistance by means of two groups of activities:

Firstly, the CBTF facilitated informal consultations among developing countries that have taken an active part in EGS negotiations. The consultations were held with a view to promoting a better understanding of the proposals made to date in the CTESS and exploring negotiating scenarios for both the CTESS and NAMA. Two rounds of consultations were held, in Bangkok (25-26 August 2005) and in Geneva (11 and 14 October 2005). The following countries participated in one or both of the consultations: Bangladesh, Brazil, China, Ecuador, Egypt, India, Indonesia, Kenya, Malaysia and Thailand.

Secondly, at the request of the Governments of Jordan and China, UNCTAD fielded advisory missions to Amman (8-12 May 2005) and Beijing (22-23 August 2005) in order to assist the relevant authorities in dealing with the various policy and technical aspects of the negotiations on

Box 4. Main events on EGS during the period January 2004 to December 2005⁷

Santo Domingo, Dominican Republic 27-29 April 2004	Subregional workshop on EGS, with participants from Costa Rica, Cuba, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama.
Havana, Cuba 2-3 December 2004	National workshop to discuss the results of work on EGS and market access and to make recommendations for national initiatives to follow up on those results.
Lima, Peru 12-13 April 2005	CBTF Workshop on Negotiations on EGS for the Andean Community Countries: Bolivia, Colombia, Ecuador, Peru and Venezuela
Amman, Jordan 8-12 May 2005	CBTF advisory mission on policy and technical aspects of negotiations on environmental goods.
Manila, the Philippines 8-9 June 2005	CBTF National Stakeholder Workshop on the Definition, Criteria, Issues and Identification of Environmental Goods
Tegucigalpa, Honduras 13-15 July 2005	National Workshop on EGS.
Beijing, China 22-23 August 2005	CBTF advisory mission on policy and technical aspects of negotiations on environmental goods.
Bangkok, Thailand 25-26 August 2005	CBTF informal consultations on environmental goods negotiations in CTESS and NAMA.
Geneva, Switzerland 11 and 14 October 2005	CBTF informal consultations on environmental goods negotiations in CTESS and NAMA.

environmental goods. The advisory missions were carried out under the framework of the CBTF, and the advising teams included experts from UNEP and the World Customs Organisation. The missions focused on issues relating to product coverage, negotiating modalities and implementation problems to be handled by customs offices. As a follow-up to the mission, UNCTAD also installed the World Integrated Trade Solutions (WITS) statistical software at the Jordanian Ministry of Industry and Trade, which will provide officers of the Ministry with access to all the major trade and tariff databases.

3. Traditional knowledge

In 2004, UNCTAD's work on traditional knowledge (TK) focused on identifying possible elements of holistic national *sui generis* (one of a kind) systems aimed at preserving, protecting and promoting TK for development, as well as brainstorming on possible approaches at the international level. An international workshop on this subject was held jointly with the Commonwealth Secretariat. The detailed report of this workshop aims to provide policy-makers with a toolkit of options to draw upon when designing holistic national TK policies, as well as some insights on dimensions of international solutions. The four background papers and report of the meeting (UNCTAD/DITC/TED/2005/18) are available on the UNCTAD website: www.unctad.org/trade_env/test1/meetings/tk2.htm.

Box 5. Main event on TK during the period January 2004 to December 2005

Geneva 4-6 February, 2004

UNCTAD-Commonwealth Secretariat Workshop on Elements of National *Sui Generis* Systems for the Preservation, Protection and Promotion of Traditional Knowledge, Innovations and Practices and Options for an International Framework

4. UNEP-UNCTAD Capacity-Building Task Force on Trade, Environment and Development (CBTF)

www.unep-unctad.org/cbtf

The CBTF is a joint initiative of UNEP and UNCTAD, launched at UNCTAD X in Bangkok in 2000. Its overall objective is to help strengthen the capacities of interested developing countries to effectively address trade, environment and development issues, in particular those of national and regional interest.

As described in a special UNCTAD XI issue of the CBTF newsletter prepared on the occasion of the UNCTAD XI Roundtable on Promoting Trade for Sustainable Development (São Paulo, Brazil, 17 June 2004), African countries, LDCs and small island developing states (SIDS)⁸ will be key beneficiaries of CBTF activities.⁹

The current round of CBTF project implementation, which started in mid-2004, focuses on three thematic clusters:

1. Trade liberalization in EGS.
2. Promoting the export and facilitating market access of organic agricultural products from East African countries.
3. The relationship between MEAs and WTO rules.

Details of CBTF activities on EGS and organic agriculture in East Africa can be found above in the relevant sections. Other CBTF activities are listed below.

Box 6. Other CBTF-related events during the period January 2004 to December 2005¹⁰

Sao Paulo, Brazil 17 June 2004	Roundtable on Trade for Sustainable Development
Nairobi, Kenya 19-20 July, 2004	Training Workshop on Integrated Assessment for African Countries
Phnom Penh, Cambodia 5-6 October 2004	National training workshop on Enhancing Policy Co-ordination on Trade and Environment Issues: Implementation of MEAs Containing Trade-Related Measures (Basel Convention, Biosafety Protocol of CBD, CITES, and the Montreal Protocol)
Luanda, Angola 8-10 November 2004	Regional seminar on trade, environment and development for Portuguese-speaking African countries (Angola, Cap Verde, Guinea Bissau, Mozambique and São Tomé)
Mauritius, 11 January 2005	Side event on Trade Liberalization, Environmental Protection and Sustainable Development: - Opportunities and Challenges for SIDS
Manila, Philippines 16-17 June 2005	Workshop on Post-Doha Trade and Environment Issues (back-to-back with WTO Regional Seminar on Trade and Environment for Asian and Pacific Member Countries)
Geneva, Switzerland 6 July 2005	CBTF Briefing on UNEP-UNCTAD Capacity Building Task Force Activities for 2005
Santo Domingo, Dominican Republic 21-22 July 2005	Workshop on Post-Doha Trade and Environment Issues (back-to-back with WTO Regional Seminar on Trade and Environment for Latin American and Caribbean Countries)

5. Support to relevant TC/CB activities of the WTO

The UNCTAD secretariat works closely with the WTO secretariat, including by providing resource persons for WTO TC/CB activities on TED issues. Apart from CBTF/WTO cooperation, in 2004 and 2005 UNCTAD was involved in support for the activities in Box 7.

6. The UNCTAD BioTrade Initiative

www.biotrade.org

In the area of biodiversity, the UNCTAD BioTrade Initiative supports sustainable development through trade and investment in biological resources in line with the three objectives of the Convention on Biological Diversity (CBD).¹¹ It aims at giving concrete expression to the concept of sustainable use of biodiversity, and at helping to reconcile biodiversity conservation with the development aspirations of local communities in biodiversity-rich areas in developing countries. Through the establishment of partnerships with national, regional and international programmes, the Initiative seeks to strengthen the capacity of developing countries to enhance the production of value-added products and services derived from biodiversity for both domestic and international markets.¹²

The main areas of work of the BioTrade Initiative are: 1) to assist developing countries build policy frameworks in support of biotrade through the implementation of National Programmes and to provide technical assistance to these initiatives, 2) to support though Regional programmes

Box 7. Main events in support of WTO TC/CB activities during the period January 2004 to December 2005

Hanoi, Viet Nam 9-12 May 2004	WTO regional workshop on Trade and Environment for Asian and Pacific countries
Geneva, Switzerland 11 October 2004	WTO symposium on EGS
Geneva, Switzerland 15 October 2004	WTO regional workshop on Trade and Environment for African Countries
Geneva, Switzerland 23 February 2005	WTO regional workshop on Trade and Environment for Africa
Manila, Philippines 14-16 June 2005	WTO regional workshop on Trade and Environment for Asian and Pacific countries
Geneva, Switzerland 10-11 October 2005	WTO Symposium on Trade and Sustainable Development
Vienna, Austria 13-15 December 2005	WTO regional workshop on Trade and Environment for Central and Eastern Europe

the implementation of regional strategies and policies in favour of biotrade, 3) to provide inputs to international policy processes especially trade-related aspects of MEAs (e.g. CBD and CITES), and 4) to provide assistance in a cross-cutting manner on areas such as export promotion, sustainable use and investment to complement activities developed in the above-mentioned areas.

BioTrade's strategic areas of work

a) National BioTrade Programmes

In 2005, technical assistance was provided for the formulation of BioTrade Programmes in Brazil, Costa Rica,¹³ Venezuela, and Viet Nam, while the implementation of BioTrade Programmes was supported in Bolivia, Colombia, Ecuador, Peru and Uganda.¹⁴ The latter programmes are financed largely through national and bilateral funding sources. These promote the establishment of policy frameworks that are conducive to the sustainable trade of biotrade products and services, support productive processes along the value chain of selected product groups, and seek to leverage commercial finance for private sector efforts in the area of biotrade.

b) Regional BioTrade Programmes

UNCTAD also assists organisations in the formulation and implementation of Regional BioTrade Programmes. These typically develop regional strategies and policies in favour of biotrade and provide concrete support to their implementation.

In 2005, the Initiative began the preparatory process for a Regional BioTrade Programme for the Amazon region. This programme will be carried out together with the Amazon Cooperation Treaty Organisation (ATCO), which includes the following eight countries: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela.¹⁵ It will complement BioTrade national programmes and other ongoing activities at the national level by undertaking activities that cannot be carried out exclusively at the national level or which are executed in a more efficient and cost-effective way at the regional level.

A regional BioTrade programme for the Andean region already exists. Under the Andean BioTrade Programme, regional coordination meetings have been held contributing to sharing of

experiences, knowledge and visions among the Andean countries. The Andean Community (CAN) and the Andean Development Corporation (CAF) are the main partners in this programme.

c) International policy environment

UNCTAD provides inputs to international processes of policy formulation related to trade and biodiversity, particularly in trade related sections of Multilateral Environmental Agreements (MEAs), in order to support the establishment of an enabling environment for biotrade.

In 2004 and 2005, UNCTAD participated in side-events at the Conference of the Parties of CITES in Bangkok (November 2004) and the meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) of the CBD (Montreal November 2005). The objective of these interventions is to demonstrate the relevance of biotrade as an incentive measure for the sustainable use of biodiversity. Emphasis is put on the role of private sector, particularly developing country SMEs that work with products and services derived from biodiversity that is native to their countries.

d) Cross-cutting BioTrade issues

The UNCTAD BioTrade Facilitation Programme (BTFP) provides assistance on specific issues related to trade and investment in order to improve market access and expand markets for biodiversity goods and services. This includes enhancing understanding of the market, facilitating commercial contacts, and raising awareness among consumers.

In 2004 and 2005, the BTFP has provided assistance to improve the market uptake of biotrade products and services, particularly through export promotion, sustainable use and investment. Activities of the BTFP focused on supporting the value chains of selected biotrade products in developing countries. These products were chosen based on their potential contribution to the sustainable use and conservation of biodiversity. Activities were developed through a network of specialized partners at the national and international levels.¹⁶ Selected product groups include: natural ingredients for the food, cosmetic and pharmaceutical industries, cacao arriba, tropical flowers and foliage, ornamental fish, Amazonian fish, the leather and meat of the Caiman yacaré, and eco-tourism.

In 2005, Bolivia, Brazil, Colombia, Ecuador, Peru, Uganda and Viet Nam received support in the formulation and implementation of strategies for selected value chains. Technical assistance activities were developed to support contacts with importers in EU and USA markets, the improvement of natural resource management, the enhancement of quality and management of exporting SMEs, and the use of distinctive signs for biotrade products like appellation of origin. Over 75 enterprises and trade promotion organizations from seven developing countries have benefited from one or more training activities.

In Southern Africa (Botswana, Malawi, Namibia, South Africa, Zambia and Zimbabwe), BTFP supported PhytoTrade Africa in R&D activities for selected products with the aim of improving product quality and processing technologies.

In order to increase market access, UNCTAD has teamed up with other international organizations to reduce the negative effects of the European Union Novel Food Regulation (NFR)¹⁷ on market access for developing countries. This cooperation resulted in a proposal which suggests simplified stipulations and procedures for importing exotic traditional foods into the EU. This serves the interests of developing countries in alleviating rural poverty without compromising the objective of protecting the health of European consumers. In November 2005, a workshop was organised in Brussels with private sector and governments from both the EU and developing countries.

The BTFP receives financial support from the Governments of the Netherlands and Switzerland.

Box 8. Main BioTrade events during the period January 2004 to December 2005

Bogotá, Colombia 18-20 February 2004	Regional BTFP capacity-building workshop for national BioTrade Programmes in the Andean region on Good Manufacturing Practices, Good Agricultural Practices and Good Conservation Practices for natural ingredients for cosmetics and pharmaceuticals.
Milan, Italy 30 April 2004	Business-to-business (b2b) workshop, aimed at creating joint ventures between exporters in developing countries and European companies in the field of natural ingredients. Organised by the BTFP.
Lima, Peru 24-25 May 2004	Regional workshop on value chain analysis and strategy development, carried out in collaboration with ITC, CBI and the national BioTrade Programmes in the Andean region. Organised by the BTFP.
Lima, Peru 1-3 June 2004	Regional event. In order to promote concrete investment opportunities through venture capital in bio-businesses, UNCTAD BioTrade organized the New Ventures Biodiversity Investor Forum for the Andean-Amazonian region in collaboration with the World Resources Institute (WRI) and the Andean Development Corporation (CAF).
São Paulo, Brazil 12-13 June 2004	Side event at UNCTAD XI: Informal workshop to discuss the formulation process of the Amazon Biotrade Programme, organized in collaboration with the Amazon Cooperation Treaty Organization (ACTO).
La Paz, Bolivia 24, 25 November 2004	Regional workshop on BioTrade Principles and Criteria.
Lima, Peru 4 March 2005	Regional workshop on BioTrade Principles and Criteria
Cartagena, Colombia 21-27 May 2005	Regional workshop on Strengthening Value Chains for Biotrade Products: Lessons Learned, organized by BTFP.
Madrid, Spain 31 October 2005	Meeting between private Sector and BTFP partners to discuss ways and means to better position BioTrade natural ingredients on the EU market.
Madrid Spain, 1 November 2005	Meeting of all BTFP partners on sustainable management plans and b2b approaches.
Lima, Peru 21-22 November 2005	Technical workshop on The use of Geographical Indications and Appellations of Origin to Promote Sustainable Development and BioTrade, organized jointly by ICTSD, SPDA, CAN and UNCTAD BTFP.
Montreal, Canada 29-30 November	UNCTAD BTFP side event on BioTrade: An Incentive Measure for Sustainable Use and Conservation of Biodiversity at a meeting of the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSSTA).
Brussels, Belgium 1 December 2005	Workshop on the Revision of the Novel Food Regulation (NFR): Views and Experiences Regarding Traditional Foods, organized by CBI and UNCTAD BTFP in cooperation with the GTZ, GFU IPGRI.

7. Climate change

Climate change policies have significant implications for trade, investment and development, particularly with the entry into force in 2005 of the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC). In March 2005, the UNCTAD Commission on Trade in Goods and Services, and Commodities recommended that the secretariat assist developing countries to make use of the trade and investment opportunities arising from the Kyoto Protocol, including the Clean Development Mechanism (CDM), as a project-based activity.

The main objective of UNCTAD's work on climate change is to promote developing countries' participation in the carbon market through the use of clean technologies and by bringing together governments, industry and civil society. It supports the establishment of public-private operational entities in developing countries, particularly in LDCs and countries with economies in transition, in order to facilitate investments and maximize the sustainable development benefits of the CDM, one of the "flexibility mechanisms" of the Kyoto Protocol.

The activities related to the implementation of CDM projects support the establishment of projects that best suit each developing country's economic, social and environmental needs and conditions. The programme also conducts research activities on various issues associated with the carbon market, such as the interface of WTO rules and domestic climate policies pursuant to Kyoto Protocol goals. In addition, UNCTAD's Carbon Market Programme,¹⁸ in partnership with the Earth Council in Geneva¹⁹ provides innovative e-learning training opportunities to a global audience on climate change and trade issues, including the use of CDM.

At the Expert Meeting on New and Dynamic Sectors of World Trade (Geneva, 7-9 February 2005), it was recommended that UNCTAD give particular attention to the area of biofuels, "in-

Box 9. Main events on climate change during the period January 2004 to December 2005

United Republic of Tanzania 5 July to 1 September 2004	Capacity-building e-learning course on the CDM, organized by UNCTAD in collaboration with the European Commission, the Government of Norway and the United Nations Framework Convention on Climate Change (UNFCCC) secretariat.
Geneva, Switzerland 16 October 2004	Consultation on potential areas of synergy between trade and Kyoto Protocol rules, jointly organized by UNCTAD, the UNFCCC secretariat and the International Centre for Trade and Sustainable Development (ICTSD).
Buenos Aires, Argentina 14 December 2004	Side event on Trade and Investment Opportunities under the Kyoto Protocol during the 10th Conference of the Parties to the UNFCCC.
Paris, France 20-21 June 2005	Support to Workshop on Assessing the Biofuels Option, which focused on developing new markets. Event organized by the International Energy Agency (IEA), the United Nations Foundation (UNF) and the Government of Brazil.
Montreal, Canada 7 December 2005	High-level side event on Biofuels Initiative: Moving towards a Sustainable Energy Future, organized in partnership with various institutions and relevant initiatives such as the UNF, the G8 Global Bioenergy Partnership, FAO, UNEP-Risoe, and the Global Environment Facility Small Grants Program.

cluding further research, analysis, technical cooperation and consensus building²⁰. Biofuels derived from sustainable agricultural practices have many attributes that might qualify them as environmental goods in the context of the WTO negotiations, and this may provide an opportunity for developing and middle-income countries to build up their export markets.

Against this background, the UNCTAD BioFuels Initiative was launched in June 2005 with initial support from the United Nations Foundation. The Initiative aims to help developing countries make the most of their renewable energy potential, and will assist in building their capacity for production, use and trade in biofuels, and in raising public and private sector awareness of the challenges and opportunities of increased biofuels use. It will also promote ways of generating new investments in biofuels, such as through the CDM.

C. Beneficiary countries of TC/CB activities

In the 2004-2005 period, the following developing countries have directly benefited from TC/CB activities of the TED programme through in-depth country, subregional or regional projects, including expert advice and technical support:

Angola
Argentina
Bangladesh
Bolivia
Brazil
Cambodia
Cape Verde
China
Colombia
Costa Rica
Cuba
Dominican Republic
Ecuador
El Salvador
Ghana
Guatemala
Honduras
India
Jordan
Kenya
Lao People's Democratic Republic
Panama
Peru
Philippines
Mozambique
Nicaragua
Sao Tomé and Príncipe
Thailand
Uganda
United Republic of Tanzania
Uruguay
Venezuela
Viet Nam

In addition, some 70 other developing countries have participated in international workshops, briefings and training courses on TED issues organized by UNCTAD (alone or with partners).

D. Selected publications

This section provides information on selected UNCTAD publications on trade, environment and development issues printed during the period January 2004 to December 2005. In addition to those listed below, a large number of country case studies, briefing notes, workshop reports, documents for intergovernmental meetings and newsletters have been prepared in the context of TC/CB and other activities organized by UNCTAD's Trade, Environment and Development Branch. Most of these are available in the "meetings" and "projects" sections of the Trade, Environment and Development Branch website at: www.unctad.org/trade_env, or on the CBTF and BioTrade websites. The first five publications listed below can be accessed and downloaded from: www.unctad.org/trade_env.

1. Trading opportunities for organic products from developing countries

This report contains a synthesis of studies and discussions on the theme of promoting trade in environmentally preferable products (EPPs); in particular, it focuses on opportunities for trade in organic products. These activities were conducted jointly by UNCTAD and FIELD between June 1999 and April 2001 as part of the DFID-funded project entitled Strengthening Research and Policy-Making Capacity on Trade and Environment in Developing Countries (INT/98/A61). This publication also contains papers prepared by experts from Cuba, Costa Rica, the Philippines and Uganda as well as UNCTAD staff, and makes recommendations for actions at national, regional and multilateral levels and for further capacity-building activities. (UNCTAD/DITC/TED/11).

2. Protecting and promoting traditional knowledge: systems, national experiences and international dimensions

The preservation, protection and promotion of the traditional knowledge (TK), innovations and practices of local and indigenous communities is of key importance, particularly for developing countries. Their rich endowment of TK and biodiversity plays a critical role in their health care, food security, culture, religion, identity, environment, sustainable development and trade. But this valuable asset is at risk in many parts of the world, and there are concerns that this knowledge is being used and claimed by third parties, with few of the benefits being shared with the original TK-holders, and without their prior informed consent. While such concerns have pushed TK high on the international agenda, the best ways of addressing the range of issues related to its preservation, protection, further development and sustainable use are not yet clear.

This book contains a collection of papers prepared in conjunction with an UNCTAD expert meeting. The papers, written by experts from all regions of the world as well as international organizations, address three key issues:

1. What is the role of TK, particularly in the health care and agriculture sectors?
2. Why and how should TK be protected?
3. How can TK best be harnessed for development and trade?

The answers to these questions are evolving as experiences are gained and shared. Moreover, as the types of TK, and related concerns and objectives, are unique to each country and community, solutions must also be tailored to local circumstances. By presenting a wide range of experiences and perspectives on this subject, this book provides the reader with ample food for thought in designing appropriate solutions. (UNCTAD/TED/TED/10).

3. Harmonization and equivalence in organic agriculture

This presents the first results of the International Task Force (IFT) on Harmonization and Equivalence in Organic Agriculture, organized by UNCTAD, FAO and IFOAM. It features four back-

ground papers that describe the current situation in organic regulation and trade. It also offers some models that could serve as potential solutions to international trade challenges that have arisen as a result of the numerous public and private regulations for organic products that have emerged worldwide. (UNCTAD/DITC/TED/2005/4).

4. Analysis of options for implementing disclosure of origin requirements in intellectual property applications

This paper was commissioned by the UNCTAD secretariat as a contribution to its response to the invitation to UNCTAD by the Convention on Biological Diversity (CBD) Conference of the Parties (COP) at its Seventh Meeting (February 2004) to analyse issues relating to implementation of disclosure of origin requirements in the intellectual property (IP) law system. The paper analyses the five topics identified by the CBD COP:

- Options for model provisions on proposed disclosure requirements;
- Options for application-procedure triggers;
- Options for incentive measures for applicants;
- Functioning of disclosure requirements under WIPO treaties; and
- IP issues raised by proposed international certificates of origin.

The analysis is intended to make a thorough, practical, and substantive contribution to discussions on the topics identified above. (UNCTAD/DITC/TED/2005/14).

5. Trade and environment: an important relationship for SIDS

This is the subject of a chapter in a book entitled *Is a Special Treatment of Small Island Developing States Possible?* (UNCTAD/LDC/2004/1, December 2004), which builds on the results of CBTF capacity building workshops for SIDS held during two WTO regional Trade and Environment Seminars: for Pacific Island Countries (Suva, Fiji, on 28 November 2002) and for Caribbean countries (Kingston, Jamaica, on 29 November 2003). The book was prepared on the occasion of the Mauritius International Meeting to Review the Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States (SIDS).

The first part of the book analyses trade and environmental issues covered in the Doha Work Programme and in the Johannesburg Plan of Implementation from the perspective of SIDS. The second part deals with supply side factors. SIDS face serious problems – related to their small size – with regard to export competitiveness, which makes trade preferences and special and differential treatment in the multilateral trading system of vital importance to them. Yet several SIDS are seriously threatened by the phasing out of market access preferences, in particular for sugar and bananas. Because of this, and in order to promote export diversification and sustainable development, SIDS are generally interested in exploring niche markets for value-added products, including EPPs and services. The chapter therefore examines experiences of SIDS in promoting production and exports of organic agricultural products, certified timber and non-timber forest products based on traditional knowledge, “Fairtrade” products, as well as niche markets for ecotourism. The final part makes recommendations on ways to better reflect SIDS’ concerns in international deliberations on trade and environment, and on capacity building as a follow-up to activities carried out by the UNEP-UNCTAD CBTF.

6. BioTrade initiative implementation strategy

The *BioTrade Initiative Implementation Strategy* was published in May 2005, after discussions with relevant partners. (UNCTAD/DITC/TED/2005/5).

7. BioTrade in the andean Sub-Region

In May 2005, a book on *BioTrade in the Andean Sub-Region - Development Opportunities* was published in English and Spanish. This is a joint publication of the Secretary General of the Andean Community (SGCAN), the Andean Development Corporation (CAF) and the UNCTAD/BioTrade Initiative. It aims to demonstrate that trade and business in goods and services derived from biodiversity and based upon the principle of sustainability is already a reality in Bolivia, Colombia, Ecuador, Peru, and Venezuela.

8. Biofuels

Biofuels: Advantages and Trade Barriers (UNCTAD/DITC/TED/2005/1). This paper aims to assess the potential for greater market penetration of biofuels, including ethanol and bio-diesel, and other alternative sources of energy. It addresses current impediments to greater production, domestic use and trade in biofuels, with particular attention to rural development and energy security, and discusses prospects for the greater use of alternative energy sources that are less carbon-intensive.

NOTES

- ¹ At UNCTAD XI, member States agreed that “UNCTAD should continue to provide support to developing countries on issues at the interface between trade and environment, such as market access, agriculture, traditional knowledge, transfer of environmentally sound technology, environmental goods and services, environmentally preferable products, and issues concerning eco-labelling and certification costs, and follow up on trade-related issues contained in the Johannesburg Plan of Implementation. It should strengthen work on the BIOTRADE Initiative and the UNEP-UNCTAD Capacity-Building Task Force on Trade, Environment and Development (CBTF)” (São Paulo Consensus, TD/410, 25 June 2004, paragraph 103).
- ² For more details, see the UNCTAD Progress Report on the follow-up to the recommendations of and discussions on the evaluation of UNCTAD’s programme on trade, environment and development (TD/B/WP/175), August 2004, available at: www.unctad.org.
- ³ For more information, see the report of the Expert Meeting at: www.unctad.org/en/docs/c1em19d3_en.pdf.
- ⁴ The report of the workshop is available as DITC/TED/2004/7, accessible at: www.unctad.org.
- ⁵ The presentations and documents of all the meetings are accessible through: www.unctad.org/trade_env/test1/mmschedule2.htm.
- ⁶ The UNCTAD briefing note is accessible at: www.unctad.org/trade_env/test1/mmschedule2.htm.
- ⁷ A number of activities on EGS were carried out in the context of the CBTF (see below). The presentations and documents of all the meetings are accessible at: www.unctad.org/trade_env/test1/projects/field.htm.
- ⁸ It is to be noted that the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States (A/CONF.207/CRP.7, 13 January 2005) listed the relationship between trade, environment and development among a number of issues of special concern to SIDS in seeking to integrate into the global economy (paragraph 67(h)). Similarly, in the section on capacity development, it called for the delivery of coordinated, effective and targeted trade-related technical assistance and capacity-building programmes for SIDS, including taking advantage of existing and future market-access opportunities and examining the relationship between trade, environment and development.
- ⁹ The Newsletter is accessible at: www.unctad.org/trade_env/test1/meetings/saopaulo.htm.
- ¹⁰ Documents relating to these meetings are accessible at: www.unep-unctad.org/cbtf/cbtf2/meetings.htm.
- ¹¹ The Convention’s objectives are the conservation of biological diversity; sustainable use of its components; and fair and equitable sharing of the benefits arising from the utilization of genetic resources.
- ¹² UNCTAD, *BioTrade Initiative, Implementation Strategy 2005*. Geneva, United Nations Conference on Trade and Development, UNCTAD/DITC/TED/2005/5.
- ¹³ INBio (Instituto Nacional de Biodiversidad) is spearheading the formulation, in close consultation with the Ministry for Environment and Energy (MINAE) and the Ministry of Foreign Trade. The Andean Development Corporation (CAF), UNCTAD/BioTrade Initiative (through the Swiss State Secretariat of Economic Affairs - SECO), and INBio provide financial support to the formulation phase.
- ¹⁴ The National Programme of Uganda is carried out with the financial support of Norway, the Netherlands and the United Nations Development Programme (UNDP). The Programme in Venezuela receives finance from UNDP. The Programme in Bolivia is financed through bilateral support of the Governments of the Netherlands and Switzerland.
- ¹⁵ The formulation process is financed by the United Nations Foundation and a GTZ/Netherlands partnership.
- ¹⁶ Partners include the Swiss Import Promotion Programme (SIPPO), the Dutch Centre for the Promotion of Imports from Developing Countries (CBI), the International Trade Centre (ITC) of UNCTAD/WTO, trade promotion organizations at the national level and national BioTrade Programmes.
- ¹⁷ Regulation (EC) No 258/1997 of the European Parliament and of the Council of 27 January 1997 concerning Novel Foods and Novel Food Ingredients. For more information see: The EU Novel Food Regulation: Impact on the Potential Export of Exotic Traditional Food to the European Union, UNCTAD /BTFP and CBI, November 2005, and Missing the Market: How exotic foods are being barred from the EU. UNCTAD BTFP and others, November 2005.
- ¹⁸ For more information, see: www.unctad.org/ghg.
- ¹⁹ See also: www.earthcouncil.com.
- ²⁰ UNCTAD/TD/B/COM.1/EM.26/3, paragraph 57.

