OECD Trade Policy Studies

Environmental Requirements and Market Access

OECD
OECDPUBLISHING

OECD Trade Policy Series

Environmental Requirements and Market Access

OECD

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where the governments of 30 democracies work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

This work is published on the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the Organisation or of the governments of its member countries.

Publié en français sous le titre :
Les réglementations environnementales et l'accès au marché

© OECD 2005

No reproduction, copy, transmission or translation of this publication may be made without written permission. Applications should be sent to OECD Publishing: *rights@oecd.org* or by fax (33 1) 45 24 13 91. Permission to photocopy a portion of this work should be addressed to the Centre français d'exploitation du droit de copie, 20, rue des Grands-Augustins, 75006 Paris, France (*contact@cfcopies.com*).

Foreword

In 2001, in refocusing its attention on the development dimension of trade and environment, the OECD's Joint Working Party on Trade and Environment (JWPTE) embarked on a programme of work to enhance understanding of the trade effects, perceived or actual, on developing-country exports of the environmental regulations and other technical measures taken by the governments of OECD members and private bodies. It was especially concerned to establish to what extent such measures might have affected market access for developing countries. The first phase of this work involved the preparation of 21 case studies, covering a wide range of importing and exporting countries, sectors, and types of environmental measures.

These case studies formed the basis for an OECD Global Forum on Trade ("Workshop on Environmental Requirements and Market Access: Addressing Developing-country Concerns", 27-28 November 2002, New Delhi, India), which brought together around 100 experts from OECD member countries and developing countries. In two days of focused discussion, workshop participants explored concerns common to developing countries in connection with several topics raised by the OECD case studies, as well as work undertaken by the United Nations Conference on Trade and Development (www.unctad.org/trade_env/test1/meetings/standards.htm). Topics included the elaboration of environmental and certain sanitary and phytosanitary measures, trade issues and developing-country responses, and responses to developing-country concerns. Among other things the participants discussed were: more and better transparency and communication with developing countries on new and revised technical regulations and voluntary schemes, institutional responses to the proliferation of voluntary standards and technical regulations affecting developing-country exports, and the need for effective capacity building and technical assistance appropriate to the needs of developing countries.

In December 2002, the JWPTE decided to take stock of the lessons learned from the studies and discussions that had taken place so far. These lessons relate to specific market access problems arising from environmental and health and safety requirements, and to approaches that contributed to solving them. The resulting stocktaking forms Part I of the report; Part II contains the case studies. It is hoped that this report will help improve understanding of the how environmental requirements affect exports from developing countries, and thereby constructively inform national and international discussions on this topical issue.

ACKNOWLEDGEMENTS

This study was prepared through the collaborative process of the OECD. Part I, "Lessons from National Experiences", was prepared in the Trade Policy Linkages Division of the Trade Directorate by Dale Andrew, Karim Dahou and Ronald Steenblik, with input from the Global and Structural Policies Division of the Environment Directorate. Overall editing and co-ordination of the case studies included in Part II was provided by Ronald Steenblik, working in the Trade Directorate under the direction of Dale Andrew. The following authors contributed drafts of individual case studies:

Gunnel Axelsson Nycander (Consultant, Sweden)
Christian Foli (Consultant, Ghana)
Willy Frendrup (Consultant, Denmark)
Ulrike Grote (Center for Development Research, Bonn, Germany)
Atul Kaushik (Cabinet Secretariat, India)
Janet Mensink (Consultancy and Research for Environmental Management, Netherlands)
Hunter Nottage (OECD Trade Directorate)
Neil Robson (International Packaging Consultants, Canada)
Dilys Roe (International Institute for Environment & Development, United Kingdom)
Gunnar Rundgren (Grolink AB, Sweden)
Ronald Steenblik (OECD Trade Directorate)
Lori Ann Thrupp (Institute for Global Communications, United States)
Max Valverde Soto (Fundación Ambio, Costa Rica)

Many individuals and institutions provided valuable comments on these case studies, and their contributions are much appreciated. The OECD would like to express its special appreciation to Ulrich Hoffmann, Veena Jha and Rene Vossenaar of the UNCTAD Secretariat for their help and co-operation throughout the project. It is also wishes to express its gratitude to the Government of India for hosting a Global Forum on Trade (New Delhi, 27-28 November 2002) at which the case studies were discussed, to the Swedish International Development Co-operation Agency (Sida) and the Canadian International Development Agency (CIDA) for helping to fund the event, and to the Research and Information System for the Developing Countries (RIS) for helping the OECD to organise it.

The chapters comprising this report were discussed in the OECD's Joint Working Party on Trade and Environment, which agreed to their declassification. The report is also available in French.

Table of Contents

GOVERNMENT REGULATIONS TRANSLATING INTERNATIONALLY AGREED STANDARDS

GOVERNMENT REGULATIONS AFFECTING TRADE IN PRODUCTS OF ORGANIC AGRICULTURE

PRIVATE INDUSTRY AND NGO INITIATIVES

Acronyms

APHIS	Animal and Plant Health Inspection Service (US)
AQIS	Australian Quarantine and Inspection Service
ASEAN	Association of South-East Asian Nations
BAuA	Federal Institute for Occupational Safety and Health (Germany)
BGA	Federal Health Office (Germany)
BMZ	Ministry of Economic Co-operation and Development (Germany)
CAA	Clean Air Act (US)
CASCO	Committee on Conformity Assessment (ISO)
CBI	Centre for the Promotion of Imports from Developing Countries (Netherlands)
CFC	Common Fund for Commodities
CFC	Chlorofluorocarbons
COLEACP	Europe-Africa-Caribbean-Pacific Liaison Committee
CREM	Consultancy and Research for Environmental Management (Netherlands)
CsC	Commonwealth Science Council
CSE	Centre for Science and Environment (India)
CTE	Committee on Trade and Environment (WTO)
CTF	Consultative Task Force (UNCTAD)
DSB	durian seed borer
EEA	European Economic Area
EFTA	European Free Trade Association
EIA	environmental impact assessment
EPA	Environmental Protection Agency (US)
EPE	European Partners for the Environment
ESA	Endangered Species Act (US)
FAO	Food and Agriculture Organization (UN)
FDA	Food and Drug Administration (US)
FDI	foreign direct investment
FSC	Forest Stewardship Council
GAA	Global Aquaculture Alliance
GATS	General Agreement on Trade in Services

GATT	General Agreement on Tariffs and Trade
GTZ	Agency for Technical Co-operation (Germany)
HACCP	Hazard Analysis and Critical Control Point
IAF	International Accreditation Forum
ICSF	International Collective in Support of Fishworkers
IDM	integrated disease management
IFC	International Finance Corporation
IFCO	International Fruit Container Organisation
IFOAM	International Federation of Organic Agricultural Movements
IGEP	Indo-German Export Promotion Project
IGG	Intergovernmental Group on Tea (FAO)
IGO	intergovernmental organisation
IIED	International Institute for Environment and Development
ILAC	International Laboratory Accreditation Cooperation
ILO	International Labour Organization
IOAS	International Organic Accreditation Service
IPCS	International Programme on Chemical Safety
IPM	integrated pest management
IPPC	integrated pollution prevention and control
IRA	import risk analysis
ISEAL	International Social and Environmental Accreditation and Labelling Alliance
ISO	International Organization for Standardization
ITF	International Task Force on Harmonisation and Equivalence in Organic Agriculture
ITTO	International Tropical Timber Organization
IUC	International Union Chemical testing
JAS	Japan Agriculture Standards
JETRO	Japan External Trade Organization
JWPTE	Joint Working Party on Trade and Environment (OECD)
LDC	least-developed country
LOD	lower limit of analytical determination (or limit of detection)
MAFF	Ministry of Agriculture, Forestry and Fisheries (Japan)
MAP	Mangrove Action Project
MEA	multilateral environmental agreement
MLV	maximum limit value
MRA	mutual recognition agreement
MRL	maximum residue limit

MSC	Marine Stewardship Council
NGO	non-governmental organisation
NMFS	National Marine Fisheries Service (US)
NOP	National Organic Program (US)
NOSB	National Organic Standards Board (US)
NTAE	non-traditional agricultural export
ODS	ozone-depleting substance
OFPA	Organic Foods Production Act (US)
PCP	pentachlorophenol
ppm	parts per million
PVC	polyvinyl chloride
RCO	Registered Certification Organisation (Japan)
RFCOs	Registered Foreign Certification Organisations (Japan)
RIA	regulatory impact analysis
SCS	Scientific Certification Systems, Inc.
SGS	Société Générale de Surveillance S.A.
SMEs	small and medium-sized enterprises
SPS	(WTO Agreement on) Sanitary and Phytosanitary Measures
STIC	Sustainable Trade and Innovation Centre
TBT	(WTO Agreement on) Technical Barriers to Trade
TEAP	Technology and Economic Assessment Panel (UNEP)
TED	turtle-excluder device
UNCED	United Nations Conference on Environment and Development
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
USAID	US Agency for International Development
USDA	US Department of Agriculture
VOC	volatile organic compound
WHO	World Health Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization
WTTC	World Travel and Tourism Council

Executive Summary

Developing countries want to boost their income through exports. Importers, particularly industrialised countries, want to ensure that imported goods meet their own established requirements for health, safety and the environment. Their consumers may also want to minimise the environmental impacts of producing and using those goods. In theory, these goals are compatible. In practice, there are different ways to reconcile them, and some affect developing-country exporters more adversely than others. Equally, environmental requirements, if well designed and implemented, can create new export opportunities for developing countries while improving the environmental performance of the affected industries.

The effects on developing-country exports of environmental requirements arising from OECD members' environmental and health regulations, as well as from standards set by governmental and non-governmental organisations, have long been a subject of trade and environment debate. During the early 1990s, developing countries, particularly those with fast-growing manufacturing sectors and export-led agriculture, encountered barriers to exports due to new environmental requirements, particularly ***maximum residue limits*** (MRLs) for chemicals, and restrictions on how primary products were produced or harvested. Many of these new requirements seemed to target the sectors of greatest importance to developing countries: textiles, leather, fish and horticultural products.

Developing countries hoped that the WTO Agreements on Technical Barriers to Trade (the TBT Agreement) and on Sanitary and Phytosanitary Measures (the SPS Agreement), by increasing transparency and requiring justification for new measures, would go a long way towards solving the problem. These agreements have certainly provided exporters with greater forewarning, and have encouraged regulators to analyse possible trade effects of their measures. But the large number of new regulations and standards notified each year, the short period that countries have to comment on them, the frequent lack of local capacity to quickly appreciate their implications for exporters, and the paucity of international reference standards relating to chemicals and products exported by developing countries, mean that the issues remain topical.

It was against this background that the OECD's Joint Working Party on Trade and Environment (JWPTE) embarked in 2001 on a programme of work to enhance understanding of the trade effects, perceived or actual, of the environmental regulations and other technical measures taken by the governments of OECD members and private bodies on developing-country exports. The JWPTE was especially concerned to establish the extent to which such measures might have affected access of developing-country exports to their markets, and to explore practices that have contributed to avoiding or solving the problems identified. The 21 case studies in this report, the principal fruits of that research, cover a wide range of natural-resource-based products and manufactured goods, and one traded service, as well as key import markets and a cross-section of

developing-country exporters. They have been selected with a view to illustrating a full spectrum of issues and types of environmental measures.

Developing countries have numerous concerns related to environmental requirements

Environmental requirements come in two basic forms. Those aimed at ensuring a minimum standard or product characteristic usually take the form of ***technical regulations***, such as product-content requirements or MRLs, or the imposition of packaging or disposal requirements. Environmental requirements addressing earlier phases of the product cycle — processes or production methods — as well as post-product phases, tend to take the form of (voluntary) ***standards,*** and may lead to the award of eco-labels.

Developing-country exporters often contend that environmental requirements for products create barriers to market access. Faced with having to adapt constantly to new environmental requirements imposed by importing countries or foreign buyers, they may still be heard occasionally complaining that a particular requirement:

- *Assumes that one size fits all and therefore does not take their special circumstances into account.* This problem often arises where a resource-dependent industry (such as horticulture, aquaculture, harvest fishing or forestry) is involved.
- *Is at odds with established international norms.* As much as anything, this complaint relates to exporters' difficulty both to keep up with changing regulations and to deal with different regulations in different markets.
- *Is a disguised form of protection for a domestic industry*. This charge has often been heard from some developing-country exporters, but that does not mean that they are not occasionally right in their assessment.
- Is actually designed to create new market opportunities for a "cleaner" production method, chemical agent or pollution-control technology. It is common, and natural, that a developed country will only legislate the tightening of a residue limit, or impose a complete ban on a substance, once an economically and technically acceptable substitute becomes available. However, such substitutes are sometimes proprietary or expensive and not readily available to developing country exporters, either because of their high costs or technical complexity, hence the suspicion that a motivation other than environmental protection lies behind the measure.

A more general complaint from developing countries is that each time a new measure is adopted by an importing country and differs from those covering the same contaminant or product adopted by other importing countries, it adds to the proliferation of national environmental measures. This adds to exporters' transaction and information costs, and in extreme cases may require them either to produce products tailored for different import markets or to become more dependent on a smaller number of importers.

The actual responses of developing-country exporters to new environmental requirements have varied, however, and depend on many factors

For most of the cases studied it was not possible to quantify the impacts of the environmental measures on exports from developing countries; the discussions of trade impacts are therefore qualitative. Distinguishing those effects from other influences can be extremely difficult. For example, an environmental measure may begin to affect a developing country's exports at a time when general market conditions are worsening for them. That happened, for instance, when stricter enforcement of pesticide-residue limits for tea imported into Germany coincided with a slump in tea consumption in Russia (a major importer of Indian tea), precipitated by that country's financial crisis (Chapter 7). Trade diversion may have occurred also in some cases.

It is not always easy to differentiate between developing countries' ***official and actual responses*** to environmental measures imposed by OECD countries. Sometimes a developing-country government will complain about the difficulties caused by an importer's environmental measure, while its affected industry is busy taking steps to comply. This apparent contradiction may simply reflect the difference between a government's trade negotiating stance and businesses' need to maintain export markets. It may also reflect poor communication among stakeholders within the affected exporting country.

With these caveats in mind, the case studies show that, in situations where developing countries have been aware of the environmental measure, and have earnestly tried to adapt to it, several generic problems can arise:

- The exporting country's government or industry may be caught by surprise, and therefore have insufficient time to respond before its exports are affected. Nowadays, with WTO notification procedures and the possibility of diffusion through the Internet, this problem has become less commonplace, but it may still occur in the case of poorer countries and industries dominated by small and medium-sized enterprises (SMEs).
- *The exporter may find it difficult to comprehend important details of the importer's measure.* This problem is of course linked to the speed and quality of information flows, but is also a function of the technical complexity of the measure and the number of words required to describe it. Translation does not come cheap. In extreme cases, the government of the exporting country may simply mimic the importer and adopt an identical measure. This, in itself, may not be a bad thing if the exporting country understands the regulations and they are appropriate to its local circumstances.
- The measure may be difficult to apply, or the government may be unable to afford the resources needed to enforce the measure. Enforcement requires monitoring systems, data and trained agents. Any one of these requirements may be missing.
- When changes in processes or production methods are required, knowledge about how to meet the new standards under local conditions may be lacking because of insufficient prior research. Exporters involved in primary industries dependent on biological processes — agriculture, fishing and forestry — may apply production

methods transferred from OECD countries (an issue in itself). While adapting production methods more suitable to local conditions may be desirable, the knowledge of how to do so may be lacking because the crop is not native to the area. Research — for example, on integrated pest management — may be required, but obtaining results take time.

- *The exporter may lack the local capacity to undertake necessary quality or residue tests.* This has been a common problem in cases in which an importer has set a residue limit at close to the limit of detection of the regulated substance. It is a problem that is even more likely to occur if the substance is a complex organic compound (e.g. an insecticide or an aromatic amine) that requires sophisticated (and expensive) laboratory equipment, operated by highly trained technicians, to measure it.
- In cases where major investments in productive capital or pollution control are required, the exporter may lack the necessary capital. This type of problem typically arises in industries that require production-specific machinery and chemical agents.

As several of the case studies show, there may be little knowledge about an environmental measure within the exporting country so that violations continue to occur years after the measure goes into effect. Contributing factors seem to be: an industry structure in the exporting country that is dominated by SMEs; products that involve numerous components that can be purchased from any number of suppliers; and weaknesses in the importing country's monitoring and enforcement system.

Lack of awareness also seems to be a problem, ironically, when the measure in question (usually a residue limit) is not especially difficult to comply with, *e.g.* through a small modification in the production process, or more careful attention to the way that the offending substance is used. One explanation may be that, where chains of responsibility are diffuse and fragmented, the risk of financial harm to a particular producer from an enforcement action is small enough to ignore. As shown in the case studies on formaldehyde in textiles (Part II, Chapter 1) and cadmium in plastics (Part II, Chapter 4), these factors, in combination, may frustrate efforts by importers acting in good faith to obtain assurance that all segments of their supply chain are in compliance.

Significant variations in responses and effects can also be observed within countries

The case studies also show that industries in developing countries are often as diverse, or more so, than their counterparts in the developed countries and that their responses often are therefore not uniform. In the case of a manufacturing industry — for example, a producer of textiles or dyes — many of the large producers may be partly or wholly owned subsidiaries of companies based in OECD countries and therefore knowledgeable about substitutes and able to obtain capital, if necessary. The rest of the industry, comprising locally owned SMEs, may be much less able to adapt.

Producers may differ in other ways that affect the ***distributional impacts*** of an importing country's measure. In a country that exports an agricultural product, for example, some may already employ organic farming methods and other may still employ conventional farming methods. A sudden change in an importer's pesticide residue law which affects their common export product may reduce the conventional producer's sales (for at least a year) while precipitating a sudden surge in demand for the organic farmer's produce, thereby creating both winners and losers in the same country.

Awareness of the potential effects of environmental requirements on trade partners has increased over time

Generally, environmental requirements that were introduced many years ago involve the least (formal) consideration of impacts on developing-country exporters and of international norms. Prior to the 1990s, technologies and institutions for disseminating information to developing countries were much more limited than they are today.

With the coming into force of the TBT and SPS Agreements in 1995, information on regulations is more readily available than it was in the 1970s and 1980s. Consequently, measures that have been introduced by governments since then have tended to: involve earlier advance notice of intended actions and provide more opportunities for comment; be backed up by scientific studies, in particular assessments of risk; and consider, if not be based on, ***internationally agreed standards***. A single international standard may not always be appropriate, especially if there are significant differences in absorptive capacities, climatic factors and social preferences among countries, but it can serve as an essential reference point. Other mechanisms recognised by the WTO Agreements, such as equivalence and agreements on the mutual recognition of the results of conformity assessments, have generally been difficult to negotiate and therefore remain little utilised.

But requirements relating to conformity assessment may also create impediments to exports

Discussions of the effects of environmental requirements on the market access of developing countries tend to focus on the relevant technical regulations or standards themselves. Yet the procedures that must be followed to determine that the requirements set out in those regulations or standards are being met can themselves be difficult for a developing country exporter to fulfil. For one, the technologies that make it possible to assess a product's ***conformity*** with an environmental requirement are often costly. Several of the case studies illustrate the difficulties faced by developing-country producers for acquiring the equipment to measure residue limits for chemical inputs. This constraint led the Indian government to ban the use of azo dyes in textile products rather than acquire more sophisticated equipment that would have enabled it to detect levels above the maximum legal limits established by the German authorities (Part II, Chapter 2).

When conformity to a process or production method must be assessed, the cost of ***certification***, and the conditions that must be fulfilled for the certifier to be recognised or accredited in the importing country, can become an issue. This problem is well illustrated by the case studies on trade in products of organic agriculture (Part II, Chapters 13-16). It is becoming more and more common for developing-country farmers, when faced with a stringent pesticide residue limit, to respond by converting to organic production methods. Although integrated pest management (IPM) would suffice in some cases, the cost and knowledge required to use IPM may be out of reach for the farmer, who can more easily understand and apply organic methods. Farmers who convert to organic production expect to receive higher prices for their produce, but this requires being certified to sell under an organic label. Yet in many countries local certification bodies are not accredited by the importing countries' authorities. That leaves farmers with no choice but to pay the

high cost of certification by a certifying body recognised by, and usually based in, the importing country.

The International Task Force on Harmonisation and Equivalence in Organic Agriculture (ITF), a joint initiative of the International Federation of Organic Agricultural Movements (IFOAM), the Food and Agriculture Organization (FAO) and UNCTAD, is investigating how to address obstacles to achieving more widespread recognition of technical equivalence and greater mutual recognition of the results of conformity-assessment procedures among different national organic systems.

Openness and transparency in the development of environmental requirements is crucial

Procedures used to develop, implement and review regulations and standards by those responsible for setting them can have a large bearing on how easily exporters can adapt to, and even benefit from, new environmental requirements. Governments develop standards and regulations in accordance with national rule-making procedures. Nonetheless, experience shows that when these procedures are open and transparent, they have at the very least generally provided forewarning to exporters that a new environmental measure is being contemplated. ***Notification*** of an impending measure, as provided for in the WTO's SPS and TBT Agreements, also appears to have facilitated two-way communication and, as described in the case study on eco-labels for forest products (Part II, Chapter 10), has even in some cases led to revisions of (proposed) measures that exporting countries found objectionable.

The processes by which standards are developed and implemented by non-governmental organisations (NGOs) and businesses differ in many respects from those followed by governments. For one, private bodies are not bound by the same transparency and consultation requirements. Even so, as the case studies attest, international environmental NGOs and businesses have shown themselves to be highly sensitive, and responsive, to developing countries' concerns, and have often gone out of their way to consult with developing-country representatives of affected industries when developing their standards. Both the Marine Stewardship Council (Part II, Chapter 19) and the Green Globe 21 programme (Part II, Chapter 21), for example, conducted such consultations.

As is providing information on the requirements after they have gone into force

Any policy aimed at minimising adverse trade impacts must ensure that information about the environmental requirement is well disseminated among potential exporters. Governments have taken numerous initiatives in recent years to improve the flow of information to developing countries. The Netherlands' Centre for the Promotion of Imports from developing countries (www.cbi.nl), for example, provides an online database containing information on environmental legislation in the EU and its member states, as well as information on relevant labels, codes and management systems that can be used to demonstrate environmental or sustainable responsibility. Brazil's national standards institute, Inmetro, operates an early warning system aimed at helping its exporters anticipate new technical barriers to trade, including environmental requirements. At the international level, the UNCTAD Secretariat, in partnership with Inmetro, has established a Consultative Task Force (CTF) on Environmental

Requirements and Market Access for Developing Countries. The CTF assists developing countries in analysing key trends in environmental and related health requirements in export markets and in exchanging national experiences on proactive approaches to meeting such requirements. The remit of the CTF includes not only governmental but also non-governmental environmental measures.

The workshop format has served as a useful vehicle for disseminating information on several occasions. Workshops organised by OECD countries in developing countries typically allow exporters to ask questions about the importing country's requirements, and to provide information on alternative processes and production methods. Feedback from exporters has also revealed difficulties with compliance particular to the developing countries that the importers' environmental regulators may not have been aware of. Such technical assistance seems to have worked best when addressing particular informational, technical or financial difficulties experienced by exporters.

Technical assistance and capacity building help overcome barriers in the long run

Technical assistance and capacity-building activities have tended to be provided after the effects of a measure have become apparent. Although they may not be able to address short-term problems of market access, in the long run they can increase the ability of exporters and their governments to anticipate and react positively to new environmental requirements.

For the poorest countries, and particularly when the environmental requirements affect agricultural products, direct interaction with producers provides an effective means of transferring information and knowledge. The case studies contain several examples of this kind of international agricultural extension and joint research activities: US advice on Guatemalan snow peas; various GTZ activities; projects of the UN Environmental Program (UNEP), US and Australian research to find alternatives to methyl bromide. The Multilateral Fund for the Implementation of the Montreal Protocol provides an example of a mechanism created by the international community to reduce the costs to developing countries of adjusting to internationally agreed measures to control emissions of ozone-depleting substances.

Even private organisations are providing such assistance. The Marine Stewardship Council, for example, which supports a label certifying that a fish product comes from a sustainably managed fishery, has worked with developing-country fisheries to find alternative indicators of sustainability, and has worked with governments and charitable foundations to support research on the fish stocks in question.

The ultimate goal: to reconcile environmental protection with growth in developing-country exports

Developing-country governments sometimes consider OECD member countries' environmental measures insensitively designed, and at times commercially motivated, and this has increased tensions between the developed and developing world in both the trade and environment policy spheres. The case studies illustrate that while some, especially earlier, environmental requirements might have been implemented with greater awareness of effects on exporters, developing-country exporters have usually, in one way

or another, successfully adapted to those requirements. That should not make developed countries any less attentive to the concerns of developing countries, however.

In the past, importers reacted to problems encountered by developing-country exporters at a relatively late stage in the implementation of environmental measures. More recent examples reveal encouraging signs that countries are trying to solve such problems holistically, and are finding ways to reconcile the desire for a high level of environmental protection with strong growth in developing-country exports. The impetus appears to be coming above all from a desire to make policies affecting developing countries more coherent, and from national regulatory reform exercises to make governmental regulations more efficient and trade-friendly. It is important nonetheless that the limits of established international mechanisms be recognised and addressed. There are certainly situations where imports of products that threaten health, safety or the environment should be discouraged. But, in general, when a developing country makes a good-faith effort to embrace emerging environmental norms, OECD countries should do their utmost to help them comply.

Part I

Addressing Market Access Concerns of Developing Countries arising from Environmental and Health Requirements

Lessons from National Experiences

Lessons from National Experiences

This chapter represents a stocktaking of the lessons learned from a series of OECD case studies examining specific market access problems arising from environmental and health requirements faced by developing-country exporters. The focus is on the approaches that helped to address market access difficulties. These are divided into those addressing information flows and capacity building needs of developing-country exporters which have been undertaken both by governments and non-governmental organisations and those involving procedures for developing, implementing and reviewing regulations and standards. The report covers a range of natural-resource-based exports and manufactures and one traded service in key OECD import markets. However, no generalisation can be made regarding the scale of the market access problems created by environmental and health requirements.

Introduction

Environmental policies, development and trade

At the WTO Doha Ministerial Conference of 2001, in strongly reaffirming their commitment to the objective of sustainable development, as stated in the Preamble to the Marrakech Agreement, Ministers recognised "that under WTO rules no country should be prevented from taking measures for the protection of human, animal or plant life or health, or of the environment at the levels it considers appropriate, subject to the requirement that they are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, and are otherwise in accordance with the provisions of the WTO Agreements".[1] WTO Ministers at the same conference also instructed the Committee on Trade and Environment to give particular attention to the effect of environmental measures on market access, especially in relation to developing countries.[2]

Overview of developing countries' concerns

Given that the Doha Declaration (paragraph 2) places the needs and interests of developing countries at the heart of the WTO's work programme, it is worth examining means of facilitating the access of developing countries to the markets of developed countries, through various market-adjusting or market-informing actions. Attention to the effect of environmental measures on market access, so as to avoid unnecessary obstacles to trade which might result from the development of various environmental requirements, is an important part of that process.[3]

In order to identify ways in which regulators, non-governmental and other standard-setting bodies can minimise unnecessary impacts on developing country access to OECD markets arising from environmental requirements, it is useful to examine the concerns raised by the developing countries themselves. This should not only provide a

1. On several occasions the WTO Appellate Body has recalled the possibility for countries to set environmental and health protection policies. In the Gasoline case, the Appellate Body said: "Members are free to adopt their own policies aimed at protecting the environment as long as, in so doing, they fulfil their obligations and respect the rights of other Members under the WTO Agreements". (United States-Gasoline case, paragraph 30 of the Appellate Body Report, reiterated in the Shrimp-Turtle case, paragraph 186 of the Appellate Body Report) In interpreting Article XX of the GATT, the WTO Appellate Body has stated that "WTO Members have a large measure of autonomy to determine their own policies on the environment (including its relationship with trade), their environmental objectives and the environmental legislation they enact and implement. So far as concerns the WTO, that autonomy is circumscribed only by the need to respect the requirements of the General Agreement and the other covered agreements." (United States-Gasoline case, pages 29-30 of the Appellate Body report) Similarly, in the decision on "Measures affecting asbestos and asbestos-containing products" (Asbestos case), the Appellate Body stated: "It is undisputed that WTO Members have the right to determine the level of protection of health that they consider appropriate in a given situation." (Asbestos case, paragraph 168 of the Appellate Body report)

2. Doha Ministerial Declaration, paragraph 32 (i).

3. "Environmental requirements" has been used in the OECD case studies, the New Delhi workshop and the related UNCTAD work, as a generic term to include environmental, sanitary and phytosanitary measures which may take the form of either mandatory governmental regulations or voluntary standards. The latter may be governmental or non-governmental.

clearer overview of the difficulties faced by some exporting countries, it should also help to understand more clearly the consequences of measures for other developing countries.[4]

These concerns — as expressed by developing countries — are set out below in four categories relating to: *i)* access to relevant information; *ii)* difficulties in adjusting to technical regulations and standards; *iii)* difficulties concerning the procedure for the development of standards and regulations; and *iv)* the mechanisms for implementation and periodic review of such measures.

Problems of access to information

> *The information on importers' environmental requirements transmitted to the exporting countries or sectors concerned — in particular the least developed countries (LDCs) and small and medium-sized enterprises (SMEs) in developing countries — is sometimes insufficient, distorted, delayed or even non-existent*

For example, the exporting country's government or industry may be caught by surprise, and therefore have insufficient time to respond before its exports are affected (see, for example, Part II, Chapter 2). Nowadays, with WTO notification procedures and the possibility of diffusion through the Internet, this problem has become less acute, but it still occurs in poorer countries and in industries dominated by SMEs.[5] There is usually no real problem in getting information to a country, but getting it distributed in a timely manner to the domestic industry requires effective communications networks to be in place.

Two sets of reasons can explain why these difficulties particularly affect LDCs. First, their governmental capacities are usually severely limited and it is difficult for them to transmit information to economic operators.[6] Second, there is very little foreign direct investment (FDI)[7] in LDCs. Producers are therefore often isolated from the distribution networks that could market their products in developed countries, and private networks do not pass on information as rapidly as in other developing countries.[8]

> *The exporter may lack the capacity to comprehend important details of the importer's measure or to have them translate.*

This problem is of course linked to the speed and quality of information flows, but is also a function of the technical complexity of the measure and the number of words required to describe it. Translation of the necessary documentation does not come cheap. In some cases, the government of the exporting country may simply adopt a measure

4. In the case study on the banning of azo dyes by Germany (Part II, Chapter 2), this measure also applied to second-hand products, including clothing, which were massively redirected to African markets, thereby affecting local industries.

5. See, for example, the case studies on limits on formaldehyde (Part II, Chapter 1), chemical residues in leather goods (Part II, Chapter 3) and cadmium in plastics and PVC (Part II, Chapter 4).

6. See UNCTAD (2002), Expert meeting on environmental requirements and international trade, paper by Mr. Ansoumane Berete, Head of the Trade Policy and Agreement Division of the Ministry of Trade of Guinea and paper by Mr. Natama Incha, Delegate of Niger: http://r0.unctad.org/trade_env/test1/openFl.htm

7. According to UNCTAD (2001, p. 31), the 49 LDCs – countries with a per capita GDP of less than USD 900 – account for one-quarter of the world's countries and one-tenth of its population, but only attract 0.5 % of FDI.

8. Industries characterised by strong vertical integration facilitate the rapid circulation of information between distribution networks in developed countries and subsidiaries and subcontractors operating in developing countries.

identical to the importer's. This, in itself, may not be a bad thing — *if* the exporting country understands the purpose of such a measure and it is appropriate to its local circumstances.

Inadequate means for adjusting to environmental requirements

The exporter may not have the capacity necessary to apply certain measures or to conduct conformity assessment

Implementation and conformity assessment require monitoring systems and access to supporting[9] infrastructure comprising laboratories (public or private), metrology, data and trained agents. Quality or residues testing, notably, requires means which the exporter often lacks at the local level. Problems occur most often when the importer has fixed a limit on residues close to the detection limit for the substance (see Part II, Chapter 2). The risk of this type of situation arising is higher when the substance in question is a complex organic compound (insecticide or aromatic amines, for example) which must be measured by sophisticated (and expensive) laboratory equipment operated by highly qualified technicians.

Developing countries may sometimes lack the necessary technical resources, as is shown by the case studies on Guatemalan producers of snow peas (Part II, Chapter 6) and Indian producers of hides and skins (Part II, Chapter 3). Both involved a measure limiting chemical residue levels (of pesticides and colouring agents, respectively), and the producers did not have the necessary equipment to measure small concentrations of residues. In the former case, development co-operation assistance in the end procured the equipment necessary to evaluate pesticide residues, but long after the first problems of market access appeared. Faster transmission of information about the measure in question, and potential ways of adjusting to it, could have avoided unnecessary losses. In India, these tests could be conducted using the available equipment, but only for levels higher than those authorised, which were in fact close to the detection limit. As a result, the government simply decided to ban the use of azo dyes, even at levels that pose a much reduced risk to human health.

The exporter may not have the knowledge required to adapt its processes or production methods, in particular because of the uniqueness of local conditions or insufficient prior research

To be able to comply with measures on limits on chemical residues, it may be worth replacing the use of chemical products by integrated pest management methods. However, extensive research is often necessary to obtain proper results. For example, though the shift to organic production allows new markets to be targeted, in the short term, at least, it may involve lower returns.[10]

Exporters involved in primary industries dependent on biological processes — agriculture, fishing and forestry — are sometimes expected

9. Contrast, for example, the case studies relating to aromatic amines in textiles, and pesticides in tea, with the case study on formaldehyde in textiles (Part II, Chapters 2, 7 and 1, respectively).

10. See, especially, the case study on limits for chemical residues in tea (Part II, Chapter 7). Many Indian producers had moved over to organic production methods, but the majority of the estates were barely profitable, or not profitable at all.

to apply production methods transferred from OECD countries that may be inappropriate to their local conditions[11]

Even when environmental measures call for the application of production methods more suitable to local conditions, the knowledge of how to do so may be lacking. In cases where major investments in productive capital or pollution control are required, the exporter may lack the necessary capital. This type of problem typically arises in industries that require production-specific machinery and chemical agents.

Exporters, particularly small and medium-sized enterprises, may have weak bargaining power when dealing with requirements developed by commercial or non-governmental entities

Voluntary non-governmental standards can sometimes be as constraining as mandatory governmental regulations. For example, buyers or final retailers that choose to conform to a voluntary standard may insist that certain environmental conditions be met along the production chain, and the producer or exporter has little choice but to meet them.[12] As described in Part II, Chapter 20, the largest German distributors of fresh products have set up a system of reusable containers in order to limit the impact of a directive that made them responsible for the cost of recycling packaging. Even though the use of reusable packaging is not mandatory, this measure made it unavoidable in certain situations and posed major problems for some developing countries because of the cost, time and logistic difficulties involved in returning reusable packaging.[13]

In the case of the Marine Stewardship Council's (MSC) eco-label for responsible fishery practices created by Unilever and the World Wildlife Fund (WWF), difficulties in qualifying for the label were experienced by small-scale fishermen, who are particularly numerous in developing countries (see Part II, Chapter 19).

Issues involving the development of standards and regulations

Increasing variation in environmental requirements by governmental authorities and non-governmental organisations and regulations differing from international norms

According to the developing countries, one of the chief market access problems that they face is the proliferation of technical measures — and the difficulty of complying with heterogeneous requirements. Examples of standards adopted by NGOs and private agencies show that "competition" can arise between certification or labelling schemes addressing the same environmental problems. Where there are international norms, but countries decide to impose requirements that are stricter than these norms, exporters have complained both of the costs of keeping up with changing measures and of having to deal with different regulations in different markets.

11. This is illustrated by a case study on a US measure limiting sea turtle by-catch rates in shrimp fishing. The measure was also applicable to exporters (Part II, Chapter 11). US producers had complied with the regulation by using more selective gear, but it was ill-adapted to the situation in Costa Rica. This country's shrimp fishing areas contain a great deal of organic debris that weigh down harvesting gear and increase vessels' fuel consumption, thereby raising production costs.

12. On the role of retailers and "supermarketisation", see OECD (2003).

13. The EU and the FAO aid helped Guinea regain competitiveness lost due to packaging requirements imposed on their fish and pineapple juice exports. See the paper by Mr. Ansoumane Berete, Head of the Trade Policy and Agreement Division of the Ministry of Trade of Guinea: http://r0.unctad.org/trade_env/test1/openFl.htm. Then click on "Meetings" and 2-4 October 2002.

Standards inappropriate to the ecology of the producing area

Measures inspired by domestic considerations, however justified, may be established on the basis of parameters that are inappropriate to the exporter's situation, as shown by certain measures intended to address the production phases of a product. Examples include standards relating to the sustainable harvesting of fish or organic methods of production of agricultural products that fail to take into account local environmental and cultural differences (see Part II, Chapters 19 and 13, respectively).

Requirements are actually designed to create new market opportunities for a "cleaner" production method, chemical agent or pollution control technology

A developed country may legislate the tightening of a residue limit or impose a complete ban on a substance, once an economically and technically acceptable substitute becomes available. However, such substitutes are sometimes proprietary or expensive and not readily available to developing-country exporters, because of their high costs or their technical complexity. It is particularly in respect of such types of situation that developing-country exporters have sometimes alleged that a measure is motivated by other interests than a desire to protect the environment or public health (see Part II, Chapter 2).

Need for greater openness and transparency, including early consultation and impact studies

Where notification and prior consultation procedures, *e.g.* as provided for in the WTO SPS and TBT Agreements, have been minimalist or not followed, developing-country exporters have felt slighted by not having been able to influence the development of the environmental requirement. Use of established prior consultation procedures appears to have facilitated two-way communication and has even in some cases led to revisions of (proposed) measures that exporting countries have found objectionable. Some national and non-governmental standard-setting procedures provide forewarning to exporters that a new environmental measure is being contemplated.

Issues related to implementation and review mechanisms

Insufficient or temporary deferral in implementation

Certain measures may provide, in their provisions, for deferral of implementation in the case of developing-country exporters. They can thereby help solve the adjustment difficulties that affect this category of exporters more specifically.

Insufficient access to equivalence agreements

Separately from the process of technical harmonisation, an equivalence agreement can allow an importing country to recognise an exporting country's environmental, health or safety measure as equally effective in satisfying its appropriate level of protection. Equivalence thus safeguards the aim of the environmental requirements — namely, protection of the environment — while allowing a certain degree of flexibility in choosing the means of achieving it. The case studies, however, show that developing countries can encounter difficulties in negotiating such agreements.[14]

14. Indeed, access to equivalency agreements is an issue for all countries, not just developing countries. There are relatively few such arrangements because they are difficult and resource-intensive to negotiate.

Difficulties in negotiating mutual recognition of procedures for conformity assessment

Mutual recognition agreements (MRA) provide that conformity assessment procedures used by a certification society or accreditation agency will be accepted by others. In theory, therefore, they can prevent a multiplication of certifications, which are costly in time and money, from excessively limiting market access of developing-country exporters. Again, use of this type of instrument has generally been quite limited.

Need for more regular review of environmental requirements

Certain environmental and health measures envisage at the outset that they will be subject to subsequent review in order to take into account developments in the understanding of the consequence of the environmental problem or the data underpinning the original measure. In some cases, developing countries have expressed concerns about the continued relevance or actuality of an environmental measure.

In summary, the concerns expressed by developing-country exporters show that the causes of market access effects of environmental requirements vary considerably. In many cases, major changes in processes and production methods may be required in order to meet the importer's new requirements, and there is simply no way of avoiding imposing adjustment costs on exporters. Some of the case studies nevertheless underline the problems of access to information that exporters may encounter. Although all these constraints have obvious cumulative effects — *e.g.* delayed notification of a measure can add to the adjustment costs — it is still, for all that, worth distinguishing them. While responsibility for difficulties of a "structural" order can primarily be laid at the door of the developing countries, the developed countries, as the authors of the bulk of environmental and health measures, also need to realise that the development of such measures should meet minimum levels of transparency and consultation. Indeed, raising awareness of the possibility of various impacts on market access, and honest efforts to provide full advance information on new requirements, can go a long way towards minimising their effects on trade. The following sections outline responses to developing countries' concerns, based on the OECD and UNCTAD case studies. First, capacity building and support for research and appropriate technology are addressed. The next two sections examine, respectively, aspects of the development and then the implementation and review of environmental requirements. They are followed by some concluding remarks.

Capacity building, technical assistance and support for research and appropriate technology

According to Chapter 37 of Agenda 21 (UNCED, 1992), capacity building is primarily intended to develop a country's ability "to evaluate and address the crucial questions related to policy choices and modes of implementation among development options, based on an understanding of environmental potentials and limits and of needs as perceived by the people of the country concerned". It may cover a broad range of activities aimed at improving a country's human, scientific, technological, organisational and institutional capacities and the resources available to it. In essence, it is a process that seeks to help an individual or a group to identify and take into account the problems it faces, to acquire the understanding, knowledge and experience necessary to solve those problems, and to introduce appropriate changes.

Capacity building is not referred to expressly in the TBT Agreement. However, its Article 11 spells out precisely the areas in which, if requested, WTO members shall advise or provide technical assistance to other members (especially developing countries) on mutually agreed terms and conditions regarding the various questions related to regulations, standards and conformity assessment (Box I.1).[15]

Although technical assistance from bilateral and multilateral donors cannot provide responses to all the concerns noted in the preceding section, targeted support and capacity-building initiatives increasingly play a substantial role. The Multilateral Fund for the Implementation of the Montreal Protocol provides an example of a mechanism created by the international community to reduce the costs of developing countries in adjusting to an environmental standard. It is intended to provide financial and technical assistance, including technology transfer, for the application of measures to control emissions of ozone-depleting substances.[16]

Box I.1. Technical assistance provisions in the TBT Agreement

Article 11 of the TBT Agreement states that members "*shall, if requested, advise other Members, especially the developing-country Members, and shall grant them technical assistance on mutually agreed terms and conditions regarding…*":

11.1 The preparation of technical regulations.

11.2 The establishment of national standards bodies, and participation of these bodies in the international standardising bodies.

11.3.1 The establishment of regulatory bodies, or bodies for the assessment of conformity with technical regulations.

11.3.2 Information on how to implement technical regulations.

11.4 The establishment of bodies for the assessment of conformity with standards adopted within the territory of the requesting member.

11.5 The steps that should be taken by their producers if they wish to have access to systems for conformity assessment operated by governmental or non-governmental bodies within the territory of the member receiving the request.

11.6 The establishment of the institutions and legal framework that would enable them to fulfil the obligations of membership or participation in regional or international systems of conformity assessment.

Source: Rotherham (2002).

Developing countries can also, on their own initiative, evaluate the impact of environmental measures on their market access and measure the relative importance of such access to their economic development. Countries with similar development

15. WTO, "Technical Barriers to Trade", in *World Trade Organization: Training Courses*, Geneva, www.wto.org/english/thewto_e/whatis_e/eol/e/wto03/wto3_7.htm.

16. Project funds are aimed at helping developing countries phase out gradually (over a rather longer time than developed countries) the use of methyl bromide, a fumigant used in agriculture as a pesticide. As developing countries used this product rather intensively, especially in their horticultural crops for export, the developed countries decided to support their efforts to adjust to the measure by gradual prohibition. Some 58 projects supporting research for alternatives to the use of methyl bromide are currently being financed by the Fund in 36 countries (see Part II, Chapter 12).

problems can share access to their information systems and analytical tools and use their capacities to help neighbouring countries introduce their own arrangements. Brazil's national standards institute and enquiry point, Inmetro, has an exemplary system of notifying and identifying emerging standards to Brazilian firms, which was recently extended to firms in other Mercosur countries.

Improving information flows: capacity building and technical assistance

Improving information flows to key actors can respond to several of the needs reflected in the concerns itemised in the preceding section. One is a need for precise information about the requirements set out in an importer's environmental measure. Another concerns information on market opportunities offered by the measure in question. A third concerns information about the most effective ways for producers to adjust to the measure, including modifying their processes and production methods.

An environmental measure may remain largely unknown in the exporting country when the sector concerned in the exporting country consists predominantly of SMEs or when products contain many components from several suppliers. These diverse factors come into play simultaneously in a case study of Philippine exports of textile products to Japan. Exporters were still unaware, 30 years after its entry into force, of a Japanese law limiting formaldehyde residues in finished products (see Part II, Chapter 1). As several case studies show, private operators in the supply chain, from importers through to exporters and ultimately producers, now provide a considerable amount of technical advice. Lack of awareness also seems to cause problems in cases even where it would be easy to conform to the measure concerned (generally a residue limit), by slightly modifying the production process or by paying more attention to methods of using the offending substance (see Part II, Chapters 1 and 4, respectively). Also, when chains of responsibility are diffuse and fragmented and the risk to a particular producer of suffering financial loss is sufficiently low, the measure may be ignored at that point in the chain. As is shown by the case study on cadmium in plastics (Part II, Chapter 4), these factors, when combined, may hinder honest efforts by importers to obtain assurance that all the segments of the supply chain have complied with the applicable requirements.

Although technical advice provided by private operators may be sufficient for some developing countries, the LDCs may benefit from specially adapted schemes. Chains of responsibility are integrated in sectors or industries that are vertically concentrated under the umbrella of large firms; the more advanced developing countries tend to attract the subcontractors, subsidiaries and branches of large companies from developed countries and the latter tend therefore to inform them about, or indeed prepare them for, the introduction of a technical standard that might make their market access more difficult. The industrial or agricultural fabric of LDCs, on the other hand, are often fragmented. The vast majority of African farmers, for example, operate in a system of family farms often spread over large areas. It is difficult for them to keep abreast of new technical regulations or standards that may affect their production. Background work by UNCTAD on organic agricultural production has shown this to be the case. Marketing boards[17] or co-operatives can in such situations play an important role in disseminating information.

17. See, in particular, the proposals put forward by the Ministry of Trade and Industry of Tanzania, aimed at creating "marketing information centres". UNCTAD (2002), Expert meeting on environmental requirements and international trade, "Strengthening capacities to respond to environmental requirements in export markets", http://r0.unctand.org/trade_env/test1/openF1.htm.

The provision of information on environmental requirements, and how to comply, varies according to whether the standards and regulations involved are established by government authorities or private organisations. Information on standards and regulations established by government authorities are provided by governments themselves, but can also be provided by importers or exporters. Examples of initiatives by governments and NGOs are described in the following paragraphs.

Initiatives by governments

Governments have experimented with various approaches to conveying information about their (existing and pending) environmental requirements to exporters. Many of these approaches are used in combination and are intended to address different information needs.

The notifications that countries make to the TBT and SPS Committees, and the summary compilations that the WTO Secretariat makes of these notifications, are valuable resources for exporters interested in keeping abreast of new standards and regulations promulgated by governments. These notifications rarely go into great detail on the technicalities of the requirements, however, which is why WTO members are required to designate an enquiry point. To avoid overwhelming these enquiry points with requests, a few countries have started to create special Internet portals that centralise information on their regulations. Such central sources of information are handy for exporters who have access to the Internet and who know how to navigate their way through it (Box I.2).

Box I.2. Web-based information on European environmental requirements

The Netherlands, through its Centre for the Promotion of Imports from Developing Countries (CBI), has gone beyond providing information on its own regulations and has built an online portal providing detailed information on environmental, consumer health and safety, and social requirements promulgated by the European Union, Germany and the United Kingdom (http://www.cbi.nl/show.php?file=marketinfo.html). Information is organised according to 20 of the 21 Sections of the Harmonized Commodity Description and Coding System (*i.e.* HS Sections), plus services. Users can obtain an overview of the requirements (in English) and view the relevant EU Directives. In addition, the site provides technical information in a series of "Access Guides" on environmentally sound production. As of September 2005, the site contained over 120 documents — mainly guides to cleaner production options and pollution abatement methods, and case studies of developing-country producers who have adopted more environmentally sound methods or have successfully found new markets for environmentally preferable products. The coverage of these Access Guides may not be exhaustive, but it is certainly extensive.

It is also possible to organise seminars (or similar gatherings which exporters are encouraged to attend) or even longer-term projects to reach new exporters or draw the attention of exporters to major changes in a country's standards or regulations. The workshop format has been used on several occasions. As documented in Part II, Chapter 2, during 1996 and 1997 the Dutch import promotion agency, CBI, working with an independent consultancy firm, jointly organised a series of workshops in several exporting countries affected by the Austrian, Dutch, German and Norwegian import prohibition on textiles and leather containing detectable residues of aromatic amines linked to the use of azo dyes. The Canadian Trade Facilitation Office also provides

numerous training and consultation services to the governments, trade and investment promotion bodies and private companies of developing countries with a view to building their capacity in the fields of export marketing. In particular, it organises trade missions to Canada and seminars for exporters from developing countries (http://www.tfoc.ca/). Another initiative using the workshop format is the Sustainable Trade and Innovation Centre (STIC) (Box I.3). Workshops typically allow importers to answer questions exporters may have about their requirements and to provide information on alternative processes and production methods. Feedback from exporters can also reveal difficulties with compliance that the importers' environmental regulators may not have been aware of.

Box I.3. The Sustainable Trade and Innovation Centre

Launched as a World Summit on Sustainable Development (WSSD) type II initiative, the recently created Sustainable Trade and Innovation Centre (STIC) is jointly sponsored by the Commonwealth Science Council, the European Commission (DG Trade), European Partners for the Environment, and the French Ministry for the Environment. The STIC aims at supporting developing countries in responding to the challenge posed by the rapid growth in the number of environmental (and social) requirements, both government and non-governmental, by assembling in one place expertise in export promotion, innovation and sustainability issues, and developing-country leadership. In so doing, the STIC expects also to act as a platform for bringing together stakeholders from developed and developing countries "to create a more co-operative context for achieving commercial, environmental and social progress simultaneously in developed and developing countries" (www.epe.be/stf/brochurefinalrev.htm). The STIC's initial programme of activities includes:

- *Regional consultations:* These will take place in Africa, Asia, Latin America, the Caribbean and the Mediterranean region with the dual purpose of identifying services required from the STIC and generating support and interest among major stakeholders. Two products are expected to result from these consultations: a set of regional guidelines for implementation and the design of a regional hub.
- *Pilot projects in different regions:* These projects are intended to facilitate dialogue on voluntary codes, build local capacity for innovation and eco-design and disseminate information. To date, two pilot projects on textiles and electronics have brought together developing countries and representatives of transnational corporations.
- *Annual reviews of sustainable trade issues:* These reviews will cover: market trends and opportunities, codes and regulations in export markets, production conditions and constraints faced by producers in developing countries, costs and procedures for certification, and case studies promoting and highlighting good practices of developing countries that have successfully seized market opportunities in the North.

Workshops can be expensive, however. They are burdensome to organise and can only benefit a relatively limited number of participants. An alternative is to make use of technologies that allow meetings to take place over long distances. Among the most developed countries, meetings of experts can now be conducted by conference telephone

call or remote video hook-ups. Yet even many middle-income countries may lack the requisite technology. To get around this problem, USAID, the US Agency for International Development, has come up with an inexpensive way to conduct "virtual meetings" via the Internet, using software to enable conference calls to work over the noisy dialup telephone lines typical of many developing countries and countries in transition (www.usaid.gov/info_technology/ied/index.html).

Efforts by countries putting in place technical measures may even extend to sending an information mission to developing countries whose exporters may be affected by changes in the standards or regulations concerned. A Japanese information mission, for example, was sent to Thailand to inform that country's exporters of changes in Japanese legislation on organic products (see Part II, Chapter 15).

Initiatives by non-governmental organisations, public-private partnerships and intergovernmental organisations

The case studies document a number of instances in which private standard-setting bodies have endeavoured to ensure that producers in developing countries are aware of their standards and know how to participate in voluntary schemes based on adherence to those standards. Such "outreach" activities are carried out most commonly by international eco-labelling schemes (*e.g.* the MSC) or their backers (*e.g.* the WWF), but can also be observed among some national schemes, such as Germany's Flower Campaign. UNCTAD's Consultative Task Force on Environmental Requirements (Box I.4) is an example of an initiative co-ordinated by an intergovernmental organisation.

Research and extension and technology transfer

For the poorest countries, and particularly when the environmental requirements affect agricultural products, direct interaction with producers provides an effective means of transferring information and knowledge. The case studies contain several examples of this kind of international agricultural extension and joint research activities: US advice on Guatemalan snow peas; various GTZ activities; projects of the UN Environmental Program (UNEP), and US and Australian research to find alternatives to methyl bromide.

The projects that the Europe-Africa-Caribbean-Pacific Liaison Committee (COLEACP), an inter-professional association of the EU and ACP horticultural industries, has funded in Africa go beyond demonstrating how to meet established standards. They are intended also to provide information that will eventually help establish scientifically based maximum residue limits (MRLs), or import tolerances, as alternatives to the default ones (which would be set at limit of detection) that would apply in the absence of such information.[18]

18. The efforts made by COLEACP – with the support of the European Union and the Ghanaian authorities, which have been proactive in this regard – to adjust pineapple production methods in Ghana to meet European regulations on pesticide residues show every sign of being a real success. Although the changes in European standards potentially threatened the survival of an industry that did not have the means to detect very low residue limits, COLEACP was able to base its work on the efforts already undertaken by the Ghanaian government to develop codes of agricultural good practice to help train farmers in the use of pesticides. In this way it was able to have the maximum limits raised slightly in cases in which the pesticides had a low level of toxicity and exports were crucial to the countries concerned. The support provided to scientific institutions to enable them to acquire accurate measurement equipment capped these efforts, and Ghanaian pineapple exports have continued to penetrate the European market. See Part II, Chapter 8.

The technologies that make it possible to assess a product's conformity with environmental protection or sanitary or phytosanitary protection standards are often costly. Several of the case studies illustrate the difficulty for producers in developing countries of acquiring the equipment for measuring the residue limits for chemical inputs. This constraint, in particular, led the Indian government to ban the use of azo dyes in textile products rather than acquire more sophisticated equipment that would have enabled it to detect levels above the maximum legal amounts established by the German authorities (Part II, Chapter 2). On the other hand, certain Guatemalan producer co-operatives of snow peas were able to adapt their production to US requirements thanks to detection equipment provided by German development co-operation (Part II, Chapter 6). These examples highlight the problems of resources for the provision of technical means to enable conformity with certain measures. Capacity building also assumes a certain degree of technical competence on the part of developing countries, as the capacity to introduce more-sustainable production methods often involves technological choices that require specific competence. In addition to lacking the requisite financial resources, countries may need legal advice on how to gain access to low-cost technologies, since it may be necessary to acquire technologies produced by nationals of the donor country in order to undertake certain development projects.

Yet transfer of technologies is not always a straightforward process. Technologies appropriate to the situation in one country cannot always simply be transferred to another country, but often need to be adapted to local conditions. Part II, Chapter 11 provides the example of TEDs (turtle-excluder devices) designed to limit the by-catch of sea turtles. Those developed for the environmental conditions of the Gulf of Mexico tended to clog with floating debris when used in the waters off of Costa Rica.

Development of regulations and standards

Governments regularly develop environmental and health regulations, and both governments and private organisations develop standards with a view to achieving such legitimate objectives as the protection of the environment, human, animal and plant life and health. Exporters' difficulties in adjusting to the standards and regulations of importers do not call these objectives into question, although they may impose a very heavy burden on exporters. Such is often the case, as has been seen, when the objective conditions (*e.g.* characteristics of the local environment, lack of human, physical or financial capital, inflexibility of the industrial system) impair the productive capacity of exporters in their efforts to adapt. Problems of transparency or notification may also prevent them from competing on a level playing field with producers in the importing countries. Such difficulties are hard to foresee and generally require *ex post* solutions. Nevertheless, the promulgators of new regulations and standards can endeavour to ensure that information on the requirements is effectively disseminated *ex ante*. Indeed, experience shows that when the procedures for developing standards and regulations are open and transparent, they can at the very least provide forewarning to exporters that a new environmental measure is being contemplated.

Box I.4. A Consultative Task Force on Environmental Requirements

The UNCTAD Secretariat, in co-operation with Brazil's National Institute of Metrology, Standardization and Industrial Quality (Inmetro), recently created a Consultative Task Force (CTF) on environmental requirements and market access for developing countries.

The objectives of the CTF are:

- *Analysis*: The CTF, with the support of the UNCTAD Secretariat and other institutions, could conduct a systematic analysis of key trends in environmental requirements and capacity constraints in developing countries.
- *Policy dialogue*: Aided by the above-mentioned analysis, the CTF could discuss what issues are best dealt with at what level of intervention and by which stakeholders. The CTF could also promote an exchange of national experiences in pre-regulation and pre-standard-setting[†] consultations. The CTF could also promote an exchange of national experiences on proactive adjustment policies among developing countries.
- *Co-ordination activities*: The CTF could also promote a regular exchange of information on technical co-operation and capacity-building activities by key multilateral and bilateral donors and other institutions[‡] and discuss ways of gradually improving their co-ordination.
- *Support activities*: The CTF could recommend adjusting and linking existing information systems to support its own activities and consider the creation of a clearinghouse mechanism, placing particular emphasis on standards and other private-sector requirements. The CTF could also facilitate co-operation aimed at strengthening capacities to collect and disseminate information on environmental and health requirements in key export markets, including the creation or improvement of early warning systems.

At its first expert meeting, in November 2004, the UNCTAD Secretariat put forward a tentative plan of sector-focused exploratory activities, including on organic product standards, practically oriented studies of existing early warning systems and the contours of an international clearinghouse mechanism and its synergies with existing public and private databases.

[†] In this context, the CTF can also help raise awareness of the impacts of supply chain requirements on developing countries with retailers and other large buyers in developed countries.

[‡] This concerns activities such as those implemented through the WTO/World Bank Standards and Trade Development Facility, the United Nations Industrial Development Organization (UNIDO), the CBI in the Netherlands, the Agency for Technical Co-operation (GTZ) in Germany, the International Development Research Centre in Canada and the International Institute for Sustainable Development, the STIC, and WWF International.

Technical regulations and international standards

Where international standards are available, and measures at the national level are developed in conformity with these standards, there is less variability and uncertainty about new requirements. The cost of adapting to requirements that diverge from international standards grows with the complexity of the environmental and health measures. The three OECD case studies of measures regulating organic production methods in the main developed countries (Part II, Chapters 14-16) provide a good

example of the difficulties of adapting to dissimilar regulations. Adjusting organic production and, more significantly, the conformity assessment procedures, to the requirements of the various systems in place is clearly difficult.[19] As a rule, the proliferation of requirements adds to the transaction costs for exporters. In the extreme, it may force them either to produce products tailored for different import markets or to become more dependent on a smaller number of importers. The WTO cites four categories of costs associated with divergent regulations: loss of economies of scale; conformity assessment costs; information costs; and surprise costs (www.wto.org/english/thewto_e/whatis_e/eol/e/wto03/wto3_7.htm).

The TBT Agreement encourages WTO members to base the technical regulations, standards, and procedures used for assessment of conformity with such regulations and standards on international standards so as not to create unnecessary obstacles to trade. However, there may be cases where internationally developed standards or guidelines are not available, or a country may consider them to be inappropriate or ineffective in achieving national objectives. Generally, environmental measures aimed at ensuring a minimum standard for a product's characteristic take the form of technical regulations, such as product-content requirements or maximum residue limits. Requirements addressing earlier phases of the product cycle — processes or production methods — tend to take the form of (voluntary) standards and can be certified and awarded labels reflecting such certification.

While trade is facilitated when domestic measures are based on international standards, international standards have so far been developed for only a small fraction of the environmental objectives for which at least one government has issued a regulation. On the other hand, the promulgation of a domestic regulation by a major importer can prompt the adoption of similar regulations in other countries.[20] Whether or not this is always desirable, it increases the likelihood that countries will develop similar measures.

It is important to consider why developing countries that believe that international standards would facilitate trade do not more frequently propose such standards in the relevant forums (for an exception, see Part II, Chapter 7). By contrast, several case studies show that developing countries are not slow to seek *bilateral* solutions to their market-access problems, especially when the affected industry or country is heavily dependent on an export market. For example, India, which sent between 25% and 70% of its textile and clothing[21] exports to the German market, was very seriously affected by the ban on products processed with azo dyes.[22] This explains why Germany and India collaborated to limit the consequences of the measure.

19. Currently, no developing country is seeking to conclude equivalence agreements with more than one large trading bloc.

.20 Such is the case, in particular, of the ban on formaldehyde by a Japanese law on control of household products containing hazardous substances (Part II, Chapter 1). Adopted in 1973, this measure inspired similar regulations in many OECD countries.

21. Textile products accounted for USD 11 billion and 25% of total exports in 2001.

22. In fact, Indian textile and clothing exports to Germany following the ban only grew at half the rate of these exports to other export markets.

Not more trade-restrictive than necessary

The TBT and the SPS Agreements require that technical regulations and sanitary and phytosanitary measures, respectively, be no more trade-restrictive than necessary to meet a legitimate objective. TBT Agreement Article 2.2 reads:

> Members shall ensure that technical regulations are not prepared, adopted or applied with a view to or with the effect of creating unnecessary obstacles to international trade. For this purpose, technical regulations shall not be more trade-restrictive than necessary to fulfil a legitimate objective, taking account of the risks non-fulfilment would create. Such legitimate objectives are, *inter alia*: national security requirements; the prevention of deceptive practices; protection of human health or safety, animal or plant life or health, or the environment. In assessing such risks, relevant elements of consideration are, *inter alia*: available scientific and technical information, related processing technology or intended end uses of products.

Article 3, and in particular, Article 3.3 of the SPS Agreement, includes a strict definition of the conditions under which higher standards than those laid down by international standards can be adopted:

> Members may introduce or maintain sanitary or phytosanitary measures which result in a higher level of sanitary or phytosanitary protection than would be achieved by measures based on the relevant international standards, guidelines or recommendations, if there is a scientific justification, or as a consequence of the level of sanitary or phytosanitary protection a Member determines to be appropriate in accordance with the relevant provisions of paragraphs 1 through 8 of Article 5 (2). Notwithstanding the above, all measures which result in a level of sanitary or phytosanitary protection different from that which would be achieved by measures based on international standards, guidelines or recommendations shall not be inconsistent with any other provision of this Agreement.

Article 2.2 of the TBT Agreement (quoted above) requires that "technical regulations shall not be more trade-restrictive than necessary to fulfil a legitimate objective, taking account of the risks non-fulfilment would create". In a submission to the WTO's Committee on Trade and Environment, India implicitly questioned the balance between trade restrictiveness and protection in respect of an MRL for pesticides in tea:

> [India's] tea exports have been affected due to developed countries' concerns about pesticide content. Although Indian exporters adhered to the maximum pesticide residue levels recommended by the US Environmental Protection Agency (EPA), stricter limits … imposed in some European countries became insurmountable, there being, apart from other problems, a cost of USD 234 per analysis.

Although there is no international standard specifically limiting the amount of chemical residues in tea, the Codex Alimentarius has established a limit for ethion residues in citrus fruits. The limits on ethion imposed by the measure in question were much lower than those set by the Codex Alimentarius for citrus, and, moreover, lower than those envisaged by German regulations for fruits and vegetables, even though the latter are entirely consumed (whereas, in the case of tea, 85% to 98% of the chemical residues become concentrated in the leaves, which are discarded after infusion).

Standards established by non-governmental bodies

Some of the OECD case studies describe initiatives of NGOs and businesses in OECD member countries, which have often used established international guidelines as templates for their own standards. The MSC, for example, based its "Draft Principles and Criteria for Sustainable Fisheries" on the FAO's Code of Conduct for Responsible Fisheries. The World Travel and Tourism Council (WTTC) worked with the World Tourism Organisation (an intergovernmental organisation [IGO]) and the Earth Council (an environmental NGO) to develop an Agenda 21 for the Travel & Tourism Industry before developing its Green Globe 21 standard for environmentally sustainable tourism.

Box I.5. Certification and equivalence: the case of organic agriculture

The world market for organic agricultural products has been growing at an annual rate of up to 25% during the last decade (International Trade Centre, 2002). Farmers in developing countries have been exploiting certain comparative advantages in this sector. Nonetheless, they face major problems of market access, partly because of the lack of harmonisation of standards relating to organic products on the European, Japanese and US markets.

Constraints on equivalence

The major importing countries for organic farming products have all adopted procedures for concluding equivalence agreements between sets of national organic standards. However, few agreements have been signed to date, in particular with developing countries. Only two developing countries (Argentina and Costa Rica) have concluded agreements with the EU, following lengthy procedures (four years each). As of September 2005, one developing country (India) had requested an equivalency determination under the US procedure and only two requests have been filed with Japan (Thailand and India). In the absence of equivalence agreements, the systems of mutual recognition of conformity assessment may also reduce problems of market access faced by developing-country exporters of organic agriculture products.

Conformity assessment procedures

Mutual recognition of procedures of conformity assessment also tend to be complex and time-consuming. Whether official bodies need to be involved in monitoring conformity is one question that arises. Recognition of private agencies by the authorities of developed countries may achieve the same objectives more cheaply. Simplification is all the more necessary given that problems of certification can have detrimental consequences for developing-country exporters.[†] In practice, this objective could be attained through measures aimed at accepting international certification systems, authorising each member to propose competent certification bodies for all OECD countries[‡] to recognise group certification, to authorise organic products from third countries to use the common national logo and to facilitate import procedures.

The ITF is developing alternatives based on existing models to facilitate conformity assessment procedures, which have been identified in the OECD and UNCTAD studies as a more serious barrier for developing-country access than the substance of the organic standards themselves.

[†] Chile exported large quantities of organic fruits and vegetables to Europe, but these exports have fallen sharply since ISO 65 came into being and prompted the EU to no longer recognise Chilean certification bodies (the share of such exports to Europe fell from 64% to 34%).

[‡] Ugandan organic coffee remained blocked for over six months in Kampala pending an import licence because some member states did not recognise the certification granted by the Swedish body KRAV (Part II, Chapter 14).

A recent initiative by private standard-setting bodies underlines the importance that they attach to international standards. The International Social and Environmental Accreditation and Labelling (ISEAL) Alliance, whose membership includes several international, non-governmental standard-setting or conformity assessment organisations, has recently issued a Code of Good Practice for Voluntary Process and Production Method Standard-setting Procedures. This Code supports, among other things, the principle that "International standards shall be used as the basis for corresponding national or regional standards, except where they would be ineffective or inappropriate." (http://www.isealalliance.org)

Flexibility

The TBT Agreement (Article 2.7) encourages countries to accept the measures of exporting countries as equivalent if they meet the policy objective that forms the basis for an existing national measure, even though they may differ in design. Prior to determining equivalencies — that is to say, after measures have been enacted (see below) — it is also possible to introduce a degree of flexibility in the development of technical measures and the associated conformity assessment procedures.

Voluntary standards concerning processes or production methods generally allow some flexibility in the means by which an environmental objective is achieved. The case studies provide several examples of standards established by non-governmental organisations (MSC or Green Globe — see Part II, Chapters 19 and 21, respectively) which seek to certify, using fairly flexible procedures, that products supplied to consumers come from sustainable methods of production. Thus, the "Basic Organic Standard" established by IFOAM defines certain minimum criteria for obtaining organic certification, but allows for a considerable degree of flexibility in the technical requirements. In order to find solutions to the problems affecting developing-country exports of organic products (such as conformity assessment), UNCTAD, FAO and IFOAM have set up the International Task Force on Harmonisation and Equivalence in Organic Agriculture (ITF) (Box I.5).

Procedures for transparency in the development of standards

Both consultations with stakeholders and impact assessments are meant to provide information that can help ensure that the design and implementation of a regulation or standard achieve the environmental objective in the least trade-distorting manner. Consultations, especially if conducted before a regulation or standard is finalised, can help the designers of the regulation or standard understand better the range of predicted effects and possibly identify unanticipated and unintended consequences. This information can, in turn, help ensure that any impact study is able to answer concerns raised by stakeholders.

Several examples show also that SMEs or small farmers do not always learn in time of measures that may affect market access of their products. The case study on Guatemalan snow pea producers (Part II, Chapter 6) shows that farmers supported by USAID did not foresee a US measure limiting the level of pesticide residues — a surprise result, considering that the production of these crops was promoted by the United

States.[23] The study points out that many programmes have been driven by production rather than marketing considerations.

Private eco-labelling schemes have sometimes conducted consultations with producers in developing countries. The MSC, for example, carried out several consultations on its "Draft Principles and Criteria for Sustainable Fisheries", to which they invited stakeholders from developing countries.[24] The WTTC went through a similar process in drawing up its Green Globe 21 standard for environmentally sustainable tourism. Given the difficulty of predicting the implications of a standard, it was inevitable that such programmes should be criticised. Private schemes for certification may be able to overcome criticism provided that they allow for the possibility of changes to their measures after an initial period of implementation.

More recently, the ISEAL Alliance, in its Code of Good Practice for Voluntary Process and Production Method Standard-setting Procedures, has made several recommendations pertaining to the consultation process. Although these recommendations can be seen also as important for transparency, they suggest a process that provides "[i]nterested parties … with meaningful opportunities to contribute to the elaboration of a standard" (www.isealalliance.org).

Carrying out ex ante *analyses of possible impacts on developing-country exporters*

Ex ante analyses of the trade impacts of environmental and health measures are meant to provide information that can help ensure that the design and implementation of a regulation or standard are likely to achieve a particular environmental objective in a way that minimises as far as possible avoidable adverse effects on market access. Part II, Chapter 2 provides one example of a thorough *ex ante* review (by the European Commission in the case of its Directive on azo dyes) of the possible impacts on developing-country exporters. Private standard-setting bodies rely mainly on consultations.

It has been observed that regulatory impact analysis (RIA) is a "firmly entrenched practice in many OECD countries", and that some countries' procedures require the analysis of the effects of new regulations on trade and investment.[25] An RIA can provide a mechanism for taking into account the situation of exporters who would most obviously be affected by the measure, while recognising that the challenge of assessing other countries' economic and environmental circumstances is not trivial. In the context of the EU Commission's Action Plan for better regulation, and starting in 2003, major

23. See also the paper presented by Mr. Natama Incha, Delegate of Niger, to the UNCTAD Expert meeting on environment requirements and international trade (Geneva, 2002), for an illustration of the relationship between the lack of outreach on pesticide residue standards and the difficulties of hide and skin exporters, at http://r0.unctad.org/trade_env/test1/openFl.htm.

24. Nevertheless, the MSC was criticised for not having included fishermen's associations, especially from developing countries, which made it difficult for it to reflect the diversity of local conditions and the interests at stake. In fact, although efforts have been made to adapt the label to the fisheries of developing countries, as yet none has been awarded this label. With regard to the private labels that provide obvious commercial opportunities, it is essential for them to reflect sufficiently representative and diversified interests to eliminate any suspicion of conflict of interest. This is even truer of Green Globe, which is an example of a for-profit label that not only benefits its members but also its founders, who are remunerated through affiliation fees.

25. "Several of the reviewed countries – among them the Netherlands, the United States, Canada and the United Kingdom – are highly experienced practitioners of regulatory impact analysis (…)" (OECD, 2003).

regulatory proposals included in the Commission's work plan will be subject to an impact assessment covering the three pillars of sustainable development (economic, social and environmental impacts). This comes in addition to the existing practice of publishing consultation documents (known as Green Papers) on major policy proposals with a view to collecting views from interested stakeholders prior to the drafting of a regulatory proposal. In the Action Plan, emphasis is put on public consultations. Trade partners are either consulted through the WTO notification mechanism, or through other appropriate channels (*e.g.* bilateral meetings, regulatory dialogues, trade and co-operation agreements, Internet consultations), sometimes upon request.[26]

Early notification

Consultation with affected trading partners while a new requirement is being developed can be considered a form of early notification, especially if the same groups continue to track developments. Early notification of the measure to the exporters concerned should allow them to prepare themselves for the changes they may have to make to their production in order to comply with the new requirement.

Notification of a proposed measure, as required by the WTO's SPS and TBT Agreements in situations where a relevant international standard does not exist, or where the proposed measure differs from such a standard, appears to have facilitated two-way communication. As described in the case study on eco-labels for forest products (Part II, Chapter 10), this has led in some instances to revisions of proposed measures that exporting countries have found objectionable.

Implementation and review of environmental requirements

Delaying implementation

A delay in implementation of a regulation may be granted to address difficulties faced by developing countries. For example, Germany postponed for one year application of its azo dye requirement to developing-country exporters (Part II, Chapter 2). Arrangements for implementing technical measures may also provide for a forward announcement of the effective date of entry into force, which helps exporters understand the time frame for adjustment.

Facilitating equivalence of regulations and standards

The process of reaching a consensus on an international standard can be costly and often takes several years (WTO, 1998). A fairly long period of time may elapse before it is finally implemented by national regulators. In order to prevent the absence of agreement on the subject of an international standard unnecessarily restricting trade, technical harmonisation may be completed by the recognition of equivalences. Indeed, technical barriers to international trade can be reduced if governments accept that their

26. A more systematic dialogue on standards, technical regulations and conformity assessments takes place in the context of EU co-operation and bilateral or regional trade agreements with third parties (Mexico, Chile, etc.). The objective is to intensify co-operation among the parties, especially in relation to market access, by enhancing mutual knowledge, understanding and compatibility of reciprocal regulatory systems. This can include environmental legislation when dialogue on the environment provides the opportunity to share information and experiences of existing or new regulations of the EU and the partner country (see EU-China environmental dialogue or the Asia-Europe meeting on environmental dialogue).

trading partners' standards and regulations pursue objectives identical to their own through different means.

While many countries' domestic legislation — such as the Japanese, US and European regulations on organic products — envisage the possibility, the case studies (and other studies on the question) show that developing countries have difficulty in negotiating and concluding equivalence agreements on technical regulations.[27] When the SPS Committee sought to clarify the SPS Agreement's provisions on equivalence (G/SPS/19, 26 October 2001), it decided that members should provide information regarding any equivalence agreements they had concluded. In July 2002, the Committee agreed on a format and recommended procedures for notifying equivalence agreements,[28] with a view to facilitating notifications in this area. As of mid-September 2005 no notifications had been submitted, even though a few countries had provided some information regarding their experience with equivalence.[29]

Facilitating mutual recognition of conformity assessment procedures

Multiple testing or certification of products can be costly for exporters, and these costs would be drastically reduced if a product could be tested once and the testing results accepted in all markets.[30] For this reason, both the TBT and the SPS Agreements, as well as many regional trade agreements, provide for the possibility of trading partners entering into mutual recognition agreements.

An MRA for results of conformity assessment procedures may be one of several possible tools for reducing the impact of technical measures concerning developing countries' access to foreign markets. MRAs are agreements between governmental or non-governmental parties to accept some or all aspects of one another's activities. They are usually based on the acceptance by one party of results, presented by another party, of the implementation of one or more designated functional elements of a conformity assessment or certification system. These elements include testing, certification, accreditation and quality assurance system registration. MRAs tend to be easier to put in place where standards are harmonised or the parties to the MRA regard their regulations or standards as equivalent (Rotherham, 2003).

The existence of international bodies (the International Accreditation Forum [IAF] and the International Laboratory Accreditation Co-operation [ILAC]), international standards on conformity assessment (that of the International Organization for Standardization [ISO/CASCO] and others), and policy frameworks like Article 5 of the TBT Agreement concerning conformity assessment, have no doubt facilitated the development of MRAs. With respect to the SPS Agreement, the Codex Alimentarius Commission has taken some steps towards creating a framework for technical equivalence.

27. See WTO documents G/SPS/GEN/212, 232, 238, 242, 261, 304 and 326.

28. WTO Document G/SPS/7/Rev.2/Add.1. Between November 2002 and March 2004, the Committee also adopted clarifications to paragraphs 5, 6 and 7 of Document G/SPS/19, culminating in a revised version of the document (G/SPS/19/Rev.1).

29. For TBT see, for example, G/SPS/GEN/212, /232, /238, /242, /243, /261, /304 and /326.

30. http://www.wto.org/english/thewto_e/whatis_e/eol/e/wto03/wto3_7.htm. See also Article 6.1 of the TBT Agreement.

With respect to environmental requirements, however, developing a system that supports the goal of "once tested, once certified, accepted anywhere" has proved to be more difficult than anticipated. As Rotherham (2003) has pointed out, international harmonisation of standards may be the highest priority in some cases, but in others mutual recognition of the competence of different national accreditation agencies may be more important. This is particularly true for environmental standards, as harmonisation is often inappropriate owing to differences in the absorptive capacities of ecosystems, varying economic costs and social preferences among producing countries.

The case studies show that developing countries continue to face problems of market access as a result of a lack of MRAs.[31] Thus, certain Japanese certification bodies have concluded "trust agreements" with Chinese counterparts under which, in accordance with Japanese legislation, the Chinese counterparts will be recognised as certification bodies accredited by the Japanese authorities (see Part II, Chapter 15). This should reduce certification costs for Chinese producers.

Promoting periodic reviews

To avoid regulations and standards becoming obsolete or out of date, they should be subjected to periodic review to ensure that the scientific evidence on which they are based is still valid and determine whether it may be possible to achieve the underlying objectives in a less trade-restrictive manner.

Many technical regulations expressly provide for periodic reviews. When Australia issued its phytosanitary protocol for imported fresh durian fruit, for example, it specified that the rules would be reviewed one year after the commencement of imports (Part II, Chapter 9). Similarly, Article 6 of the draft Proposal for a Directive of the European Parliament and of the Council on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment specifies that "by 31 December 2003 at the latest, the [European] Commission shall review the measures provided for in this Directive to take into account, as necessary, new scientific evidence". Countries such as Canada undertook thorough reviews of their technical regulations before the TBT and SPS Agreements took effect, with the aim of ensuring that those regulations that remained in force were consistent with the requirements of the WTO.

Voluntary measures aimed at informing consumers that certain processes or production methods are subject to environmental and health concerns often call for periodic reviews. The case studies contain several examples of standards applied by international NGOs that have been adjusted over time in light of feedback from those involved in the schemes and criticism by non-participants. For example, the MSC and Green Globe have succeeded in promoting sustainable methods of production while taking account of the trade concerns of developing countries. While the MSC was initially criticised for having insufficiently involved fishermen's associations — and especially those of developing countries — in the development of its system, it gradually did so. As for Green Globe, it incorporated other eco-tourism labels and now enjoys broad international recognition, in particular thanks to its relations with intergovernmental and non-governmental organisations.

31. In a situation in which exports of Indian tea to Germany had stalled because studies had shown the presence of pesticide residues, producers in the Darjeeling region initially set about having their tea tested. The absence of technical means persuaded them, however, to adopt organic production methods. They then came up against the non-recognition of the equivalence of the control procedures applied by ENCON (a network of professional consultants) and the EU certification bodies (Part II, Chapter 7).

Final remarks

The 21 case studies carried out in the JWPTE, together with another 15 conducted by UNCTAD, have identified a number of market access difficulties faced by developing-country exporters which have arisen as a result of environmental requirements imposed by OECD governments, private firms and NGOs.[32] The studies cover a wide range of products and environmental requirements, importing markets and exporters at various stages of development.

The emphasis of the research has been to understand the reactions of the main actors — the exporting country, the firm and the OECD importing country or NGO that devises the environmental requirement — and in particular how each has contributed to solving the problems encountered. An effort has been made to identify the practical tools that have been developed, or are being developed, to respond to the information and capacity constraints of developing countries, as well as the procedures for developing measures, including notification and consultation procedures. Two general observations can be made. First, the importance of private, voluntary standards has been on the rise. Second, two common concerns keep arising: *i)* those concerning the diffusion of quality information and analysis to the relevant actors and support for producers' capacities to adjust their production to the environmental requirements; and *ii)* those involving the development, implementation and review of the environmental requirements. The case studies indicate that reactions to each of these concerns differed considerably.

The rise of private voluntary standards

The case studies suggest that a clear separation of "environmental requirements" — in the broad sense adopted in the OECD and UNCTAD studies — between mandatory regulations and private voluntary standards is not clearly felt at the level of the producer or exporter. Whereas such a distinction is central to the obligations of WTO member governments to notify their technical regulations under the TBT and SPS Agreements, it proves less meaningful for the producer who must conform in either case in order to sell his product. Even when a standard is voluntary *de jure*, it may in many cases have to be met in order for exporters to access certain markets. This is increasingly true when retailers impose conditions along the supply chain and when globalised production obliges developing-country exporters to meet specifications imposed by multinational companies. Nonetheless, when exporters learn of new requirements, they are often able to adapt production rapidly and take the new measures in stride as a legitimate part of producing for export markets. As product standards are an integral part of producing for markets, the recognised emphasis on marketing and keeping abreast of consumer preferences, including through the development of internal management systems, makes adjustment easier. When voluntary standards address methods of production, and thus almost by definition specific local conditions, the difficulties tend to be greater.

At the same time, private standard-setting organisations have been relatively quick in many instances to adapt and, in some cases, even revise their standards when the initial measures have caused hardships for exporters. The recently adopted Code of Good Practice for Setting Social and Environmental Standards, developed by the ISEAL Alliance for international standard-setting and conformity assessment organisations,

32. Limited evidence indicates that, overall, the importance of environmental requirements has grown over the last decade. Based on the WTO environmental database, the share of environment-related notifications under Articles 2 and 5 of the TBT Agreement rose from around 9% in the early 1990s to 18% in 2002.

references ISO, OECD and WTO documents. The Code is designed to promote good practices, such as consultation with stakeholders. An initiative by UNCTAD to establish a Consultative Task Force on Environmental Requirements and Market Access for Developing Countries would address not only governmental measures but also private standards.

Information and capacity constraints and procedures for developing, implementing and reviewing requirements

Problems related to the availability of information and exporters' capacity to meet requirements have received sympathetic consideration by OECD members and international organisations, as well as in the context of south-south co-operation. A number of bilateral and multilateral donor agencies, as well as non-governmental initiatives, have put information systems in place. Difficulties remain in terms of going beyond governments to reach the economic actors that need to conform, particularly in the LDCs and among SMEs. Use of Internet-based information systems, such as the Dutch CBI information system, the Brazilian Inmetro early warning system (recently regionalised to other Mercosur members), and online consultation forums, such as that held in 2003 on the draft EU REACH Directive, offer examples of good practices. For certain problems, greater support of research and extension may be needed, *e.g.* where an environmental restriction on a particular product or process is put in place before substitute technologies appropriate to the particular ecology of the producing region are available. Some multilateral environmental agreements (MEAs) addressing global environmental problems have incorporated funding mechanisms to support research.

Since 1995 and the establishment of the WTO, institutional arrangements through the TBT and SPS Agreements offer a number of possibilities for lessening the negative impacts of technical regulations on market access. Early notification and consultation with trading partners and availability of information at national enquiry points have improved. In the case of environmental and sanitary and phytosanitary requirements, where international standards are relatively few for legitimate reasons of absorptive capacity, climatic differences, as well as varying social preferences, other tools for minimising negative trade effects are recognised and expressly encouraged by the WTO Agreements. These include equivalency agreements and mutual recognition of conformity assessment procedures. To date, these tools have been relatively little used.

In the case of trade in organic agricultural products, the ITF, set up by IFOAM, FAO and UNCTAD, has identified the plethora of certification requirements as a major obstacle to the development of the organic sector, including for exports from developing countries. The differences in conformity assessment systems were also found to be a factor hindering market access in the three case studies on the US, EU and Japanese organic schemes, and were a major focus of the ITF's work is review and development of the WTO and other models for conformity assessment. In some instances, regulators temporarily deferred the implementation of new rules. Likewise, some OECD members are expanding their use of regulatory impact analysis (RIA), as recommended in OECD regulatory reform reviews, and include market access effects of domestic regulations. Market openness is one of the consensus areas in which RIAs are used regularly to assess impacts on trade of various sectoral regulations.

Overall, the case studies illustrate that many of the concerns about environmental requirements expressed by developing-country exporters have been addressed, albeit often at a relatively late stage. There are some encouraging signs of a movement from a

reactive approach of solving the problems created to a more holistic one of attempting to promote reconciliation of a high level of environmental protection and stronger growth in developing-country exports. The impetus appears to be coming above all from a desire to promote policy coherence and from efforts to make governmental regulations more efficient and trade-friendly in national regulatory reform exercises. It is also important to realise the limits of established mechanisms and to continue to look for ways to fill the gaps, including through collaboration with private-sector actors, and to promote certification of products and services that are environmentally preferable.

Annex I.1. OECD case studies organised by title, importing and exporting country

Case study title	Countries imposing the measure	Affected countries (among others)
Adapting turtle-excluder devices to local conditions	United States	Costa Rica
Developing an international standard for "green" tourism	International tourism industry group	Developing-country providers in general
Eco-labels for cut flowers	German NGOs and flower industry	Colombia
The EU's import procedures for organic foods and beverages	EU	Chile, Mexico and Uganda
Import procedures for gasoline	United States	Venezuela and Brazil
The International Fruit Container Organisation Returnable packaging Initiative	German importers	Developing-country exporters in general
Japan's regulations affecting the labelling of organic plant products	Japan	Developing-country exporters in general
Limits on aromatic amines in textiles coloured with azo dyes	Austria, EU, Germany, Netherlands and Norway	India and Pakistan
Limits on cadmium in plastics and PVC	EU	China and Hong Kong, china
Limits on chemical residues in leather goods	Japan and several European countries	Argentina, India, Pakistan, Zimbabwe
Limits on formaldehyde in textiles	Japan, Korea, the Netherlands, other European countries	Philippines
Limits on pesticide residues in pineapples	EU	Ghana
Limits on pesticide residues in snow peas	United States	Guatemala
Limits on pesticide residues in tea	Germany	India
Mangrove protection initiatives and farmed shrimp	NGOs and IGOs	India
Phasing out methyl bromide	Multilateral environmental agreement (all OECD members)	Producers and exporters of horticultural crops, especially in humid climates
Phytosanitary measures affecting the import of fresh durian fruit	Australia	Thailand
Private certification of a fishery as sustainable	NGO	Developing-country exporters in general
Regulating "organic" food labels in the United States	United States	Developing-country exporters in general
Sustainability labels for wood and wood products	The Netherlands	Malaysia and other exporters

Source: Author.

Annex I.2. Classification of Case Studies According to Sector and Environmental Issue

Sector or industry	Process- or production-related issue	Product characteristics	Post-product requirements
Manufacturing			
Textiles and leather	–	Aromatic amines (1) Formaldehyde (1) Various chemicals (1)	–
Plastics	–	Cadmium (1)	–
Gasoline	–	Sulphur, oxygen, etc. (1)	–
Primary biological industries			
Agriculture and horticulture	Environmental management (1) Organic methods (3) Use of an ozone-depleting substance (1)	Pesticide residues (3) Pests (1)	Packaging (1)
Fisheries	Habitat destruction (1) Sustainable management (1) By catch (1)	–	–
Forestry	Sustainable management (1)	–	–
Services			
Tourism	Sustainable management (1)	–	–

Note: Numbers in parentheses refer to the number of case studies prepared on the particular product.

Source: Author.

Annex I.3. Summaries of Problems and Responses Identified in the OECD Case Studies

OECD case study	Type of environmental or health & safety requirement	International standard in existence?	Nature of problem	Responses by main actors
Limits on formaldehyde in textiles	Technical regulation	No	Various conflicting national requirements increase costs of compliance	The Netherlands, rather than simply adopt other countries' regulations, conducted a fresh review, leading to a regulation that met same objectives but was less costly to comply with
			Low awareness of the measure, especially among SMEs — including availability of technology and alternative production methods	A study was conducted by a European group to assess reasons for low compliance
Aromatic amines in textiles	Technical regulation	No		Other EU member states, after Germany, adopted Germany's regulations essentially unchanged, as did eventually the European Commission
			Time to implement the regulation	Implementation of German regulation was delayed a year to give developing countries time to adjust
			Lack of information on requirements, especially among SMEs	Dutch Centre (CBI) organised workshops in textile-exporting countries to explain the regulations and how to comply with them
			Inadequate testing facilities available to local companies	The requisite testing facilities were eventually established
			Difficulty in obtaining substitute inputs, implementing alternative production technologies	Some assistance was provided by the Indian government
Limits on chemical residues in leather goods	Technical regulation	No	Lack of information on requirements, especially among SMEs	
			Inadequate testing facilities available to local companies	The requisite testing facilities were eventually established
			Difficulty in obtaining substitute inputs, implementing alternative production technologies	India's Central Leather Research Institute developed a cleaner process, using enzymes, to replace conventional tanning; in Africa, UNIDO launched a project to develop cleaner processes
Limits on cadmium in plastics and PVC	Technical regulation	No		US and EU standards remain different

Annex I.3 (cont'd.)

OECD case study	Type of environmental or health & safety requirement	International standard in existence?	Nature of problem	Responses by main actors
			Lack of information on requirements and how to meet them, especially SMEs	Enforcement agencies in Europe established a group to improve communication with countries of origin of problem products; the STIC provides technical assistance
Import procedures for gasoline	Technical regulation	No	Differential application of regulations	US government revised its regulation to eliminate the differences
			Difficulty in understanding and demonstrating compliance with the regulations	US EPA worked with individual refiners, particularly in compiling necessary information and analysis
Limits on pesticide residues in snow peas	Technical regulation	??	Lack of information on requirements and how to comply with them	After several shipments were rejected, a research and extension programme was established to develop integrated pest management and to teach farmers
Limits on pesticide residues in tea	Technical regulation	No		Several years later, the FAO's Intergovernmental Group on Tea, with assistance for the Common Fund for Commodities, began work to develop international standards for pesticide residues
			Inadequate testing facilities available to local companies	Germany's GTZ recently provided funds to help set up an independent laboratory for testing pesticide residues in India
			Difficulty in implementing alternative production technologies	Tea importers and environmental NGOs have been providing technical assistance to promote organic tea production
Limits on pesticides in pineapples	Technical regulation	??	Lack of international standard and inadequate knowledge on how to meet national standard	EU provided assistance for conducting research leading to the development of an appropriate standard, and integrated pest management
Phytosanitary measures affecting the import of durian fruit	Technical regulation	No	Complicated procedures for demonstrating conformity	Australia has funded research in Thailand on improving its pest control systems
			Less costly sampling alternatives preferred by exporter	Australia agreed to consider other, non-destructive methods of sampling if data on their efficacy could be furnished
Sustainability labels for wood and wood products	Technical regulation (not implemented)	No		
			Strict interpretation of sustainable forest management; no recognition of technical equivalence	

Annex I.3 (cont'd.)

OECD case study	Type of environmental or health & safety requirement	International standard in existence?	Nature of problem	Responses by main actors
			Difficult to implement the standard, particularly the chain-of-custody requirements	
			Low awareness of the proposed measure, especially among SMEs	Dutch government ensured that the proposed measure was well understood by WTO Members
Adapting turtle-excluder devices to local conditions	Technical regulation	No	Recommended technology inappropriate to local conditions	US government eventually approved alternative design for turtle-excluder device more suited to Costa Rican conditions
The EU's import procedures for organic foods and beverages	Standard (government)	Yes	Process of obtaining recognition of a country's standards as equivalent to those of the EU can take up to six years	Temporary measure of derogation was created which allowed special import permits to be issued by an individual EU member state
			Limited pool of conformity assessment providers (related to above)	Some EU member states have accredited developing countries' certifiers
Japan's regulations affecting the labelling of organic plant products	Standard (government)	Yes	Different approach from other two organics systems studies to conformity assessment	Recently introduced
Regulating "organic" food labels in the United States	Standard (government)	Yes	Different approach from other two organics systems studies to conformity assessment	Recently introduced
Eco-labels for cut flowers	Standard (private)	No	Lack of participation in standard-setting	Some consultations were subsequently held with stakeholders, including some producers from exporting developing countries
			Limited pool of conformity assessment providers	
Mangrove protection initiatives and farmed shrimp	Standard (private)	No		IGOs and multilateral lending agencies have worked with producing countries to better understand impact of shrimp aquaculture and to suggest best practices
Private certification of a fishery as sustainable	Standard (private)	Yes, in general terms	High cost of providing data necessary for conformity assessment	Sponsors of the MSC have provided funding to help developing-country applicants to conduct necessary studies
			Need to adapt standard to local conditions	The MSC has engaged in dialogue and research in order to make its principles and criteria more relevant to fisheries in developing countries

Annex I.3 (cont'd.)

OECD case study	Type of environmental or health & safety requirement	International standard in existence?	Nature of problem	Responses by main actors
			Limited pool of conformity assessment providers	MSC has initiated a programme to enhance the auditing and certification infrastructure in developing countries
The International Fruit Container Organisation (IFCO) returnable-packaging initiative	Standard (private)	No	Limited pool of suppliers of requisite returnable crates	
Developing an international standard for "green" tourism	Standard (private)	Yes, in general terms	Limited pool of conformity assessment providers	Certification separated from accreditation body; independent certifiers were allowed
			High fees for participating in the scheme	Fees were lowered and graduated according to level of development of the country; community (*i.e.* group) certification was introduced

Source: Author.

Annex I.4. UNCTAD Case Studies on Environmental Requirements and International Trade

Case studies: South Asia		
Fishery products	India (other countries)	Hazard Analysis Critical Control Point (HACCP) standards
	Bangladesh (Aug 97) India (May 97 & Aug 97)	EU bans on exports of fishery products
Peanuts	India	Aflatoxin standards: setting national standards and promoting indigenous development of technology
Rice	India	Standards for pesticide residues
Spices	India, Sri Lanka	Aflatoxin standards and other SPS measures
Tea	India	Meeting standards on pesticide residues
Organic food products	India	Standard-setting, certification, exports and institutional support
Case studies: Central America		
Poultry	Costa Rica (and other Central American countries)	Effects of *i)* the application of US SPS regulations concerning specific avian diseases (New castle disease) and *ii)* HACCP requirements on exports to the United States and intra-Central American trade; policy responses
Shrimp	Costa Rica	US measures concerning imports of shrimp (TED)
Organic food products	Costa Rica	Standard-setting, certification, exports and institutional support
Case studies: Africa		
Fishery products	Kenya, Mozambique, Tanzania and Uganda	Regulation 91/493/EEC
	Kenya, Tanzania and Uganda (1997)	EU import ban: presence of salmonellae in Nile perch from Lake Victoria
	Kenya, Mozambique, Tanzania and Uganda (1997)	EU import ban: outbreak of cholera
	Kenya, Tanzania and Uganda (1999)	EU import ban: fish poisoning in Lake Victoria
Peanuts	Kenya	Kenya: EU regulation on pesticide application (MRLs)
Organic food products	Uganda	Standard-setting, certification, exports and institutional support

Note: UNCTAD case studies can be found at http://r0.unctad.org/trade_env/test1/openF1.htm

Source: Author.

References

Environmental Resource Management (1998), "Study on the Effects of Suppliers in Developing Countries of a Ban on azo Dyes and Products Treated by azo Dyes", Report for the European Commission (DG-III), ERM, Oxford.

International Trade Centre (2002), "Overview of World Markets for Organic Food and Beverages (Estimates)", Geneva, www.intracen.org/mds/sectors/organic/overview.pdf, accessed 7 July 2004.

OECD (2003), "Developing Country Access to Developed Country Markets under Selected Ecolabelling Programmes", COM/ENV/TD(2003)30/FINAL, Paris.

OECD (2003), "Integrating Market Openness into the Regulatory Process: Emerging Patterns in OECD Countries", TD/TC/WP(2002)25/FINAL, Paris, www.oecd.org/dataoecd/27/25/2494869.pdf.

Rotherham, Tom (2002), "Political Rights — Legal Obligations: The Implementation of Article 11 of the TBT Agreement", paper presented to the OECD Global Forum on Trade "Workshop on Environmental Requirements and Market Access: Addressing Developing-Country Concerns" 27-28 November, New Delhi, India, http://webdomino1.oecd.org/comnet/ech/tradeandenv.nsf.

Rotherham, Tom (2003), *Implementing Environmental, Health and Safety (EH&S) Standards, and Technical Regulations: The Developing Country Experience*, International Institute for Sustainable Development, Winnipeg, Manitoba, www.iisd.org.

UNCTAD (2002), "Expert Meeting on Environmental Requirements and International Trade", 2-4 October, Geneva. See http://r0.unctad.org/trade_env/test1/openF1.htm then "Meetings". All papers and presentations included.

World Trade Organization (WTO) (1998), "Technical Barriers to Trade" in *The World Trade Organization: A Training Package*, World Trade Organization, Geneva, www.wto.org/english/thewto_e/whatis_e/eol/e/wto03/wto3_2.htm

Part II

Case Studies on Environmental Requirements and Market Access

Government Regulations: Manufactured Products

Chapter 1

Limits on Formaldehyde in Textiles

This chapter examines the effects of regulations, first established by Japan some three decades ago, restricting the formaldehyde content in textiles. Similar restrictions have since been implemented in other developed countries. The study shows that developing-country exporters are often unaware of such restrictions, a fact that may lead to denial of market access. Efforts now are being made to disseminate information about the regulations, notably in the Philippines.

Introduction

In 1973 Japan enacted Law No. 112, the Law for the Control of Household Products Containing Harmful Substances (the Law). The Law restricts the content of several harmful substances in household products, including the amount of formaldehyde allowed in textile articles. Since the late 1980s, several other OECD member countries have also established limits on formaldehyde in textiles.

Developing country textile exporters may have been affected by these rules, but many seem to have found alternative chemicals or mechanical processes for achieving the same results. However, it appears that awareness of limits remains poor among small and medium-sized enterprises (SMEs).

Development of the environmental measure

The Law was enacted on 12 October 1973. The Law, as its name suggests, is intended to control people's exposure to hazardous substances contained in common household products. The Ministerial ordinance implementing the Law, issued in 1974, initially set maximum limit values (MLVs) for five substances, including formaldehyde, in a wide range of those products.[1] Producers and importers were then given one year to comply with the formaldehyde restrictions.

Formaldehyde is a pungent gas (CH_2O) used in the manufacture of synthetic resins, adhesives and dyes. Residues of these compounds enter fabrics (particularly those made of cotton, viscose, linen and their blends with synthetic fibres) through various stages in the manufacture of textiles. Formaldehyde-based resins, for example, are used in textile finishing as glazing agents, anti-creasing and anti-shrinking agents, and sometimes to improve colour fastness.

When Japan developed its MLVs for formaldehyde it was already well known that free formaldehyde could irritate people's mucous membranes and provoke allergic reactions. Formaldehyde was also already suspected of being a probable human carcinogen, although strong evidence of the link did not emerge until the 1980s. Since no internationally agreed or recommended standards relating to the formaldehyde content of products existed at the time, the Japanese authorities based their limit on toxicity tests and built in a significant margin of safety.

The law sets two standards. The level of formaldehyde allowed in products used by infants less than 24 months old (textile products, diapers, diaper covers, bibs, underwear, pyjamas, gloves, socks, middlewear, outerwear, caps and hats, and bedding material) must not exceed the limit of detection, which is currently around 15-20 parts per million (ppm). The amount of formaldehyde in textile products, underwear, pyjamas, gloves, socks and *tabi* (Japanese socks), adhesives used in wigs, false eyelashes, false moustaches, or garters that are *not* intended for infants must not exceed 75 ppm.

During preparation of the legislation, advice was solicited from Japan's Environmental Council, whose deliberations are open to the Japanese public. Once adopted, the legislation was communicated to relevant stakeholders in Japan (producers and importers) and published in the *Official Gazette*. No requirement to announce the legislation to third countries existed at the time. However, since the 1990s, information

1. The initial list of five regulated substances has subsequently been expanded to 17.

on the Law has been published on the Internet (www.nihs.go.jp/law/katei/ekatei.html) and is available upon request from the Ministry of Health, Labour and Welfare and the Japan External Trade Organization (JETRO).

Since Japan first introduced its formaldehyde limit for textiles, several European countries, plus Korea, have also adopted, or are considering adopting, similar measures (Table 1.1). The EU's criteria for awarding a voluntary Community eco-label to textile products, valid until 1 March 2002, also include limits on formaldehyde (CEC, 1999). In the absence of an international reference standard, these limits vary widely.

The Netherlands' measure, notified to the World Trade Organization's (WTO) Committee on Technical Barriers to Trade (TBT) in October 1999, takes a slightly different approach to limiting formaldehyde in textiles from most other countries. It aims to ban trade in clothing and non-clothing textiles which, in light of their intended purpose, can reasonably be expected to come into contact with the human skin, *if* the articles contain more than 120 ppm of formaldehyde *before* they are washed once and are not provided with the designation "wash before wearing". The regulation also bans trade in the aforementioned products if they contain more than 120 ppm formaldehyde after they have been washed once (Netherlands, 1999). The measure went into force on 20 June 2000.

In explaining its designation of a 120 ppm limit, the Dutch government wrote that research carried out by the RIVM [*Rijksinstituut voor Volksgezondheid en Milieu*] showed that:

> … in the event that the said textile products contain no more than 120 ppm formaldehyde, the above-mentioned conditions [*i.e.* skin allergies] do not occur, even if the consumer appears to be over-sensitive to formaldehyde. From the same research, it appears that, in practice, excess amounts over and above the said limit value, as established in practice, almost always disappear by washing the textile product once as per the washing instructions.

Table 1.1. Maximum residue values for formaldehyde in textiles

Country	Year in force	Maximum residue limit (ppm)		
		Infant garments[1]	Garments that contact skin	Other garments or fabrics
European Union (eco-label)	1999	30	75	300
Finland	1988	30	100	300
Germany (label requirement)[2]	1993	1 500	1 500	—
Japan	1974	None detected[3]	75	75
Netherlands[4]	2000	120	120	—
Norway	1999	30	100	100

1. Generally, textile products for infants under 2 years of age, such as swaddling clothes, diapers, undergarments, textile toys and bed linen.
2. Textiles above these limits must bear the label "Contains formaldehyde. Washing this garment is recommended prior to first time use in order to avoid irritation of the skin."
3. Applying the measurement procedures required in Japan, the regulation effectively limits the amount of formaldehyde to a level no greater than 15-20 ppm.
4. Limits apply to articles after one wash if they are not marked "wash before wearing", and to articles before washing if they are not so marked.

Source: Based on Hong Kong Standards and Testing Centre, Ltd. (2000).

Trade issues and developing-country responses

The responses of developing-country exporters to Japan's MLVs for formaldehyde in textiles, and to the subsequent limits imposed by Korea and various European countries, are difficult to gauge, in part, because the first limits, imposed by Japan, entered into force three decades ago. India has complained at the WTO that the presence of formaldehyde (among other chemical residues) in cotton T-shirts has led to denial of market access to exporters, but it has provided no specific examples (India, 2000).

Some exporting countries, such as the Philippines, may nevertheless have been affected by these laws. The garment industry is the Philippines' second-largest export industry, generating 7.6% of total exports. And although most of its garments and textiles are shipped to the United States (over 75% of export sales), a large volume goes to the European Union and Japan. The Philippine garment sector consists primarily of subcontracting operations for international brands. It is driven primarily by low-cost labour and quota allocations from major markets. Over the last two decades, wages in the Philippines have gone up faster than in other subcontractor countries and continue to rise. As a consequence, Philippine garment exports have grown less than those of other Asian countries and their contribution to total export earnings has declined.

Surprisingly, given the length of time that Japan's law has been in force, Philippine manufacturers remail relatively unaware of the law. Contacted on this particular issue, the Philippine Garments and Textile Export Board, a government organisation, responded that they were not aware that Japan, Korea and several European countries had established an MLV for formaldehyde in textiles. The Philippine Textile Research Council tests for formaldehyde in bras but it does not know if the companies whose products they test export the garments to countries that limit formaldehyde content. CONGEP, one of the industry associations, has tried to make its members aware of importers' standards on formaldehyde, but they cannot say whether the standards have in fact hampered Philippine garment exports.

In short, it seems that formaldehyde standards are not an important consideration among textile exporters. Some organisations are aware of the standards, but others are not. Moreover, the Philippine textile industry does not seem to have been suffered from negative consequences of non-compliance, which would probably have raised the importance of this standard. Lax enforcement does not appear to be a reason: Japanese authorities indicate that their formaldehyde standard (the most rigorous) is quite strictly enforced. In 2000, 8 264 textile samples were checked, of which 5 744 were intended for infants. In 87 samples (of which 71 were for infants), the formaldehyde content was found to exceed the limit. Textiles found in violation are taken off the market, whether they originated in Japan or elsewhere. The Philippines is not a focal point of enforcement, and no data are available on the frequency of violations among samples of Philippine textiles.

According to the Japanese authorities, ignorance of the law is the main reason for the violations of the formaldehyde standard that do occur. This conclusion is substantiated by a recent report on awareness in the Philippines of ethical issues important to the EU (CBI-CREM, 2000):

> In general, the textile industry has no or very limited knowledge of ethical issues in the EU, … especially with regard to market trends and requirements. There are, however, major differences in awareness between big and smaller companies. In some cases, big companies are exclusively manufacturing for European retailers or

> are "daughters" of European companies. Such companies have little information problems ... .
>
> A major reason for the limited knowledge about ethical issues in the EU is that the Philippine textiles/garments industry mainly consists of SMEs [small and medium-scale enterprises] … . Another reason is that, so far, the EU is not the main focus of exports. Garment exports are directed mainly to the US market because the United States has been the traditional market for garments ... .
>
> There are limited certified product testing facilities. Existing laboratories can carry out testing but are not authorised to give out certification permits. In such cases parent companies in Singapore have to carry out the certification ... .

Responses to developing-countries' concerns

One of the recommendations of the CBI-CREM study quoted from above is to set up a Centre for Ethical Trade Promotion. Philexport (a Philippine export promotion organisation) is interested in active participation in such a centre, which can be established as a new cell within the existing organisation. This centre could provide more in-depth and tailor-made assistance and information on ethical issues, including product legislation and other environmental requirements in export countries. Financing for setting up a Centre for Ethical Trade Promotion proved to be a bottleneck for continuation.

Concluding observations

Awareness of formaldehyde standard for garments appears to be low among SMEs in the Philippines and perhaps in other developing countries, despite that the first, and most restrictive, standards (Japan's) went into force three decades ago. Given the degree of non-awareness among Philippine exporters on these issues, it is difficult to pronounce upon the size of a possible trade barrier. However, lack of knowledge may itself constitute a barrier to trade. The Philippine industry recognises the problem, and has recently expressed an interest in taking an active role in disseminating information.

References

CBI-CREM: Dutch Centre for the Promotion of Imports from Developing Countries, and the Consultancy and Research for Environmental Management (2000), "'Ethical' issues in the EU: Opportunities and Threats for Exports from the Philippines", Results of an identification mission, Amsterdam.

CEC: Commission of the European Communities (1999), "Commission Decision of 17 February 1999 establishing the ecological criteria for the award of the Community eco-label to textile products", *Official Journal of the European Communities* L 57/21, 5 March, pp. 21-30, http://europa.eu.int/comm/environment/ecolabel/producers/pg_textiles.htm.

Finland, Ministry of Trade and Industry (1990), "Decree on Maximum Amounts of Formaldehyde in Certain Textile Products (210/1988)", unofficial translation of 4 January l990, www.kuluttajavirasto.fi/user_nf/default.asp?id=8526&site=36&tmf=7442&root_id=7442&mode=readdoc.

Hong Kong Standards and Testing Centre, Ltd. (2000), "Formaldehyde Requirements in Different European Countries", HKSTC, Hong Kong. www.hkstc.com/whatsnew/PDF/TCD flyers/july2000-1.PDF

India, Government of (2000), "Committee on Trade and Environment — The Study of the Effects of Environmental Measures on Market Access: Communication from India", Document Symbol No. WT/CTE/W/177, 27 October, World Trade Organisation, Geneva.

Japan, Ministry of Health, Labour and Welfare, personal communication with H. Hirano, Pharmaceutical and Food Safety Bureau, Office of Chemical Safety, Japan, September 2001.

JETRO: Japan External Trade Organization (1999), "Guide to Law for the Control of Household Products Containing Harmful Substances", March.

Korea, Government of (1998), "Notification — Republic of Korea", Document No. G/TBT/Notif.98.612, 15 December, World Trade Organisation, Geneva.

Netherlands, Government of the (1999), "Committee on Technical Barriers to Trade; Notification — The Netherlands — Textile Products", Document No. G/TBT/Notif.99.515, 13 October, World Trade Organisation, Geneva.

Philexport, the Philippines, personal communication with Ms. J. Ramos. Business Development/Policy Advocacy Depts. Philippine Exporters Confederation, Inc., September 2001.

Philexport (1998), *Philippine Export Development Plan 1999-2001*, Philippine Exporters Confederation, Inc., Manila.

Philexport (1999), *Technical Barriers to Philippine Exports*, Philippine Exporters Confederation, Inc., Manila.

Slovak Republic, Government of the (1997), "Notification — Slovak Republic", Document Symbol No. G/TBT/Notif.97.240, 6 June, World Trade Organisation, Geneva.

Chapter 2

Limits on Aromatic Amines in Textiles Coloured with Azo Dyes

This chapter looks at the effects of bans of certain dye agents, collectively called azo dyes, on shifts in the production of such substances and on the measures taken by the developing countries that are the major producers and users of such dyes in order to achieve compliance with the import tolerances imposed, notably in Europe, and how they became aware of and responded to the European legislation.

Introduction

Most textiles are dyed or printed. Azo-dyes, a collective term used to describe a family of synthetic dyes containing an azo group (-N=N-), typically made from benzidine, toluidine and similar organic chemicals, account for approximately 70% of all organic dyes currently produced in the world. Invented in Germany in the late 19th century, they are today manufactured mainly in China, India, Korea, Chinese Taipei and Argentina (Fassold *et al.*, 1999). Unfortunately, some azo dyes, through chemical breakdown, may form chemical substances called aromatic amines (arylamines), which have been proven to be or are suspected of being carcinogenic.

Since the middle of the 1990s, several OECD countries have banned the manufacture, import, export and sale of textiles and other products that could come into contact with human skin for prolonged periods, if they are made with azo dyes that have the capacity to release, by reductive cleavage, hazardous arylamines. Germany was the first to impose a ban, followed by the Netherlands, Austria and Norway. In 1999 the European Union circulated a draft Directive that would apply the ban across all its member states.

The impact of these laws has been felt most acutely in developing countries that produce leather and textiles with azo dyes, particularly Bangladesh, Colombia, Egypt, India, Pakistan and Sri Lanka. In India, a major manufacturer of synthetic dyes, two of its industries were affected.

Development of the environmental measure

It was long suspected, and eventually confirmed, that occupational exposure to arylamines such as benzidine, 2-naphthylamine, and 4-aminobiphenyl is associated with exceptionally elevated risks (up to 100 times higher) of cancer of the bladder. For example, in a paper presented to an international conference held in Würzburg, Germany, in October 1992, it was reported that in one plant, all 15 workers involved in distilling 2-naphthylamine had developed bladder cancer (Vineis, 1994). Arylamines are found also in tobacco smoke, which some investigators have suggested explains the elevated risk of bladder cancer among smokers.

Arylamines may be present in dyed products, either because of incomplete synthesis or from chemical degradation[1] during further processing (Fassold *et al.*, 1999). These arylamines, if mobilised through water or sweat, can then be absorbed by the body through the skin or mouth. Exposure of adult consumers to arylamines associated with azo colorants takes place only if the dye or pigment migrates from the substrate to their skin. Young children who suck dyed products are at a greater risk of exposure since the absorption rate of dyes through ingestion is usually higher than through the skin.

Azo dyes made from diazo-benzidines and benzidine are the most problematic, especially for the occupational health of workers. For that reason, in May 1992, the Board of the Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (ETAD)[2] decided to request all ETAD member companies voluntarily to cease the manufacture of benzedine dyes and salts. Most of ETAD's European and North

1. Technically, "oxidative or reductive cleavage".

2. ETAD was formed in 1974 to represent the interests of dye and pigment manufacturers on matters relating to health and environment. It currently has 44 member companies based in 11 countries on four continents.

American membership had in fact stopped producing the dyes many years earlier and had developed replacement colorants; however, a few companies, especially from other continents, were still producing the chemicals and indeed had expanded capacity in response to the decline in production elsewhere. Given the choice of joining the production ban or resigning from ETAD, most of those that were still manufacturing benzidine dyes chose to resign from the association.

One result was a shift in the production of these dyes to developing countries, often to plants with occupational safety systems that were weaker than those that had been in place in the plants that had ceased to manufacture the chemicals (Woodward and Clarke, 1997). This created a problem for European textile manufacturers and other companies that had previously used the banned dyes. Having eschewed dyes that were now required by EU regulations to carry a label marking them as potentially cancer-causing, they nonetheless had to compete with imported textiles that were still being made with them.

In September 1993, Germany's Federal Institute for Occupational Safety and Health (BAuA) issued a technical ruling that benzidine and certain other carcinogenic azo dyes should not be used (Woodward and Clarke, 1997).[3] Legislation to ban these azo dyes had already been introduced into the federal Parliament in 1992.[4] Finally, on 15 July 1994, by an amendment to Germany's Consumer Goods Ordinance,[5] the Parliament passed legislation banning the use of certain azo dyes in consumer products that have the potential of coming into close and prolonged contact with the skin. Thus Germany, once the world centre of azo dye production, became the first country to ban their use.

The Second Amendment to the Consumer Goods Ordinance banned only those dyes that, through reductive cleavage of one or more azo bonds, could form any of the 20 aromatic amines classified by the German MAK Commission as carcinogenic (Table 2.1). Their use in imported articles, however, could only be proven through the presence of detectable quantities of those amines. Agreement therefore had to be reached on what testing methods would be acceptable for determining the existence of these substances, which effectively delayed the law's implementation by two years.[6] Currently, in those European countries with bans on azo dyes (and in the EU's Directive), proof of their presence is established when a concentration greater than 30 parts per million (ppm) (*i.e.* the limit of detection) of the specified arylamines is found in an investigated object.

Within a couple of years the Netherlands also adopted an azo dye ban. Since then, other European countries have done so. Austria's ban went into effect on 1 January 1999 and Norway's on 8 April 1999 (http://odin.dep.no/odinarkiv/norsk/dep/md/1999/eng/022051-200003/index-dok000-b-f-a.html). France is also considered instituting a ban, but has decided to await action at the EU level. Meanwhile, the European Commission had also been working on a draft proposal for a European Parliament and Council Directive, amending Annex I of Directive 76/769/EEC, to ban the use of azo dyes. A draft of the Directive was made

3. This technical regulation was most recently updated in March 2001 (BAuA, 2001).

4. The initial bill proposed applying the ban to pigments, as well as to dyes. Following complaints from the industry, however, the bill was changed and a general exemption was proposed for pigments (ERM, 1998).

5. "Zweite Verordung zur Aenderung der Bedarfsgegenständeverordung", *Bundesgesetzblatt — Teil l*, No. 46 of 28 July 1994, pp. 1670-1671.

6. Subsequent amendments have mainly clarified the types of tests that can be performed. One problem identified by ETAD (1998) is false positive results.

public in March 1999. The proposal attempts to harmonise legislation on azo dyes in order to prevent inconsistencies arising out of national measures already in place in some EU member states. A month earlier, the EU had issued new criteria for awarding the Community eco-label to textile products (CEC, 1999), which had for several years previously applied only to T-shirts and bed linen, expanding it to include all textile clothing, interior textiles (except floor coverings), yarn and fabrics. Among other criteria, the label sets restrictions on the use of azo dyes that may cleave to any one of the first 20 aromatic amines listed in Table 2.1.

Table 2.1. Arylamines encompassed by European laws banning azo dyes

No.	Substances	CAS No.[1]
1	biphenyl-4-ylamine 4-aminobiphenyl xenylamine	92-67-1
2	Benzidine (4,4'-diaminobiphenyl)	92-87-5
3	4-chloro-o-toluidine	95-69-2
4	2-naphthylamine	91-59-8
5	o-aminoazotoluene 4-amino-2',3-dimethylazobenzene 4-o-tolylazo-o-toluidine	97-56-3
6	5-nitro-o-toluidine	99-55-8
7	4-chloroaniline	106-47-8
8	4-methoxy-m-phenylenediamine	615-05-4
9	4,4'-methylenedianiline 4,4'-diaminodiphenylmethane	101-77-9
10	3,3'-dichlorobenzidine 3,3'-dichlorobiphenyl-4,4'-ylenediamine	91-94-1
11	3,3'-dimethoxybenzidine (o-dianisidine)	119-90-4
12	3,3'-dimethylbenzidine (4,4'-bi-o-toluidine)	119-93-7
13	4,4'-methylenedi-o-toluidine	838-88-0
14	6-methoxy-m- toluidine (p-cresidine)	120-71-8
15	4,4'-methylene-bis-(2-chloro-aniline) 2,2'-dichloro-4,4'-methylene-dianiline	101-14-4
16	4,4'-oxydianiline	101-80-4
17	4,4'-thiodianiline	139-65-1
18	o-toluidine (2-aminotoluene)	95-53-4
19	4-methyl-m-phenylenediamine	95-80-7
20	2,4,5-trimethylaniline	137-17-7
21	o-anisidine (2-methoxyaniline)	90-04-0
22	4-amino azobenzene'	60-09-3

1. Chemical Abstract System number of the European Parliament and of the Council.

Source: Commission of the European Communities (2002), "Directive 2002/61/EC of the European Parliament and of the Council of 19 July 2002 amending for the nineteenth time Council Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations (azocolourants)", *Official Journal of the European Communities*, Series L, No. 243, pp. 17-18, http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_243/l_24320020911en00150018.pdf.

The final amended Directive issued on 19 July 2002 (http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_243/l_24320020911en00150018.pdf), differs in several ways from existing EU member state (and Norwegian) legislation. First, two new arylamines suspected of being carcinogenic (p-amino azo benzene and 2-methoxy aniline [o-anisidine]) were added to the 20 already banned by the member states and Norway, its partner in the European Economic Area. One of the substances cannot be detected by the testing method(s) approved for the other arylamines, and could increase the costs of testing quite substantially. Second, the list of likely products affected includes several items not included in national legislation, namely, purses and wallets, briefcases, chair covers, textile or leather toys, and toys that include textile or leather garments. The Directive came into force on 11 September 2003.

It is not known to what extent individual EU member states considered the effects that their azo dye regulations would have on exporters, or whether they consulted with those countries before implementing their laws. However, it is common for exporters' concerns to be conveyed through the importers' organisations in which the exporters' customers are members. Certainly, at least some of the dye and textile manufacturers in affected developing countries learned of the German ordinance early on, perhaps even before it became law. ETAD would have been a source of information for the larger dye manufacturers (some of which have subsidiaries in India), and indeed it had earlier provided written comments to the German authorities in the name of its members.[7] The Indo-German Export Promotion Project (IGEP), a joint trade promotion programme of the Ministry of Commerce in India and the Ministry of Economic Co-operation and Development in Germany (BMZ), would have been a conduit to India for information about German legislation affecting textile and leather products.[8]

In developing its draft Directive, the European Commission clearly considered the impact of the measure on foreign suppliers. It commissioned three studies: one assessed the risk of cancer caused by textiles and leather goods coloured with azo dyes; a second analysed the advantages and drawbacks for the internal EU market of banning certain azo dyes and products treated with azo dyes, and a third studied the effects that the bans would have on suppliers in developing countries (ERM, 1998). The third study involved extensive interviews with government officials and manufacturers of dyes and textiles in China; Hong Kong, China; and India, based on their experience in adapting to Germany's law. The main finding of the third study was that the principal problems faced by producers in developing countries in adapting to a ban related to timing, information and testing.[9]

7. ETAD opposed the German ban essentially because, in their opinion, it was based solely on a hazard evaluation, rather than a risk assessment. It also questioned the feasibility of monitoring compliance.

8. The effectiveness and quality of the information flowing to foreign exporters is always difficult to judge. As ERM, a consultancy, concluded in its 1998 study (pp. 19-20), "Interviews carried out in India … suggest that the existing network of trade contacts is an important factor in determining the speed of adaptation. Where the government, rather than marketplace contacts are the first point of call for information, there may be substantial delays in obtaining information about new restrictions in export markets."

9. See also http://europa.eu.int/eur-lex/en/com/pdf/1999/en_599PC0620.pdf

Trade issues and developing-country responses[10]

The effects of the European prohibitions on azo dyes were felt perhaps most acutely in India, which over time has developed considerable dye-making capacity (Box 2.1) and a large textile industry dependent on those dyes. Textiles and clothing accounted for USD 11 billion, or 25%, of India's total exports in the year 2000-01, and Germany is one of its main markets. A study by the Indian Institute of Foreign Trade (IIFT) identified several items exported to the EU that have been affected by the azo dye ban in India, including articles made of leather, knitted or crocheted fabrics, apparel and clothing accessories, other manufactured textile articles, and sacks or bags of jute made from polypropylene or polythene. The share of the EU in exports of these items ranges from 25% to 70%. While the annual growth rate of total textile exports from India has been almost 18% in recent years, exports to Germany have been growing at around half that rate.

Box 2.1. Dye manufacturing in India

India's large-scale manufacture of dyes began in 1950 with imported intermediate chemicals. Today, the industry comprises about 1 650 firms, only 50 of which operate in the organised, large-scale sector, employing 35 000 workers. The total installed capacity of all dye and dye intermediates manufacturers is 54 800 tonnes, but actual production in 2002 had declined to around 22 000 tonnes. Of that production 4 000 tons were azo dyes (mainly for non-banned uses).

The dyestuffs industry is concentrated in the states of Maharashtra and Gujarat, especially around the city of Ahmedabad, which hosts about 1 200 plants and accounts for one-third of India's exports. In 1997-98 India exported USD 560 million worth of dyes and dye intermediates. Exports fell over the next few years but rebounded in 2002-03 to USD 580 million. The main foreign market for Indian dyes and intermediaries was the United States, followed by Germany, Italy, the United Kingdom, Hong Kong (China), Switzerland, Bangladesh, Turkey, Chinese Taipei and. Spain. The small-scale sector accounts for about 50% of these exports.

Source: www.indiandata.com/general-details/dyes-intermediates-general-details.html.

The European bans on azo dyes also seem to have had an unintended impact on the clothing industries of African countries. According to Hyvärinen (2001), the bans resulted in imports of an enormous quantity of second-hand clothing to developing countries that until then had some modest garment production, mainly for local markets. The German ban on azo dyes, for example, initially included recycled garments (until the German authorities realised that there was no feasible way of certifying that the second-hand clothing would not contain the banned dyes). This led to a sudden surge in exports of second-hand clothing to developing countries, where they were not only distributed free

10. This section concentrates on India's response. However, it is worth noting that the European restrictions on the use of azo dyes also delivered a blow to Pakistan's textile industry which, together with cotton, represents more than 60% of the country's annual exports. In an effort to ensure compliance, the government promulgated a set of National Environmental Standards under the Environment Protection Act 1997. The Environment Business Forum of the Confederation of Business and Industry has also started a full programme of activities.

of charge to the poorest people, but also sold in local markets by charitable organisations, thus competing with new, locally made products.

Facing a potential loss in export earnings, the Indian government developed an eco-label for its textiles in 1996.[11] In 1990 it had already called for a three-year phase-out of the use of benzidine-based dyes in textile fabrics (ERM, 1998). It also asked Germany for a one-year extension of its deadline, which was granted. However, in contrast with its European trading partners, its limit of detection for "coupled amines" (*i.e.* arylamines) in textiles was set at a slightly higher value: 50, rather than 30, ppm, presumably because their testing equipment were less sensitive. Also, for two important reasons it decided for the purpose of the label to ban *all* azo dyes, not just those that could cleave to those on the European importers' lists.

The first reason was that, at the time, India's laboratories were not equipped with the state-of-the-art equipment needed for testing for the presence of arylamines. Initially, therefore, samples had to be shipped to Germany for testing, at considerable cost to the manufacturers.[12] Over the next four years, however, the government invested significant sums of money (around INR 1 billion) to establish a sufficient number of certifying laboratories to ensure that Indian exports of textiles and garments would meet European standards (Hyvärinen, 2001).

The second reason was that at the time when Germany's ban on azo dyes was announced, chemists had not yet identified all the dyes that would be affected by the law, *i.e.* that would break down into the listed arylamines. Chemists have developed over 3 000 different azo dyes (Bhat, 2001), and anywhere from 130 to 150 (depending on the published list of dyes consulted) may have been affected by the bans (ERM, 1998). Notably, Germany's initial legislation did not name the dyestuffs that would be affected, although the Netherlands' (later) legislation did. Industry and other sources also produced lists of the dyes most likely to result in problems, and European buyers generally followed such lists. One list singled out 70 azo dyes as problematic; this list was obtained by India and eventually formed the basis of India's national law.

Ironically, one consequence of these events is that the Austrian, German, Dutch and Norwegian markets for textiles are less restrictive than the Indian market, at least according to Indian dye manufacturers. Germany has amended its standards five times, removing some of the azo dyes from the banned category (Kaushik, 1999). However, the Indian law continues to apply to all textiles and all azo dyes.

Scientific evidence on the carcinogenicity of all 22 arylamines is still incomplete. The literature is most compelling for the first four in Table 2.1, which are considered Category 1 carcinogens. The ban on the other 16 arylamines was presumably made in the name of precaution. Studies since then show most to be Category 1 or 2a carcinogens. According to Kaushik and Saqib (1999), a prominent Swiss Institute conducted studies on these other arylamines and found some of them to have no or low carcinogenic effects. The Indian government referred the matter to the Indian Council of Medical Research, which in turn contacted the German authorities.

11. *The Gazette of India*, Extraordinary, Part II-Section 3(i), No. 322, 8 October 1996, http://envfor.nic.in/cpcb/ecomark/textile.html.

12. Estimates of the testing charges range widely. ERM (1998) note that testing charges in Hong Kong, China, in 1995 were around HKD 1 500 to HKD 1 800; they then quote an UNCTAD official as saying that the practice of having tests conducted in the importing country increases testing costs by 20%. Other sources show costs in Germany at the time of between INR 30 000 and INR 40 000, compared with a local equivalent of INR 500 to INR 2 000.

Another issue raised by Indian manufacturers is that the bans have been imposed on chemicals for which German-based or other western companies have developed more expensive alternatives, some of which are patented. The feeling among manufacturers, in other words, is that there was a commercial motivation behind the European bans, not just a desire to protect public health. Similar allegations have been made with respect to pentachlorophenol (PCP) (see Chapter 3).[13]

Bharucha (1994) showed that the costs of making the switchover to azo substitutes are not trivial. For example, while a by-product of maize starch had been identified as a viable substitute for sulphur black, an azo dye, but for cobalt blue, another azo dye, technological change in the manufacturing process required an investment of over USD 13 million at the firm level. Switching to non-benzidine dyes also implies higher costs. One study estimated that the cost of a dye called "direct black 38" was about USD 3 per kilogramme, whereas "direct black 22", which does not use benzidine, cost USD 8-10 per kilogramme. More recently, the Ahmedabad Textile Industry Research Association (ATIRA) has estimated that the cost of azo-free substitutes is 2.5 times that of azo dyes. These changes were prohibitive for small- and medium-sized textile producers, which constitute 60% of India's textile industry.

Another example of the impacts that the azo dye restrictions have had on dyeing units comes from a survey conducted in Panipat, a small town in Haryana known for its handloom exports. Panipat has about 2 000 small dyeing houses, each with an investment of INR 500 000. Some said azo-free dyeing pushes up the cost of fabrics by 15-20% and, in general, is more difficult. For example, with azo dyes, cloth can be dyed at 60°C, while azo-free dyeing needs 100ºC. Also, azo dyes offer a wider range of colours, better colour fastness and four times the intensity of the closest substitutes. Natural colorants are not a perfect substitute either: according to industry sources it takes about 20 grams of synthetic dyestuffs to dye 1 kg of textile fabrics to a medium shade of colour. To obtain the same result with vegetable dyes requires around 1 kg of dried leaves, equivalent to 5-10 kg of freshly picked leaves (Hyvärinen, 2001).

Many SMEs also complained about the high cost of imported machinery and the high cost of interest on loans. To reduce this burden, the Indian government and the Textile Committee provided assistance to exporters to help them meet the German standard.

Responses to developing-countries' concerns

The countries that imposed the bans on azo dyes have generally responded to the concerns of developing countries by offering technical assistance aimed at better understanding the regulations and finding substitutes for the banned dyes. Additional technical assistance has been provided by multilateral development assistance organisations and private companies.

IGEP has played a pivotal role in providing Indian textile manufacturers with information on market developments and changes in technical and environmental standards. Its special focus has been on small and medium-sized manufacturing and exporting companies in the private sector. In March 2001, for example, it helped organised a workshop that examined, among other topics, European product requirements for textiles (Busert *et al.*, 2001).

13. They claim that western companies developed Busan 30 as an alternative to PCP, and then banned PCP. The Indian leather industry then had to purchase Busan at 30 times the cost of PCP.

The Netherlands has also provided technical assistance. Between October 1996 and January 1997 its Centre for the Promotion of Imports from Developing Countries (CBI), together with a Dutch independent consultancy, CREM, jointly organised a series of workshops aimed at preventing European azo dye legislation from becoming a trade barrier to developing-country exporters (OECD, 1997). The workshops were targeted at SMEs involved in textile production in Bangladesh, Pakistan, Sri Lanka, Egypt, Peru, Colombia and the Philippines and were led by specialists in textile export and environmental legislation. Each workshop covered the following topics:

- Current azo dye legislation in European countries and how it affects exports from developing countries.
- Detailed technical information on azo dyes and pigments, and the restrictions on each of them in the legislation of different European countries.
- Technical guidance on how to comply with azo and other environmental legislation (e.g. details on alternative products and processes).

Feedback from countries participating in these workshops was mixed. The most positive response came from Pakistan, which sent more than 200 textile producers to the workshop. Colombia's response was less enthusiastic; some participants expressed resentment that, in their view, the azo bans were deliberately intended to bar Colombian textiles from western markets (OECD, 1997). Another problem was achieving a high level of participation from SMEs, the target audience. Since many participants came from large multinational companies, some SMEs complained that only large companies would benefit, perhaps at the expense of SMEs.

Concluding observations

The adoption of import tolerances on arylamines, first by Germany and then by other European countries, could have had a highly disruptive effect on developing country exporters. Because Germany announced its ban on azo dyes two years before applying it to imported textiles, however, developing countries did receive some forewarning of the impending regulatory change. The difficulties and controversies surrounding testing procedures (which have so far largely followed those of Germany) were, perhaps, a greater problem. 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.

The cost of compliance was considered high by textile exporters, and some of them alleged that the European prohibitions on azo dyes only went into effect after European manufacturers had developed patented substitutes. Nonetheless, the level of compliance appears now to be high. Samples tested at the eco-laboratories of the Textile Committee are reported to show a compliance rate of over 96% for textiles produced for export to Europe.

Considerable technical assistance has been provided by several European countries since the regulations were put in place, mainly in the form of workshops and factory visits by technical experts. But documentation on the effectiveness of these actions is scarce.

References

AEPC (1997-98 through 2000-01), *Annual Report*, Apparel Export Promotion Council, New Delhi.

Ahmed, Tauseef ([1999), "Prioritizing Environmental Standards in Industry", Sustainable Development Policy Institute, Islamabad, Pakistan.

BAuA: Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (2001), "Technische Regeln für Gefahrstoffe — TRGS 614 — "Verwendungsbeschränkungen für Azofarbstoffe, die in krebserzeugende aromatische Amine gespalten werden können", BAuA, Dortmund and Berlin, www.baua.de/prax/index.htm

Bharucha, Vasantha (1994), "Impact of Environmental Standards and Requirements on India's Exports", UNCTAD Project RAS/92/034.

Bharucha, Vasantha (1997), "Impact of Foreign Environmental Standards: India", in V. Jha, G. Hewison and M. Underhill (eds.), *Trade, Environment and Sustainable Development: A South Asian Perspective*, MacMillan Press for the UN Conference on Trade and Development, London, pp. 123-142.

Bhat, Kris (2001), "COS and HTS Design of High-performance, Non-toxic Chemicals for Textiles", http://faculty.philau.edu/BhatK/description.htm.

Busert, Uschi, Joyce Miller and Ganesh Shankar (2001), "Executive Summary", Workshop on Environmental Challenges for the Indian Textile Industry, Tirupur (Tamil Nadu), India, 8-10 March, Deutsche Gesellschaft für Technische Zusammenarbeit, Eschborn, Germany.

CEC: Commission of the European Communities (1999), "Commission Decision of 17 February 1999 Establishing Ecological Criteria for the Award of the Community Eco-label to Textile Products", *Official Journal of the European Communities*, Series L, No. 57, pp. 21-30.

CHEMEXCIL: Basic Chemicals, Pharmaceuticals & Cosmetics Export Promotion Council (1997-98 and later), *Annual Report*, New Delhi, India.

CREM: Consultancy and Research for Environmental Management (1996), "Environmental Quick Scan: Textiles", Dutch Centre for the Promotion of Imports from Developing Countries (CBI), Swedish International Development Co-operation Agency (Sida), and Far East Importers Association (VIVO).

CUTS: Consumer Unity & Trust Society (1995), *Environmental Conditions in International Trade*, a study prepared for the Central Pollution Control Board, Ministry of Environment and Forests, India. Available from CUTS, Jaipur, Rajasthan, India.

ERM: Environmental Resources Management (1998), "Study on the Effects on Suppliers in Developing Countries of a Ban on Azo Dyes and Products Treated by Azo Dyes", report for the European Commission (DG-III), ERM, Oxford.

ETAD: Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (1998), "German Ban of Use of Certain Azo Compounds in Some Consumer Goods", ETAD Information Notice No. 6, Revised October, Basel, www.etad.com/information/information_6.html.

Fassold E., G. Häusler, P. Hohenblum and S. Scharf (1999), "Azofarbstoff in Leder und Textilien [Azo Dyes in Leather and Textile Goods]", Reports No. R-159, Deutsche Zusammenfassung, Vienna, www.ubavie.gv.at/publikationen/reports/R159s.htm

Hyvärinen, Antero (2001), "Eco-labelling and Environmentally Friendly Products and Production Methods affecting the International Trade in Textiles and Clothing", International Trade Centre, Geneva, www.intracen.org/worldtradenet/docs/information/referencemat/ecolabatc.pdf.

IGEP: Indo-German Export Promotion Project (1994), Dyes and Dyestuffs: Indian Industry Profile and German Market Perspective, IGEP, New Delhi.

Kaushik, Atul (2000), "Promoting Sustainable Trade: The Case of Environmental Requirements", paper prepared for the Trade and Sustainable Development Project Workshop, Session III: Discussions on Other Developing Country Experiences, 12-14 April 1999, IISD, Winnipeg, Manitoba, Canada. http://web.idrc.ca/uploads/user-S/10323583500pk_kaushik.pdf.

Kaushik, A. and M. Saqib (1999), "A Study of the Impact of Environmental Requirements on India's Export Performance and a Scoping Study for Environmentally Friendly Products", UNCTAD Project 955/IND/97.

OECD (1997), "Case Studies of Donor Activities at the Trade-Environment Interface", report prepared for the OECD Workshop On Trade, Environment and Development Co-operation: Underpinning New Opportunities For Green Trade, Paris, 2-3 July, www.oecd.org/LongAbstract/0,2546,en_2649_34665_1887062_119666_1_1_1,00.html.

TEXPROCIL: Cotton Textiles Export Promotion Council Of India (1997-98 onwards), *Annual Report*, Mumbai, India.

UNCTAD: United Nations Conference on Trade and Development (1999), Profiting from Green Consumerism in Germany: Opportunities for Developing Countries in Three Sectors: Leather and Footware, Textiles and Clothing, and Furniture, Doc. Symbol UNCTAD/ITCD/TED/3, United Nations Bookshop, New York.

Vineis, Paolo (1994), "Epidemiology of Cancer from Exposure to Arylamines", *Environmental Health Perspectives*, Vol. 102, Supplement 6, October, pp. 7-10. Abstract available at www.oncolink.upenn.edu/cancernet/95/may/705430.html - 16

Woodward, Robert and Eric Clarke (1997), "Voluntary Cessation of Manufacture of Benzidine Dyes", in *OECD Environmental Health and Safety, Series on Risk Management*, No. 7, OECD, Paris, pp. 21-26.

Chapter 3

Limits on Chemical Residues in Leather Goods

In the light of limits placed on chemical residues in leather and leather products, this chapter looks at how various limits imposed by importing countries has affected leather exporters, particularly in the least-developed countries. It draws attention to the importance of diffusion of relevant information and the beneficial effects of new regulations on the environment and worker's health in developing countries.

Introduction

The total value of international trade in leather and leather products increased from about USD 16 billion in 1994 to USD 98 billion in 1998 (UNIDO, 2001a). The EU is the world's largest supplier of leather, and one of its member states, Italy, accounts for 15% of the world's cattle and calf leather production (IPTS, 2001). While OECD member countries remain the leading importers, production of leather and leather goods has been gradually shifting to developing countries in South America and Southeast Asia. Paralleling these changes has been a growth in the number of chemical residue limits applied by OECD member countries to leather and leather products. Today, the first thoughts of any reputed international company considering sourcing leather or leather products from a developing country are no longer confined to cost: they must also ensure that the environmental standards of importers can be met.

The adoption by several OECD countries of residue limits for chemicals used in the manufacture of leather goods has put increasing pressure on the leather industries of developing countries. These residue limits relate to formaldehyde, cadmium, certain azo dyestuffs, pentachlorophenol (PCP) and hexavalent chromium. The countries that have been most affected by these limits are those that engage in tanning and finishing of raw leather and those that produce leather footwear and garments, such as Argentina, Brazil, China, India, Pakistan and Turkey.

Several other case studies presented in this publication focus on how limits relating to particular chemicals have affected exporters of textiles or clothing. This case study looks more broadly at how the various residue limits imposed by different importing countries have in the aggregate affected exporters of leather.

Development of environmental measures

Leather tanning is an input-intensive industry. Raw materials (mainly hides) account for 50% to 70% of production costs, and chemicals about 10% (IPTS, 2001). It is potentially also a pollution-intensive industry. Around 90% of leathers are tanned with chromium salts, particularly hexavalent chromium. Formaldehyde has been variously used in the tanning, retanning and finishing of leather. Chlorinated phenols, such as PCP, were once used widely in tanneries as a biocide. Azo dyes are commonly used as colorants. Any of these chemicals — many of which are potential carcinogens — can end up as residues in the final leather product.

Since the early 1970s, several OECD member countries have adopted measures limiting residues of the above-mentioned substances in consumer goods (such as toys, textiles, clothing, shoes and other leather garments). The main aim of these laws has been to protect consumers from exposure to dangerous chemicals through their skin (or, in the case of infants, by putting the articles in their mouths), although several of the regulations have also been motivated by concerns over the release of heavy metals to the environment once the articles are disposed of (*e.g.* through incineration) at the end of their useful lives.

Within the European Union, general regulations of this type have been introduced pursuant to Council Directive 76/769/EEC (CEC, 1976b) and its amendments. Individual member countries are entitled to set stricter limits than what is mandatory for EU generally, an option that is frequently exercised. In some cases, the EU regulation was established following the example of one or more member states. Table 3.1 summarises

the regulations most pertinent to leather.[1] Cadmium, while not a chemical agent used in leather processing, may be present in pigments used to colour the leather.

Table 3.1. Chemical residue limits applied to leather goods imported to OECD countries

Substance	Importing countries applying the residue limit	Utilisation of the leather	Limit values[1]
Pentachlorophenol (PCP)	EU[2]	General	5 to 1 000 ppm[3]
Cadmium (as Cd)	EU	General	75 to 100 ppm[3]
Certain azo dyestuffs[4]	Austria, Germany, Netherlands and Norway	General	30 ppm
Hexavalent chromium (as Cr)	Germany	General	3 ppm
Formaldehyde	Japan, Korea and several European countries	Various[5]	15 to 1 000 ppm[6]

ppm = parts per million.
1. For hexavalent chromium and azo dyes, in most cases the limits specified correspond to detection limits.
2. Regulations are found also in countries outside the EU.
3. The lower limit is applied by certain EU member states, the upper limit by the EU.
4. Azo dyestuffs which may generate one or more of 20 aromatic amines, specified in a list. The concentration limit refers to the amount of amine present.
5. Garments, shoes, watch straps and furniture, for example.
6. Variation according to country and to utilisation (the lowest figures refer to articles for children of less than 2 years; the highest to outer garments for older people).

Source: CEC (1991a, 1991b).

Residues in leather have also been affected by four other EU Directives. The aquatic environmental directive (CEC, 1976a) and its amendments, and the integrated pollution prevention and control (IPPC) directive (CEC, 1996), imply indirect regulation of various substances in raw hides or wet blue leather, such as biocides used in animal husbandry to protect the animal from disease or used for the conservation of raw hide. Council Directive 88/378/EEC (CEC, 1998) limits the maximum content of extractable chromium in leather used in toys to 60 ppm. Council Directive 88/378/EEC (CEC, 2000), which regulates the disposal of end-of-life motor vehicles, will require that materials and compounds used in vehicles (*e.g.* leather upholstery) put on the market after 1 July 2003 shall not contain hexavalent chromium or cadmium, among other heavy metals. No concentration limit for hexavalent chromium has been fixed so far, though industry sources are acting on the assumption that the current German limit will be adopted.

As well as these mandatory measures, some 12 eco-labelling schemes have been established which include criteria for leather or leather products (Frendrup, 2001a). Ten of these include requirements relating to processes or production methods as well as to product properties. Seven schemes have been set up by the EU, or EU member states, or other bodies within the EU; two by international bodies; and three by countries outside the EU (Brazil, India, Indonesia).

Finally, regulations for "green" public purchasing have also affected the market. Under a Danish law, for example, government agencies are obliged to take environmental aspects into consideration in their purchasing policies, and official guidelines exist for "ecological purchases" of various leather products. Products complying with an authorised eco-labelling scheme and suppliers with an EMAS (Eco-Management and

1. A new EU Directive on biocidal products has been prepared (see http://europa.eu.int/comm/environment/biocides/). Chlorophenols other than PCP may also be regulated in the future.

Audit Scheme) or ISO environmental management certificate are given preference (Frendrup, 2001a).

Effects of environmental regulations on the leather industry in leather-exporting countries

The main exporters of leather and leather products into the EU are countries in east and southeast Asia (particularly China, India and Pakistan) or Latin America.[2] Generally, the problems that these countries have encountered relate to lack of information, inadequate testing facilities and difficulties in obtaining alternative technologies or chemical inputs.

Adaptation by the largest tanneries in some of the developing countries was facilitated by vertical ownership by, or contractual linkages with, transnational companies headquartered in Europe. Not only did some of them maintain a policy to comply with the same environmental standards, but they also provided aid in the form of training and transfer of know-how to ensure that their subcontractors in developing countries were complying with new environmental standards.

However, the adaptation process was not always smooth. For example, when Germany introduced its prohibition on PCP in 1989 (the earliest of the regulations referred to above), it caught the leather industry in the developing countries unawares. For several countries, Germany was an important export market, and for the leather exporters it was imperative to adjust their products to meet the importers' criteria. In 1990 a consultant engaged for this report met a prominent Indian tanner who told him that the German prohibition affected the Indian leather industry "like an atomic bomb".[3]

Nonetheless, compared with some other developing countries, the Indian industry responded relatively quickly and effectively to the challenge (Wiemann *et al.*, 1994). As described in a letter from A. Sahasranaman of Chennai, India:[4]

> When the regulations regarding PCP and azo dyes were published first by Germany and later by other European Union countries there was indeed panic in the leather industry in India. However, very soon the government intervened and banned manufacture of PCP and its use. Similarly the leather manufacturers took specific care to avoid purchase of dyes that could result in harmful residues in the leather. Many dye manufacturers also introduced dyes that were free of such harmful substances. Simultaneously, with the help of government and donor agencies like Indo-German Export Promotion project, specialised testing facilities were created in different parts of the country to test leather for PCP, azo dyes, etc.

Changes continue to take place. For example, in 2000, India introduced an eco-labelling scheme for finished leather. Among the parameters included in the scheme

2. The international character of the leather trade makes assigning the origin of leather products somewhat of an art, however. In extreme cases, hides generated in one country may be processed into wet blue leather in a second country and made into finished leather in a third country, to be used in a fourth country for manufacturing leather goods exported to a fifth country.

3. Conversation with Willy Frendrup.

4. Personal communication from A. Sahasranaman, Regional Programme Office, UNIDO, Chennai, India, to Willy Frendrup.

are the content of PCP, hexavalent chromium, formaldehyde and the prohibited azo dyes (Frendrup, 2001b).

One consequence of these changes is that the general environmental performance of India's tanneries has improved. According to India's Council of Leather Exporters, there is not a single tannery in Tamilnadu, the leather capital of India, that does not now have access to an effluent treatment plant (Fernandes, 2000). Wastewater treatment facilities are also being set up in other tanning centres, such as Kanpur, Jallandhar and Bangalore. And a massive leather complex, with pollution-control facilities, is being built near Calcutta where many existing tanneries will be relocated. Between 15 and 20 Indian tanneries have obtained ISO 14001 certification, and several more are applying for it (*Leather*, 2001a).

The changes have also prompted new research. Scientists at India's Central Leather Research Institute in Chennai have recently developed enzymes, called amylases, to replace lime in the leather-softening step (Bell 2002; Thanikaivelan *et al.*, 2002). Amylases, which are similar to the enzymes in human saliva that turn carbohydrates into their component sugars, are able to strip proteoglycan (a protein-carbohydrate blend) out of leather hides as effectively as lime does. Hides treated in this way are as soft as limed pelts and are virtually indistinguishable from them under the microscope. The researchers have estimated that, using commercial-grade amylase on an industrial scale, enzyme-driven tanning could cost no more than conventional chemical processes and produce less effluent and pollution. Enzymatic processing has a 45% lower chemical oxygen demand (a measure of the pollution load on receiving waters) than traditional lime and sulphide processing, and reduces by 95% the amount of solid sludge that the dehairing and fibre-opening stages of leather processing generate (which in turn account for about 20% of the sludge generated over the entire treatment cycle).

In Zimbabwe, the two biggest modern tanneries were able to comply with European regulations, and substances prohibited in Europe (their largest export market) have been eliminated from their leather. However, the country's foreign exchange shortage made it difficult and expensive to obtain necessary chemicals and equipment (*Leather*, 2001b). Many of the country's small tanneries remain non-compliant.

As described in more detail in Chapter 2, testing for residues was a particular problem in the years immediately following the introduction of chemical residue limits affecting leather. Since the 1990s, a number of testing facilities have been built to help exporters identify whether their products contain any banned substances and to trace these contaminants back to their origin. There were also problems with some of the testing methods, particularly false positives results for hexavalent chromium and aromatic amines released by azo dyes. These problems seem to have been overcome. Limits on cadmium are no longer problematic for the leather industry as, on the whole, pigments containing cadmium are no longer used. A brief summary of the situation in three countries is given below:

- *Argentina*. Most of the relevant analyses can be carried out in the Argentinean leather institute or in the tanneries. However, some tanneries have the necessary testing carried out elsewhere, usually in Europe.
- *India*. The necessary testing facilities have now been established.
- *Pakistan*. Testing laboratories exist in Karachi as well as in Punjab. A new, accredited laboratory is being planned for the coming Cleaner Production Centre in Sialkot to serve the leather industry in Punjab.

Responses to developing-countries' concerns

Both OECD member countries and UN agencies have provided considerable technical assistance to the leather industries of developing countries to help them adapt to the various residue limits applicable to leather goods. As described in more detail in several other chapters, these have included programmes to provide information about the regulations and available substitutes for the problem chemicals, as well as technical assistance to help developing countries adopt cleaner technologies.

Information about the regulations

The Dutch Centre for the Promotion of Imports from Developing Countries (CBI), together with an independent Dutch consulting firm, CREM, organised a series of workshops between October 1996 and January 1997 to help prevent member state legislation relevant to azo dyes from becoming a trade barrier to developing-country exporters.

Technical assistance

The United Nations Industrial Development Organisation (UNIDO) has been one of the most active intergovernmental organisations in providing technical assistance to leather industries in developing countries, in order to modernise them and improve their environmental performance. Indeed, UNIDO's leather programme in eastern and southern Africa is one of its largest and most complex undertakings, involving a multitude of development partners and direct beneficiaries in ten countries. Since 1988, some 30 tanneries in Ethiopia, Kenya, Malawi, Namibia, the Sudan, Uganda, the United Republic of Tanzania, Zambia and Zimbabwe have received assistance in pollution control focused on the establishment or upgrading of effluent treatment facilities. In 1995, UNIDO established the Eastern and Southern Africa Leather Industries Association (ESALIA), located in Nairobi, Kenya, to channel assistance and feedback and to co-ordinate all its field activities.

In 1997 UNIDO launched a project (financed by the Swiss government) aimed primarily at reducing the amounts of major tannery pollutants such as chromium salts, sulphides and nitrogen compounds. It undertook the introduction of five cleaner technologies: high-exhaustion chrome tanning; low-sulphide dehairing; compact retanning; carbon dioxide deliming; and wet-white processing. Trials conducted at 11 tanneries in eight African countries suggested good potential for all five processes. Encouraged by the results, UNIDO, backed again by Switzerland, developed a follow-up project designed to further facilitate the adoption of environmentally friendly technologies in ten tanneries. The project fosters the application of a broader cleaner production concept, one that includes the fine-tuning of conventional industrial operations in pursuit of the twin environmental goals of efficient water, energy and chemical utilisation and maximum waste reduction. Environmental audits, a key tool in applying this strategy, are carried out in close collaboration with the National Cleaner Production Centres established by UNIDO and the UN Environment Programme (UNEP) in Ethiopia, Kenya, Tanzania and Zimbabwe.

This assistance was provided in addition to that from the industry's own associations, such as the International Union of Leather Technologists (IULTCS), the Environment and Waste Commission of the International Union Environment (IUE), which issues guidelines that are updated annually (IUE, 2001), and the Commission for Chemical

Analyses, of the International Union Chemicals (IUC), which standardises and issues methods of analysis.

Concluding observations

Environmental standards adopted by industrialised countries do not only cause trade difficulties for exporters in developing countries. In the case of tanneries, they have also helped to speed up improvements in the area of occupational safety and health, as well as air and water pollution.

In the leather sector, importers' environmental regulations seem to have sharpened existing discrepancies between large, modern, export-orientated producers and small-scale producers, which are often of the nature of cottage industries. (In most cases, although the small tanneries dominate in terms of numbers, they represent only a minor part of the total production volume.) There is also a discrepancy between leather industries in rapidly developing countries and those in the least developed countries (LDCs). In countries such as India, China and Pakistan, the market is big enough for the necessary chemicals and equipment to be available, and several tanneries have the economic resources necessary to defray the added costs involved. By contrast, tanneries in the LDCs have encountered difficulties in gaining access to cleaner technologies or have been dissuaded by the high costs of procuring them.

The efficient transfer of information and know-how is vital for exporters. In the case of chemical inputs, exporters need time to reconfigure their production lines and to test the properties of alternative chemicals and other raw materials used in production. The tanneries also need sufficient access to independent certification bodies able to provide services at reasonable cost and in a timely manner. This presupposes not only the existence of competent testing institutes, but also the availability of relevant accreditation bodies.

References

Ball, Philip (2002), "Green Tan Alley: Saliva Enzymes Clean Up Leather Processing", *Nature* (on line), 2 October, www.nature.com/nsu/021001/021001-3.html.

CEC: Commission of the European Communities (1976a), "Council Directive 76/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community", *Official Journal of the European Communities*, L 129 (18/5).

CEC (1976b), "Council Directive 76/769/EEC of 27 July 1976 on the approximation of the laws, regulations, and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations", *Official Journal of the European Communities*, L 262 (27/9).

CEC (1988), "Council Directive 88/378/EEC of 3 May 1988 on the approximation of the laws of the Member States concerning the safety of toys. *Official Journal of the European Communities*, L 187 (16/7).

CEC (1991a), "Council Directive 91/173/EEC of 21 March 1991 amending for the ninth time Directive 76/769/EEC on the approximation of the laws, regulations, and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations", *Official Journal of the European Communities*, L 85 (5/4 1991) [pentachlorophenol]

CEC (1991b), "Council Directive 91/338/EEC of 18 June 1991 amending for the tenth time Directive 76/769/EEC on the approximation of the laws, regulations, and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations", *Official Journal of the European Communities*, L 186 (12/7 1991). [cadmium]

CEC (1996), "Council Directive 96/61EC of 24 September 1996 concerning integrated pollution prevention and control", *Official Journal of the European Communities*, L 257 (10/10).

CEC (1999), "Proposal for a Directive of the European Parliament and of the Council amending for the nineteenth time Council Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations", COM 620 final. 10/12 1999. [azo colourants]

CEC (2000), "Council Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles", *Official Journal of the European Communities*, L 269 (21/10)

Fernandes, Vivian (2000), "Cruelty to Animals Forces U.S. Retailer to Boycott India Leather; Industry Dismayed", *indiamarkets.com*, 28 April, www.indiamarkets.com/imo/industry/leather/leatherfea1.asp.

Frendrup, Willy (2001a), "Ecolabelling, Environmental Management and Related Activities", UNIDO, 2 April.

Frendrup, Willy (2001b), Personal communications with Carlos Cantera, CITEC, Buenos Aires, Argentina; Gustavo Gonzalez-Quijano, COTANCE, Brussels, Belgium; Anyway H. Munjoma, SIRDC, Harare, Zimbabwe; Shujauddin Siddiqui, Government of Pakistan Export Promotion Bureau, Peshawar, Pakistan.

IPTS: Institute for Prospective Technological Studies (2001), Integrated Pollution Prevention and Control (IPPC): Reference Document on Best Available Techniques for the Tanning of Hides and Skins, Seville, Spain. ftp://ftp.jrc.es/pub/eippcb/doc/tan_final_0203.pdf.

IUE: International Union Environment Commission of the International Union of Leather Technologists and Chemists Societies (2000), "IUE Guidelines for Restricted Products in Leather", draft, IUE Commission, Barcelona, Spain. www.valles.com/aqeic/Safe00.doc.

Leather (2001a), "Far East Provides Main Market", April, pp. 53-58.

Leather (2001b), "ITC Reports on Africa", *Leather*, October, p. 30.

Thanikaivelan, P., J. R. Rao, B. U. Nair and T. Ramasami (2002), "Zero Discharge Tanning: A Shift from Chemical to Biocatalytic Leather Processing", *Environmental Science and Technology*, 36, pp. 4187-4194.

UNIDO: United Nations Industrial Organisation (2001a), Cleaner Leather Production: The Changing Environmental Image of African Tanneries, Vienna, Austria.

UNIDO (2001b), "Global Forum on Leather", Unido*Scope*, 2-8 July, Vienna, Austria. www.unido.org/en/doc/4750#chapter1a.

Wiemann, J., T. Bünning, G. Danne, C. Hagenmaier, R. Kölling, R. Siller and A. Wende (1994), Ecological Product Standards and Requirements as a New Challenge for Developing Countries' Industries and Exports: The Case of India's Leather, Textile and Refrigeration Industries, Deutsches Institut für Entwicklungspolitik, Berlin.

Chapter 4

Limits on Cadmium in Plastics and PVC

This chapter looks at the effects of the EU Directive limiting the acceptable level of cadmium, a toxic chemical used in the production of plastics. It shows that products exceeding the acceptable limits continue to be imported, sometimes as a result of ignorance in producing and exporting countries, sometimes because of differences in limits set by EU countries, and sometimes because the imported products contain a multiplicity of components obtained from a variety of suppliers, some in compliance, some not.

Introduction

In 1991 the European Union issued a directive that restricted the marketing and use of products containing cadmium above a limit set at 100 parts per million (ppm). Cadmium is used in the manufacture of some articles made of plastic and polyvinyl chloride (PVC), and their disposal and incineration adds to accumulations of this toxic metal in the environment. Over the years, inspections have revealed that many imported products — especially those produced in China (including Hong Kong and Chinese Taipei), but also in Thailand and Indonesia — still contain levels of cadmium above the 100 ppm limit. These products include electronic equipment, plastic bags and even children's toys.

The trade effects of the measure appear to have been small, as substitutes for cadmium are readily available and not significantly more costly. However, plastic and vinyl articles in violation of the EU's limit continue to be imported, often by companies that believe the articles to be in compliance with the law. Studies have identified a lack of awareness of the EU's standards among small and medium-sized manufacturers in the worst-offending exporting countries. A project to improve communications with those exporters is being considered by a group representing enforcement organisations from EU member states and Norway.

Development of the environmental measure

In 1976 the European Council issued Directive 76/769/EEC, which allows restrictions to be placed "on the marketing and use of certain dangerous substances and preparations". Over the next 15 years, compelling evidence indicating a need to reduce the rate at which heavy metals, including cadmium, were accumulating in the environment began to emerge.

Cadmium, like many other heavy metals, has many industrial applications.[1] But it is also persistent in the environment, interferes with biological processes, is toxic to humans in low doses, and is a risk factor in the development of human cancers, particularly cancers of the lungs and prostate gland. One of the pathways by which cadmium enters the environment, even in countries that do not use the metal itself, is through the disposal and especially the incineration of products that contain it.[2] Compounds of cadmium are still used by some manufacturers of some plastics — PVC, polyurethane, polystyrene and polypropylene — as pigments (to give colour) or, in the case of PVC, as a stabiliser. Substitutes for cadmium in plastics, such as compounds of barium and zinc, or calcium and zinc, are widely available for most uses; they are neither significantly more expensive to use, nor do they reduce product quality.

In order to reduce environmental and human exposure to cadmium, the EU issued Directive 91/338/EEC (henceforth "the Cadmium Directive") to restrict the marketing and use of products containing above a specified limit of cadmium. At the time, and indeed it is still the case, there were no internationally agreed maximum limit values

1. It is used extensively in electroplating, for example, which accounts for about 60% of its use.

2. Ingestion is the main route for cadmium intake (among non-smokers). Cadmium is present in trace quantities in foodstuffs of natural origin; adding cadmium-containing phosphate fertilisers and sewage sludge to agricultural soils (the use of which varies among countries) increases average exposure. The second-leading source of human exposure is inhalation, especially of emissions from the combustion of fossil fuels. See www.cadmium.org/introduction.html.

(MLVs) relating to the cadmium content of products. There were, however, several national limits. These ranged from the US Environmental Protection Agency's MLV of 1 000 ppm of elemental cadmium in any product, to Sweden's total ban on the use of cadmium in paints, stabilisers and colouring agents. In the event, the Council set a limit of 100 ppm.[3] This limit is not a zero tolerance level, as the limit of detection for cadmium is in the neighbourhood of 5 ppm.

The limit went into force in 1992 and applied to any products produced in, or imported into, the EU. Composite products, *e.g.* a radio made of plastic, ceramic and metallic components, are also affected by the Directive, as a violation can occur if the concentration of cadmium in *any* part of the product, no matter how small, exceeds the legal limit. An exception was made for PVC window frames. However, a voluntary industry initiative has since addresses that issue (Box 4.1).

Box 4.1. The Vinyl 2010 initiative and recent European Commission actions

In March 2000, the PVC industry (PVC manufacturers, PVC additive producers and PVC converters represented by their European associations, ECVM, ECPI, ESPA and EuPC), combining under an organisation called "Vinyl 2010", signed a voluntary commitment addressing different impacts of PVC on the environment. The commitment included plans for reducing emissions of cadmium at the production stage, limiting the use of cadmium, progressive implementation of recycling targets, and the creation of a fund designed to finance relevant research projects.

Four months later the European Commission published a Green Paper on environmental issues related to PVC (CEC, 2000), in which it stated that "the contamination of the environment by cadmium should be avoided as much as possible" and identified various measures that could be taken. Later, the European Parliament passed a Resolution on the Commission's Green Paper criticising the Commission for not having performed any lifecycle analysis of PVC products to compare them with alternative materials. The Parliament also called on the Commission to bring forward as soon as possible a draft long-term horizontal strategy on the replacement of PVC. Among other recommendations it suggested that a recycling system similar to that for end-of-life vehicles be set up and that labelling of all plastic materials be made compulsory.

In March 2002, the PVC industry committed itself anew to fully phasing out the use of cadmium stabilisers in PVC by 2010. In fact, this goal had already been achieved: as of March 2001 European PVC additive producers had stopped placing cadmium stabiliser systems on the European market (Vinyl 2010, 2002).

The Commission committed in Directive 1999/51/EC to review the provisions on cadmium in Annex I of Directive 76/769/EEC before 31 December 2002 in light of the results of risk assessments for cadmium and of developments in finding substitutes for cadmium. A draft Commission Directive on cadmium was discussed in Committee on 30 June 2002.

EU directives are notified and adopted according to procedures that involve considerable consultation with stakeholders and public circulation of drafts. Official drafts and the final version of these directives are published in the *Official Journal of the European Communities* and on the Internet. Nowadays, the interests of developing countries, if relevant, are also taken into account. During the drafting of the EU Directive on azo dyes, for example, the EU conducted a study on the effects on suppliers in

3. Sweden's ban was allowed to continue until 1 January 1999, as was the Netherlands' limit of 50 ppm.

developing countries of a ban on azo dyes and products treated by azo dyes (http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_243/l_24320020911en00150018.pdf). The Cadmium Directive was drafted and proposed before these procedures had become commonplace, so its effects on developing-country exporters were not explicitly taken into account in its design. However, the EU did conduct a risk assessment study before establishing its limit.

As of 1993, all EU member states had implemented the Directive. During the first years, monitoring was evenly spread across both EU and imported products. In 1995, the Netherlands' Inspectorate for the Environment undertook a study to gain insight into the imports and production of cadmium-containing products in the Netherlands. The study showed that about 15% to 20% of the controlled synthetic products contained cadmium in concentrations exceeding its national limit of 50 ppm limit (which has since been raised to 100 ppm). About 80% of the controlled products were imported from countries outside Europe, and about 50% of those products were already being marketed within the EU's borders, *i.e.* they had not been stopped by customs agents.

The importance given to enforcement of the Directive has not been uniform across EU member states. These differences have enabled products in violation of the law to be imported into one member state and sold in another whose controls on third-country imports are otherwise effective. According to some experts, this problem contributes to the general perception among importers that there is little chance of getting caught in violation of the Cadmium Directive. In recent years, inspections have revealed that a large proportion of products found to contain cadmium in excess of the 100 ppm limit could be traced back to manufacturers in mainland China, Hong Kong or Chinese Taipei.

Trade issues and developing-country responses

Analyses of violations of the Cadmium Directive have shown that differential enforcement is only one of the problems and that it is being addressed. More worrying to the EU authorities is the general lack of awareness of the Directive within the developing countries where the goods are produced.

An importer trying to bring in goods found to be in violation of the Directive has three options:

- To sell the goods in a country outside the European Economic Area (EEA).
- To send the goods back to the country of origin.
- To dispose of the goods — or the offending component (e.g. plastic packaging) if the product is composed of separable components — under the supervision of the competent authorities; all disposal costs are borne by the importer.

Products containing cadmium are only redirected elsewhere in the relatively uncommon event that customs authorities find products that they suspect may be in violation of the Cadmium Directive and prevent them from entering the country. In such cases, importers may look for alternative markets to sell their products. A few unscrupulous importers have taken advantage of the different levels of enforcement across EU member states and tried to bring the same goods back into the EU through another channel. Importers that desire to operate within the law will either discontinue their contractual relation with the offending supplier(s) or put pressure on them to alter their production process so as to comply with the EU's cadmium limit in future shipments.

Importers tend to have at best limited control over their supply chains, however, and may find themselves unwitting violators of the Directive. Observers of the situation have pointed to four basic problems: *i)* lack of information; *ii)* multiple international standards; *iii)* complexity of the production chain; and *iv)* lack of proper testing facilities.

Lack of information

Large European retailers normally ban even trace quantities of cadmium in any products they sell, and include such a requirement in the product specifications sent to their suppliers. In general, large producing companies or companies that focus on the European market are aware of the cadmium problem and of the European standard. They are also aware of substitutes for cadmium. Lack of information is mainly a problem for small, low-technology and low-wage companies, some of which export their products through small European importing companies. Ignorance of the law seems to be greatest among start-up companies which do not include requirements relating to cadmium content in their product specifications.

A DG-III representative contacted for this study felt that the EU Directives on dangerous substances and preparations in general need not pose a trade barrier to developing countries: export promotion organisations in the countries concerned follow developments in the EU closely. For example, the Hong Kong Trade Development Council regularly publishes articles on draft EU legislation. However, dissemination of information on these subjects in mainland China appears to lag somewhat behind that of other developing countries, however, perhaps in part because of language barriers.

Multiple international standards

China produces plastic goods both for its home market and for foreign (mainly EU and US) export markets. It has been estimated that the shares of products exported from China and Hong Kong, China, that are at risk of containing cadmium are split roughly evenly between the EU and US markets. The difference in standards between the old US (1 000 ppm) and the more recent EU standards sometimes leads to confusion.[4] And, because the US standard predates the EU standard by many years, many older manufacturing plants are still geared to that standard. Changing from one (US-oriented) production process to another (EU-oriented) complicates the production logistics and raises costs. This problem mainly affects manufacturers who produce primarily for markets outside of Europe or whose production facilities date from before the 1990s.

Complexity of the production chain

The production chain of the relevant products is often complicated. During the lifecycle of a product, its different components may be assembled and traded many times. Buyers and assembly factories often do not, and indeed cannot, know the cadmium value of every single part of the product. Manufacturers that assemble products made with purchased components generally look for the least-cost supplier of those components: price, and the reliability of established networks, are the paramount criteria.

For the exporter it can be difficult and costly to trace all components of the product and to test them for the presence of cadmium. Changing suppliers adds further transaction

4. The Cadmium Directive is also sometimes also confused with the EU's migration limit for toys (EN 71: maximum cadmium migration norms), by Chinese exporters as well as by European importers.

costs. Given the complexity of the production chain, even a strategy of embodying product specifications does not always prove to be "watertight", as confirmed by the official statements of European retail companies, especially larger ones, that have been found in violation of the Directive.

Lack of proper testing facilities

False or erroneous testing early in the supply chain is one of the main reasons given by those caught in violation of the Cadmium Directive. The prevalence of production and marketing chains that involve multiple components and the manufacturers of those components compounds the problem. Interviews reveal that local testing institutes, particularly in mainland China, may not have the capability to undertake tests according to approved methods. Also, bribing of laboratories to obtain favourable test results may sometimes occur. In Hong Kong, China, however, several internationally known testing institutes are available; lack of information (on the proper testing methods), or reluctance to incur the extra costs of testing, seem to be the main issues.

Responses to developing-country concerns

Since 1998, representatives of enforcement organisations from many EU member states (Austria, Belgium, Denmark, Finland, Germany, Greece, the Netherlands, Portugal, Spain, Sweden and, since January 2000, France), plus the EU's EEA partner, Norway, have participated in an enforcement project called EuroCad. At its first conference in September 1999, EuroCad members agreed to undertake a number of actions to improve the effectiveness of enforcement within the EEA, the results of which were reviewed at a second conference in May 2000. At its third conference in January 2001, the EuroCad members proposed to investigate the possibility of carrying out a project to improve communication with the countries of origin of the problem products, particularly China. In September 2001, the EuroCad membership met to discuss an analysis of communication possibilities; in addition, they approved a project proposal to study the feasibility of pursuing those possibilities. At the moment, financing for the feasibility study is still being sought, but if it goes ahead it will likely lead to an improvement in the awareness of the Cadmium Directive in Hong Kong and mainland China and thus mitigate one of the main reasons for continued violations of the EU's cadmium limits: lack of information.

At the EU level, the European Commission's Directorate General for Trade has been supporting the development of the Sustainable Trade and Innovation Centre (STIC), a "type II partnership initiative" designed by the Commonwealth Science Council (CsC), European Partners for the Environment (EPE) and the Dutch Royal Tropical Institute (KIT) and overseen by an international advisory council. The STIC aims to help developing countries identify and comply with standards and technical regulations and to engage in a policy dialogue on regulatory issues so as to assess the potential impacts of new regulatory initiatives on market access opportunities for developing countries and to consider ways of addressing their concerns.

Concluding observations

The EU Cadmium Directive does not seem to have greatly hampered exports of plastic and PVC products to the EU. However, a fairly significant proportion of these products still contain concentrations of cadmium in excess of the 100 ppm limit. Surveys

have shown that, more than ten years later, many exporters are still not aware of the Directive and the possible consequences of non-compliance.

Neither the European Commission, nor the EU member states, initially took an active role in explaining the Directive to exporters. Direct communication with the thousands of potential exporters would have been extremely difficult in any case. However, through the EuroCad project and the STIC they are starting to take the first steps towards overcoming that information barrier.

References

CEC: Commission of the European Communities (1976), "Council Directive 76/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community", *Official Journal of the European Communities*, L 129 (18/5).

CEC (1991), "Council Directive 91/338/EEC of 18 June 1991 amending for the tenth time Directive 76/769/EEC on the approximation of the laws, regulations, and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations, *Official Journal of the European Communities*, L 186 (12/7). [cadmium]

CEC (2001), conversation between Ms. L. Perenius and Ms. Janet Mensink.

Environment Daily (2001), "Results of CLEEN Conference (EUROCAD) Vienna", 1062, 18 September.

ERM: Environmental Resources Management (1998), "Study on the effects on suppliers in developing countries of a ban on azo dyes and products treated by azo dyes", report for the European Commission (DG-III), ERM, Oxford.

EuroCad (2001), "Communication on the EU cadmium directive towards the Far East", project proposal feasibility study, August.

Inspectorate for the Environment, The Netherlands, Mr. F. van Nieuwenborg, project co-ordinator, "Communication on the EU cadmium directive towards the Far East", EUROCAD.

Vinyl 2010 (2002), *The Voluntary Commitment of the PVC Industry: Progress Report 2002*, Brussels, Belgium, www.stabilisers.org/documents/Vinyl2010_ProgRep_2904_final.pdf

Chapter 5

US Import Procedures for Gasoline

This chapter discusses how the US Gasoline Rule, which aimed to reduce pollutants in gasoline in order to meet environmental goals, affected foreign refiners seeking access to the US market. It shows how the targets exporting countries are required to meet in order to access the US market were defined and the procedures that have been adopted. It brings out the importance of addressing market access effects for key developing-country exporters when developing the regulations.

Introduction

In 1990 the United States amended the Clean Air Act (CAA) with the intention of reducing toxic and other air pollution caused by the combustion of gasoline manufactured in or imported into the United States.[1] Three years later, on 15 December 1993, the US Environmental Protection Agency (EPA) promulgated regulations, commonly referred to as the "Gasoline Rule", implementing that Act.[2]

Two developing-country exporters, Venezuela and Brazil, faced with having to make costly adjustments to their production in order to comply with the Gasoline Rule, charged that the rule was discriminatory because it required imported gasoline to meet different and less favourable standards from those required of domestic gasoline. In 1995 they brought a formal challenge to the WTO, which resulted in the first panel ruling and subsequent Appellate Body ruling following the establishment of the organisation. Both the Panel Report[3] and the Appellate Body Report[4] concluded that the Gasoline Rule was inconsistent with WTO obligations.

The United States responded by revising the Gasoline Rule in a manner consistent with the WTO ruling. The US government has helped foreign refiners to understand and comply with the revised Gasoline Rule in a variety of ways, including sending technical advisors to the foreign refineries. The outcome appears positive. To date, Brazilian and Norwegian companies have made use of the new procedures, and the approach has also been incorporated in other areas of US environmental legislation.

Development of the measure

In 1977 the CAA set new targets for air quality in metropolitan areas. These targets related, among others, to nitrogen oxides (NOx), carbon monoxide, ozone, volatile organic compounds (VOCs), benzene and other toxic air pollutants (toxics). By the late 1990s it had become clear that several metropolitan areas had not met their targets and that a major reason for non-attainment was emissions from automobiles, particularly those operating on petrol (gasoline). Various options to address the problem were considered. Part of the package of measures ultimately adopted by the US Congress included an approach requiring different qualities of gasoline for different areas.

The CAA [Section 211(k)] established two programmes to ensure that air pollution from gasoline combustion would not exceed 1990 levels, and that pollutants in major population centres would be reduced. The first relates to "reformulated" gasoline, which must be sold in certain designated "non-attainment areas" such as the metropolitan areas that were experiencing the most severe ozone pollution. The second relates to "conventional" gasoline, which could continue to be sold to consumers elsewhere in the United States.

1. Amendment 42 U.S.C. Para 7545 (k). The CAA was originally enacted in 1963 and aims to prevent and control air pollution in the United States.

2. The Regulation was formally titled: "Regulation of Fuels and Fuel Additives — Standards for Reformulated and Conventional Gasoline", 40 CFR 80, 59 Fed. Reg. 7716 (16 February 1994).

3. United States — Standards for Reformulated and Conventional Gasoline, WTO Doc WT/DS2/R (29 Jan 1996), Reprinted in 35 I.L.M. 276, 300 (1996) (hereinafter the "Panel Report").

4. United States — Standards for Reformulated and Conventional Gasoline, WTO Doc WT/DS/2/9 (20 May 1996), Reprinted in 35 I.L.M. 603, 611 (1996) (hereinafter "Appellate Body Report").

The CAA established certain compositional and performance specifications for reformulated gasoline, while requiring that conventional gasoline remain as clean as it was in 1990. For *reformulated gasoline* the CAA specified that its oxygen content must not be less than 2% by weight, its benzene content must not exceed 1% by volume and it must be free of heavy metals, including lead or manganese. These were complemented with certain performance specifications, measured by comparing the emissions performance of reformulated gasoline in representative 1990 vehicles against the emissions performance of 1990-vintage gasoline in such vehicles. This comparison implied a 15% reduction in emissions of both VOCs and toxics and no increase in emissions of NOx.[5] For *conventional gasoline* the CAA [Section 211(k)(8)] provides that no refiner, blender or importer of gasoline may sell conventional gasoline that emits VOCs, toxics, NOx or carbon monoxide in amounts greater than in the gasoline sold in 1990.

Implementation of these CAA requirements was entrusted to the EPA.[6] In designing the Gasoline Rule, the EPA expressly fixed some specifications for gasoline, while requiring others to be maintained at or below 1990 levels (called "non-degradation" requirements). In particular, during the period 1995-97 a "simple model" was adopted: while specific targets for certain gasoline qualities (Reid Vapour Pressure, oxygen, benzene and toxics performance) were set out, the parameters for others such as sulphur, olefins and T-90 were expressed as non-degradation requirements to be maintained at or below 1990 levels (Table 5.1). It is important to note that this approach changed considerably when the "simple model" was replaced with a "complex model" from 1 January 1998.[7] Under the conventional gasoline programme, however, non-degradation requirements apply to all conventional gasoline requirements (Section 80.41, Gasoline Rule; see Table 5.2).

In order to judge compliance with non-degradation requirements, the EPA was directed to determine the quality of 1990-vintage gasoline as a benchmark against which reformulated and conventional gasoline could then be compared in the future. These determinations, known as "baselines", were to be undertaken either on a refinery by refinery basis (individual baselines) or derived from the average characteristics of *all* gasoline consumed in the United States in the 1990s (statutory baselines). The rules for establishing these baselines varied depending on the nature of the entity concerned (Section 80.91, Gasoline Rule). Critically, the rules established for domestic refiners and blenders differed from those applied to importers of gasoline.

In general, any domestic refiner could obtain an individual baseline: the annual average level it achieved in 1990. To establish an individual baseline, a refiner had to

5. Section 211(k)(2)-(3), CAA. For 2000 and beyond the CAA requires new reformulated gasoline standards calling for a 20-25% reduction in emissions of VOCs and toxics, depending on the EPA's considerations of feasibility and costs.

6. In fact, the EPA has regulated the environmental quality of gasoline since 1973, when the first regulation dealing with lead content was promulgated.

7. In particular, non-degradation requirements for reformulated gasoline only applied under the "simple model". Thus, from the beginning of 1998 when the "complex model" was adopted, reformulated gasoline no longer has non-degradation standards and thus the issue of individual foreign refinery baselines, central to this study, is no longer relevant for reformulated gasoline. The specific standard for Reid Vapour Pressure also only applied during the "simple model" period. Thus, as reflected in Table 5.1, after 1998 the reformulated gasoline standards relate to: VOC, toxics and NOx emissions performance as well as benzene and oxygen content. Non-degradation requirements still apply to conventional gasoline, however,

show evidence of the quality of gasoline it produced or shipped in 1990 (Method 1). If that evidence was not complete, then it had to use data on the quality of blendstock[8] it produced in 1990 (Method 2). If these two methods did not yield sufficient evidence, the refiner was also required to use data on the quality of post-1990 gasoline blendstock or gasoline (Method 3).

Importers, on the other hand, were subject to less flexible rules for establishing individual baselines, which in essence obliged them to comply with statutory baselines: a value based on the average characteristics of *all* gasoline consumed in the United States in the 1990s. The EPA's reason for doing so was an assumption that it would be extremely difficult to verify individual baselines and enforcing compliance in foreign jurisdictions.[9] Strictly speaking, importers could also establish an individual baseline, but only in the unlikely case that they were able to provide the data needed for Method 1; unlike domestic refiners, they were not allowed to establish an individual baseline based on secondary or tertiary data, *i.e.* to apply Methods 2 or 3. In short, if an importer could not produce Method 1 data, it was obliged to apply the statutory baseline. Exceptionally, importers that imported in 1990 at least 75% of the production of an affiliated foreign refinery were treated as domestic refiners for the purpose of establishing baselines. These rules, set out in summary form in Tables 5.1 and 5.2, went into force on 1 January 1995.[10]

Table 5.1. Gasoline Rule specifications for reformulated gasoline

Criterion	Domestic refiners	Importers
Simple model (1995 through 1997)		
Specified criteria for Reid Vapour Pressure, oxygen, benzene and toxics	Fixed criteria specified in Gasoline Rule	Fixed criteria specified in Gasoline Rule
Non-degradation requirements for sulphur, olefins and T-90	Maintained at or below domestic refiner's 1990 ***individual*** refinery baseline levels	Maintained at or below 1990 ***statutory*** baseline levels
Complex model (1998 and thereafter)		
VOC, toxics and NOx emissions performance; oxygen and benzene content	Fixed criteria specified in the Gasoline Rule	Fixed criteria specified in the Gasoline Rule

Source: Based on US regulations.

Table 5.2. Non-degradation requirements for conventional gasoline

Criterion	Domestic refiners	Importers
All conventional gasoline requirements	Maintained at or below domestic refiner's 1990 ***individual*** baseline levels (N.B. all gasoline in excess of the *volume* sold by the refinery in 1990 shall be measured against the statutory baseline)	Maintained at or below 1990 ***statutory*** baseline levels

Source: Based on US regulations.

8. Blendstock is unfinished gasoline that has to be blended in order to be sold as finished gasoline.

9. See Appellate Body Report, pp. 25-26. At the same time, the EPA decided against using statutory baselines for domestic refineries owing to the magnitude of changes and physical and financial costs entailed by compliance. Exceptions apply, however, to special cases (such as refiners with only partial or no 1990 operations, and blenders with insufficient Method 1 data) which are also assigned the statutory baseline.

10. The complex model went into force on 1 January 1998.

Trade issues and the responses of developing-country exporters

Prior to the entry into force of the Gasoline Rule, both Venezuela and Brazil complained that they would encounter considerable difficulties and negative trade impacts on their exports of gasoline to the United States as a result of the rule. In particular, they claimed that by permitting domestic refiners to determine individual baselines, while obliging foreign refiners to follow statutory baselines, the EPA treated imported gasoline less favourably than domestically produced gasoline. For example, while imported gasoline with one or more parameter levels above the statutory baseline could not be directly sold in the US market, gasoline of identical quality but produced in a US refinery could be freely sold on the US market, provided that it conformed to that refiner's individual baseline.

In early 1994, shortly after promulgation of the Gasoline Rule, Venezuela filed a complaint against the United States under the dispute settlement procedures of the 1947 GATT. In May 1994, apparently in exchange for withdrawal of the complaint, the EPA published a proposed amendment to its reformulated gasoline regulations that would have addressed these concerns.[11] In particular, it suggested criteria and procedures by which foreign refiners could establish individual refinery baselines in a manner similar to that required for domestic refiners.[12] The EPA's proposal of May 1994 never entered into force, however, as the US Congress enacted legislation in September 1994 denying the funding necessary for its implementation.[13]

Following the failure of this initiative, Venezuela protested that its national oil company, Petroleos de Venezuela, S.A. (PDVSA), was obliged to make costly adjustments to its production in order to meet the statutory baseline requirements, which in turn adversely interfered with its investment programme to the detriment of other important investment projects. These adjustments, it claimed, had reduced the volume and value of Venezuela's current and anticipated gasoline exports to the United States below the levels that would have prevailed if PDVSA had been allowed to establish an individual baseline (Panel Report, Para 3.14).[14] Brazil complained that the gasoline that it had previously exported to the United States as "finished" gasoline had as a result of the Gasoline Rule been downgraded to "blendstock", which sold at a lower price (Panel Report, Para 3.14).

11. Environmental Protection Agency, "Regulation of Fuels and Fuel Additives: Individual Foreign Refinery Baseline Requirements for Reformulated Gasoline", 40 CFR 80, 59 *Federal Register* 22800 (3 May 1994). See also, "EPA Announces Fuel Plan for Venezuela; Threatened GATT Complaint is Shelved", 11 *International Trade Reporter* (BNA) No. 13, at 504 (30 Mar 1994).

12. Pursuant to this proposal, foreign refiners would be allowed to establish an individual baseline using Methods 1, 2 or 3. If the individual baseline was approved by the EPA, importers could use it for the purpose of certifying the portion of reformulated gasoline imported from that particular refinery into the United States. However, the use of individual foreign refinery baselines would be subject to various additional strict requirements, aiming at ensuring the accuracy and respect of the foreign refinery's individual baseline with respect to gasoline shipped to the United States and verifying the refinery of origin. Furthermore, it would not apply to conventional gasoline.

13. Department of Veteran Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, Pub L No 103-327, 108 Stat 2298, 2322 (1994).

14. In overall terms, the total volume of gasoline imported into the United States, including that from developing countries and economies in transition as a whole, has increased annually since 1995 in spite of the entry into force of the Gasoline Rule. See Table 5.3.

In January 1995, Venezuela, joined in April 1995 by Brazil, challenged the Gasoline Rule under the newly established WTO dispute settlement mechanism. Both the dispute settlement panel and the subsequent Appellate Body ruled against the United States. Notably, the Appellate Body found that the United States made two key omissions when developing its regulations.

Table 5.3. Imports of motor gasoline and gasoline blendstocks into the United States by country of origin

Thousands of barrels a year

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total imports into the United States	147 344	121 527	122 722	100 226	137 223	114 139	184 034	185 985	189 855	218 524	237 745
Imports from developing countries and economies in transition											
Arab OPEC: Algeria, Kuwait, Saudi Arabia, UAE	13 465	12 340	10 478	5 758	1 404	4 142	8 889	11 591	9 855	17 707	3 416
Other OPEC: Gabon, Indonesia, Nigeria	184	0	0	0	0	0	163	515	329	799	228
Venezuela	28 517	19 334	23 891	18 292	12 177	13 753	29 312	34 406	35 295	38 903	36 847
Argentina	2 449	831	39	373	11	0	1 429	1 088	6 827	7 414	9 976
Brazil	9 052	5 719	6 184	10 632	9 923	1 755	2 761	1 407	5 822	5 178	11 499
Cameroon	0	0	0	0	0	0	0	0	0	185	241
China	791	1 262	2 141	162	324	0	0	222	0	2 357	3 748
Colombia	0	0	0	0	0	0	97	0	218	293	1 793
Ecuador	0	0	0	0	0	0	0	0	627	359	492
Egypt	0	0	0	0	0	0	0	0	0	267	0
India	0	0	0	0	0	0	0	0	0	196	682
Malaysia	0	0	0	333	0	0	0	0	0	0	17
Mexico	1 002	1 778	2 268	2 033	459	3 067	1 791	1 709	1 623	3 397	2 356
Netherlands Antilles	1 425	1 894	1 238	859	757	0	879	2 497	318	51	558
Peru	0	0	0	0	0	0	0	141	0	0	110
Romania	4 313	517	1 285	0	1 180	0	1 652	2 430	685	1 907	0
Singapore	231	0	108	0	298	0	445	0	257	1 549	1 448
Thailand	0	0	0	0	0	0	0	459	332	332	52
Trinidad & Tobago	250	442	953	910	451	554	448	1 271	1 507	1 572	2 301
Turkey	419	0	0	0	0	0	651	0	0	0	0
USSR	124	149	0	0	0	0	1 425	2 422	3 181	1 840	5 444
Total imports from developing countries	62 222	44 266	48 585	39 352	26 984	23 271	49 942	60 158	66 876	84 306	81 208
Imports from developing countries as % of total imports	42%	36%	40%	39%	20%	20%	27%	32%	35%	39%	34%

Source: Energy Information Administration, *Petroleum Supply Annual*, relevant years, Table 21.

First, the United States had failed to adequately explore co-operation with the governments of Brazil and Venezuela as a means of mitigating the administrative problems it cited as justification for rejecting individual baselines for foreign refiners (Appellate Body Report, p. 28). Second, the United States had omitted to adequately consider the costs and feasibility for foreign refiners of complying with the statutory baselines; in other words, it failed to consider the market access effects of its environmental regulations for key exporters. Here the Appellate Body noted that, even though the United States had considered the physical and financial compliance costs for its own domestic refiners, "there is nothing in the record to indicate that it did other than disregard that kind of consideration when it came to foreign refiners" (Appellate Body Report, p. 28).

Responses to developing-country concerns

After the release of the WTO Appellate Body's report, the EPA published a notice inviting public comment on the Gasoline Rule, in order to identify options for domestic compliance with that determination and supply data concerning the way various alternatives will affect the environment and public health.[15] It then proposed[16] and promulgated[17] rules revising the requirements for imported gasoline in a manner intended to implement the WTO ruling. The consequent regulation, titled the Regulation of Fuels and Fuel Additives: Baseline Requirements for Gasoline Produced by Foreign Refiners, allows foreign refiners to establish individual baselines on the basis of requirements similar to those of domestic refiners (1997 Foreign Refiners' Gasoline Regulation). Foreign refiners seeking to take advantage of these regulations have to meet a number of additional requirements to address issues unique to refiners located outside the United States, including the following:

- The foreign refiner must establish a refinery baseline of the quality and quantity of gasoline produced at the refinery in 1990 that was used in the United States [40 CFR § 80.94(b)].
- The foreign refiner becomes subject to all requirements that apply to domestic refiners, such as record keeping, reporting, and sampling and testing [40 CFR § 80.94(c)(1)].
- The foreign refiner must conduct additional sampling and testing necessary to demonstrate which gasoline produced at the foreign refinery is actually imported into the United States [40 CFR §§ (f) and (g)].
- The foreign refiner must agree to allow EPA inspections and audits [40 CFR § 80.94(i)(1)], must agree that enforcement actions for violations of United States laws and regulations related to the individual refinery compliance will take place in US courts [40 CFR §§ 80.94(i)(2)-(4)], and must post a bond appropriate to pay any penalties for non-compliance that are assessed [40 CFR § 80.94(k)].

The 1997 Foreign Refiners' Gasoline Regulation applies only to standards that remain different for different refineries, *i.e.* the anti-dumping standards for conventional gasoline

15. Environmental Protection Agency, "World Trade Organisation Decision on Gasoline Rule", 61 *Federal Register* 33703, 28 June 1996.

16. 62 *Federal Register* 24776 (6 May 1997).

17. 62 *Federal Register* 4553 (28 August 1997).

that rely on a refinery's baseline of historic gasoline quality, and no longer on reformulated gasoline. Furthermore the regulation is optional for foreign refiners. Therefore, if a foreign refiner chooses, it may produce gasoline for use in the United States without having to comply with the requirements of the foreign refiner regulation.

The regulation is accompanied by an annual survey of the quality of all imported gasoline. If the survey shows degradation of the quality of imported gasoline, standards for some imported gasoline are adjusted to compensate [40 CFR § 80.94(p)]. The survey addresses EPA concerns that optional foreign refiner compliance may potentially create an environmental problem and skew the quality of imported gasoline. The possibility may arise because of the problem of adverse selection, *i.e.* foreign refiners with "dirty" individual refinery baselines (which result in relatively easier compliance) have a greater incentive to choose the individual compliance option than refiners with "clean" individual refinery baselines (which result in relatively more difficult compliance).

Since the revised regulation was promulgated in 1997, the EPA has received and approved petitions for individual refinery baselines from Petrobras, the national oil company of Brazil, and Statoil, the national oil company of Norway. No refiner from Venezuela has submitted a petition for individual refinery compliance even though it was a key plaintiff in the original WTO dispute.

During this process the EPA has assisted foreign refiners. For example, in the case of Petrobras, the EPA worked extensively to assist the company to understand and comply with the individual foreign refinery requirements. EPA officials met several times with the Petrobras employees who would be responsible for compliance with the requirements, both in Washington and in Brazil. In addition, an EPA team visited each Petrobras refinery to review the refinery baseline information and indicate what additional information and analysis would be necessary for complete baseline petitions. Thus EPA officials have been available to assist foreign refiners understand the foreign refiner requirements, by telephone and in person. It therefore appears that a satisfactory outcome to the import procedures for gasoline has been achieved.[18]

Concluding observations

This case study illustrates the importance, when developing environmental regulations, of taking into account their market access effects for key developing-country exporters. That may involve considering the costs and feasibility for developing-country exporters of meeting the standards and exploring possible alternative co-operative solutions.

It also provides an example of positive outcomes for both the country setting the environmental standards and exporting countries. The United States' revised Gasoline Rule, which allows foreign refiners to establish individual baselines on the basis of

18. Since 1997, the EPA has followed the foreign refiner compliance approach in three additional regulations that include standards based in whole or in part on individual refinery baselines. Each of these regulations includes foreign refiner provisions that are modelled closely on the Gasoline Rule's foreign refiner regulations. They are the following: the gasoline sulphur regulations, which went into effect in 2004 (65 *Federal Register* 6698 [10 February 2000]; codified at 40 CFR Part 80, subpart H); the gasoline toxics regulations, which limit the benzene content of gasoline and went into effect in 2002 (66 *Federal Register* 17230, [29 March 2001]; to be codified at 40 CFR § 80.1030); and the diesel sulphur regulations which go into effect in 2006 (66 *Federal Register* 5002 [18 January 2001]; to be codified at 40 CFR § 80.620).

requirements similar to those for domestic refiners, has subsequently been relied on by Brazil and Norway and has been replicated in other US environmental legislation.

The study also highlights the fact that positive outcomes may require considerable exporter assistance from the country setting the environmental standards. In this case, for example, the EPA undertook extensive work to assist foreign refiners to understand and comply with the 1997 revised gasoline regulations, including travelling to the foreign refineries concerned.

Government Regulations

Products of Agriculture, Forestry and Fishing

Chapter 6

Limits on Pesticide Residues in Snow Peas

This chapter examines the problems resulting from pesticide residues in snow peas produced in Guatemala and imported into the United States that exceeded the limits set by US regulations. The production of snow peas was originally encouraged by USAID, which eventually undertook research on and training in pest management in order to avoid excess pesticide residue in export crops. The chapter shows the importance for aid agencies, before embarking on a programme to promote an export product, to ensure that producers in the country of export are aware of and can comply with the regulations in the importing country.

Introduction

Guatemala has been producing snow peas, a high-value vegetable, since the late 1980s. Grown mainly by small-scale farmers and mostly in the country's highland areas, snow peas have become one of Guatemala's major non-traditional agro-export (NTAE) crops.

The United States is the leading importer of Guatemalan snow peas. For many years, the US Agency for International Development (USAID) has strongly encouraged Guatemala to produce and export snow peas and other vegetables, by providing financial aid programmes, technical and marketing services, and policy inducements, as part of the United States' overall programme for NTAE support in Latin America.

In the early 1990s, pesticide residues in shipments to the United States were frequently found to be in violation of the US Environmental Protection Agency's (EPA) residue tolerance requirements. Guatemalan exporters were obliged to carry out residue testing to certify subsequent shipments for a several-month period during 1993. This crisis led to the funding of several programmes to assist the growers in developing integrated pest management, and in general to provide greater assurance that pesticide residues in exported snow peas satisfied US requirements.

Development of the environmental measure

Exporters and brokers must comply with many regulations and fill out many forms and certificates in order to export food products to the United States. All shipments are subject to the requirements of regulatory agencies, including the EPA, the Animal and Plant Health Inspection Service (APHIS) and the Food Safety and Inspection Service (of the US Department of Agriculture [USDA]), the Food and Drug Administration (FDA), and the US Customs Service. The FDA and EPA safeguards (pursuant to the Federal Food, Drug, and Cosmetic Act) require that "raw products are illegal if they contain residues of pesticides not authorised by, or in excess of, tolerances established by EPA regulations" (FDA, 1984; Powers and Heifner, 1993). Most EPA pesticide residue tolerances are granted in connection with registration for use on crops in the United States; however, the EPA also establishes "import tolerances" in the absence of a US registration if needed to cover residues in imports. Such import tolerances must meet the same food safety standards as all other tolerances, though the data requirements are generally less than those for US registered pesticides since worker protection and environmental effects studies do not apply.

The US regulations concerning pesticide residue tolerances have been enforced largely through the FDA's sampling of produce in the ports of entry. An estimated 1% of all imports of fresh produce are tested, according to information obtained from the FDA in the 1990s. Shipments that are found to exceed the tolerances, or that contain residues for which a tolerance or exemption has not been granted by the EPA, are subject to detention; they must be brought into compliance, destroyed, or re-exported.[1] If detentions are frequent, the FDA can temporarily place an "automatic" detention on a product, meaning that it must be tested to demonstrate that the problem found in previous

1. US Department of Agriculture marketing regulations; Fredda Valenti, export/residue analyst, FDA, personal communication, April 1994.

shipments no longer exists. The sampling frequency is increased for crops that previously violated standards.

Box 6.1. Production practices and pesticide use in snow peas

The initial establishment of a snow pea farm requires considerable capital investment. Operating costs, particularly for labour, can be high. Guatemalan producers must comply with the demands and requirements of local buyers, US importers and government agencies, especially those relating to quality requirements (*e.g.* blemish-free and uniform products), and phytosanitary and sanitary standards, including regulations on pesticide residues in food products.

To maximise yields, increase efficiency and mitigate natural variables such as climate, producers usually make heavy use of imported technologies, including seeds and agrochemicals (Merwin and Pritts, 1993). Snow peas grown in monocultures, season after season on the same land, are highly susceptible to pests and diseases, partly because they are typically planted in monocultural systems, rather than in diverse polycultures which by nature better resist pests and disease. Furthermore, non-native crops, like snow peas, are often more vulnerable to pests and diseases when transferred to the Central American highlands.[1]

Heavy use of pesticides cannot be seen merely as a consequence of high pest incidence: growers use them also in response to market pressures, importers' requirements and the demands of credit agencies, which sometimes require standardised chemical applications as conditions for loans. Pressures from agrochemical companies may also play a role: surveys undertaken in Guatemala and in other Latin American countries show that the large majority of farmers lack adequate information and technology for rational pesticide use or non-chemical alternative pest control methods.

A survey of 114 small-scale snow pea producers in the highlands of Guatemala, carried out by local researchers in collaboration with the World Resources Institute, revealed patterns of pesticide use in snow peas. The survey showed that the main common pesticides used in snow peas are thiodan, copper, malathion, ziram, diazinón, Perfection, and ferbam; the main target pests are "gallina ciega" (*Phyllophaga*), thrips (*e.g. Frankiniella sp*.), white fly (*Homoptera*), cutworm (*Agrotis sp*.) and *Lepidoptera* larvae (Fisher *et al.*, 1994). In 20 cases, producers were found to be using pesticides inappropriately, such as applying insecticides to control leaf diseases or fungicides to control insects. Of those surveyed, 95% reported that the costs of pesticides had increased over time. Most producers lived in fear that their produce would be rejected for "low" aesthetic quality. This fear is logical: in 1993, for every 100 kilogrammes of Guatemalan snow peas produced, an average of 16 kilogrammes were rejected due to blemishes. Clearly, chemicals are seen as insurance. Previous surveys of snow pea producers have shown similar patterns of use for a wide variety of pesticides (*e.g.* Stewart *et al.*, l990).

These pesticides are expensive for farmers. One study carried out in the late 1980s found that pesticide purchases, application and technical assistance costs for NTAE vegetables accounted for 22.5% of total production costs and, for snow peas, pesticide costs alone exceeded USD 2 200 per hectare (CICP, 1988). A study carried out a few years later in the Guatemalan highlands indicated that pesticide inputs represented 30% to 35% of the costs of material inputs used in growing snow peas (Fisher *et al.*, 1994). Yet another study showed that snow peas entailed higher pesticide costs per hectare than either cotton or bananas, which formerly used the highest levels of pesticides per unit of land (Murray, 1994).

1. See, for example, Fisher *et al.* (1994); Murray (1994); and Proyecto para Exportación Agrícola No-Tradicional; and Universidad San Francisco de Quito, unpublished survey of pesticide use, Quito, Ecuador.

Before violative residues were detected at significant rates, US agencies were rarely involved in Guatemala (or other Latin American countries) in monitoring pesticide application, nor did they routinely provide information to growers on pesticides or pest management practices. After residue problems began to emerge (Box 6.1), several US agencies (including the USDA, FDA, USAID and EPA) decided to send several staff members to Guatemala to assess how pesticides were being used to grow Guatemalan snow peas. This led to the establishment of a multi-year pilot programme on pesticide management in Central America. The US agencies also attempted to assist their Guatemalan counterparts to establish programmes to address or monitor pesticide residues in NTAEs, but only *after* serious losses from the violations began to appear.

In the planning and initial stages of NTAE programmes, most decision makers and administrators paid little attention to environmental issues, such as pesticide use, soil and vegetation changes, and water contamination, until problems emerged (see below). Indeed, they were often ambivalent or even antagonistic toward such concerns.[2] Although environmental impact assessments (EIAs) were required by law at the outset for USAID's export-promotion programmes, these assessments were usually conducted after the programmes were firmly established with approved financing.[3] Decision makers who were concerned with NTAEs tended to perceive EIAs and other environmental regulations as bureaucratic burdens.[4] Although some EIAs identified likely problems and suggested measures to avoid them, their recommendations were rarely implemented in the first years of the NTAE programmes.

Trade issues and developing-country responses

In the early 1990s, pesticide regulations existed as written documents throughout most of Latin America. However, they were not adequately implemented for NTAEs and other crops.[5] Few government agencies had the resources or the political will to enforce the laws. Furthermore, most countries were providing contradictory policy incentives that favoured the use of pesticides, such as subsidies and credit policies that encouraged the use of agrochemicals in export crops (Rapetto, 1985; Thrupp, 1990).

When pesticides are applied excessively or too near harvest time, residues may accumulate in foods at levels that exceed the tolerance standards established by the governments of importing countries. When a violation is detected, subsequent shipments may be automatically detained, and the importer is required to test or have analysed at least five future consecutive shipments at his or her own expense to ensure that the residues have been eliminated or are below the established tolerance level. This triggers financial losses to exporters and producers alike.

These violations and detentions proved to be a major problem for Latin American and Caribbean exporters of NTAE crops to the United States. NTAE exporters from ten Latin

2. They sometimes scorned organic farming as well. In Guatemala, NTAE promotion officers openly opposed the development of organic NTAE products and markets for many years (until they began to see that organic agribusiness could be lucrative and successful): interviews with Proyecto para la Exportación Agrícola officers and a USAID officer, l993/94.

3. USAID, Latin America and Caribbean Bureau, Environment Office, "Environmental Impact Evaluations for Non-traditional Export Promotion Programs", for Central America, Ecuador, and Caribbean countries, unpublished.

4. Interviews conducted by Lori Ann Thrupp for the study *Bittersweet Harvests* (1995).

5. Sources of information include Murray (1994); Bull (1982); Thrupp (1988); and Boardman (1986).

American countries experienced approximately 14 000 pesticide-related detentions in the decade to 1994.[6] Total economic losses came to an estimated USD 95 million. Many of these problems were associated with highly toxic or persistent pesticides that are restricted or banned in the United States but which continue to be used in other countries.

The most serious and frequent residue-detention problems were found in shipments from Guatemala and Mexico. During the late l980s, detention rates for Guatemala's NTAEs reached 27% of the total shipments sampled (Murray and Hoppin, 1992). Between l990 and 1994, Guatemala's exports were detained 3 081 times because of residue violations, resulting in total losses of about USD 17.7 million. Most of these detentions (1 755) occurred in 1993 alone, and were due almost entirely to the presence of chlorothalonil, a pesticide used in snow peas that is not registered for this crop and for which the United States had established no import tolerance.[7] Following repeated violations, the Guatemalan government, in arrangement with US government agencies, required all producers to perform residue analyses in Guatemala before shipping the products (in addition to the usual import inspections), thus elevating their export costs.

The automatic detention and testing requirements had a devastating economic effect on the livelihoods of hundreds of small farmers who suddenly had no market for their produce if they could not comply with the residue analysis programme or had used pesticides for which tolerances had not been established by the importing country. For many months, thousands of tonnes of snow peas simply rotted and were discarded. (These vegetables were not in demand locally.) Since most of the farmers had converted their entire farms to snow peas, following recommendations of the USAID and local agricultural agencies, they lost their entire source of income for the year.

The country-wide automatic detention programme resulting from pesticide residue violations, and other factors tied to NTAE production, upset many snow pea growers and contributed to their disillusionment. A representative of a producer co-operative in Patzun, Chimaltenango, summarised the anger felt by many of its farmers (Mucia, 1994):

> Our living conditions are inferior to those that we had before starting NTAE production .... We have increased dependence on fertilisers, insecticides and other inputs, but the quality of these inputs has decreased ... . The costs of agricultural inputs, land rents, labour and transport have increased considerably, while interest rates for credit have increased ... Intermediaries and transport companies have become rich in NTAE systems, while producers have become poorer ... We suffer from health problems that we never had before ... due to exposure to agrochemical poisons and the difficult work.

Responses to developing-country concerns

Several institutions and producers responded to the pesticide residue problems in NTAEs, particularly in snow peas. In Guatemala, serious losses from residue-related detentions in vegetables, especially snow peas, sparked several initiatives in the 1990s aimed at rationalising pesticide use, stopping the use of unregistered chemicals, helping to improve phytosanitary conditions and developing Integrated Pest Management (IPM) methods. Several of these efforts were supported under the umbrella of the Agricultural Development Project (PDA), which was financed by USAID, co-ordinated by the

6. World Resources Institute analysis of unpublished FDA detention data, Washington, DC, 1983-94.

7. *Ibid*.

Guatemalan Ministry of Agriculture, and involved other institutions and the private sector.

One such effort, initiated in l991, was the Highlands Agricultural Development project, which focused mainly on IPM research for snow peas and also included work on tomatoes, broccoli and other vegetables. In this project, several research and development institutions collaborated with the private sector and USAID to research and apply integrated pest and pesticide management methods, and to reduce pesticide inputs and detentions.[8]

The project scientists began undertaking two years of research on the main pest and disease problems for snow peas. The team generated new alternatives for IPM, including solarisation, the use of plastic "traps", the destruction of crop residues, crop rotation and the rational use of EPA-registered pesticides. (Most of these methods are profitable and simple to apply with locally available resources.) The project also provided training and technical assistance for the technical personnel of export companies, chemical salesmen, farm mangers and farmers. Activities included short courses on IPM and demonstration field days for producers, packers and technicians from chemical companies.

In late 1993, an assessment was undertaken by an interdisciplinary team[9] to identify the impact of efforts to introduce IPM in snow peas in Chimaltenango and Sacatapequez, Guatemala's major snow-pea producing areas (Fisher *et al.*, 1994). This study involved surveys in about 30 *aldeas* (villages) and 19 municipalities, along with a participatory workshop among small producers. The results showed that a majority of farmers surveyed had adopted at least some IPM practices, and about half were taking pesticide residue precautions. However, a few of the key recommended practices (particularly use of sticky plastic-bag insect traps, solarisation, and tilling before planting) were adopted by fewer than 10% of the farmers interviewed. Furthermore, unregistered pesticides were still being used in 57 cases. The main reasons given by farmers for deciding not to adopt certain techniques were a lack of knowledge of the methods, insufficient time, and high expense. The fact that the project technicians generally did not use participatory approaches for technology transfer was another possible problem. In sum, these findings suggested that the IPM programme made some progress in reducing pesticide use and costs, but that much more work was needed to transform production practices (Fisher *et al.*, 1994).

Besides this IPM programme, another initiative in Guatemala was the creation of the Integral Programme for Agricultural and Environmental Protection (PIPAA), which tried to reduce pesticide residue problems and promote compliance with pesticide and sanitary standards in NTAEs (especially for snow peas). PIPAA worked with US government agencies and trade associations to provide technical services and to develop laboratory capacities for residue analysis. The National Committee for Snow Peas also concentrated on pesticide residue problems. Between 1991 and 2000, the International Fund for Agricultural Development (IFAD) and CropLife Latin America (a member of the

8. This IPM project was documented and evaluated in Fisher *et al.* (1994). Institutions that collaborated in the project included the Plant Protection Unit of the Instituto de Ciencia y Tecnología Agrícolas (ICTA —Institute of Agricultural Science and Technology), the Agricultural Center for Tropical Research and Training (CATIE), the Agricultural Research Fund (ARF), the Snow Pea Trade Association, USAID, and Agrequima (Guatemala's Agrochemical Association), for some aspects.

9. Team members came from the European Conference of Ministers Responsible for Regional Planning (CEMAT) and an NGO working on appropriate technology; the Instituto de Ciencia y Tecnología Agrícolas carried out the study with support from the World Resources Institute, Management Systems International, and USAID.

international pesticide trade association CropLife International), carried out a three-phase programme in Guatemala to inform and educate farm workers and their families in the correct use of crop protection products, and to ensure the effectiveness of poison control centres. During its first two phases, the programme trained 800 government extension workers on the safe distribution and use of crop protection products, who in turn trained a further 226 000 farmers and their spouses, 2 800 schoolteachers and their 67 000 pupils, as well as 700 pesticide distributor employees, 330 technical and sales people and 2 000 physicians and health personnel (Murray and Taylor, 2001). The programme also introduced a certification scheme for dealers, to ensure the adequate handling of crop protection products (CropLife International, 1998). Other organisations, such as the Peace Corps, in tandem with the Panamerican Agricultural School (El Zamorano), and the US EPA, undertook efforts to reduce pesticide hazards, though these did not focus only on NTAEs.

These activities apparently helped to bring about tangible changes. Residue detentions in snow peas declined during the 1990s, suggesting that farmers were at least learning to curtail the use of unregistered pesticides. However, much more work appeared to be necessary to address the roots of Guatemala's pesticide use problems.

Another effort by USAID, which began in 1994 with the development of the Integrated Pest Management Collaborative Research Programme (IPM CRSP) in Guatemala, continues today. The IPM CRSP has encouraged more careful pesticide use and the integration of bio-rational strategies to reduce the number of pests. In 1995 the IPM CRSP and the USDA's Foreign Agricultural Service worked with the Guatemalan government to fight an infestation of leaf miner (*Liriomyza huidobrensis*), which resulted in a detention of snow peas by APHIS at US ports of entry. The IPM CRSP completed a taxonomic survey of the snow pea leaf miner species of Agromyzidae in the Guatemalan highlands and found that *Liriomyza huidobrensis* was not an exotic species and therefore did not pose a threat to US producers. The damage caused by the leaf miner as it bores through the snow pea is usually unnoticeable until the product reaches its destination. It is also believed that the leaf miner has developed resistance to insecticides labelled for its control.

In April 1997, the APHIS automatic detention of Guatemalan snow peas at US ports of entry was removed, re-establishing the annual USD 35 million a year trade in Guatemalan snow peas. In addition, the IPM CRSP reduced the levels of infestation through the use of trap crops (crops that are more attractive to the pest than the target crop), and sticky traps. This method increased the profit margin of the local farmers by reducing their need for pesticides. Of the trap crops tested, the black bean was the most effective, allowing growers to earn up to a 252% profit margin (Sullivan, 2000). The IPM CRSP and the USDA also assisted small producers to gain market access through the establishment of regional pre-clearance centres.

Concluding observations

Non-traditional agricultural exports have developed into an important source of economic development for Latin America. However, many of these programmes have been "production-driven" rather than "market-driven", and this has resulted in economic difficulty for some producers and exporters. Such difficulties were particularly evident in the early 1990s with the detention of snow peas because of violations of US pesticide-residue tolerance requirements, as well with the 1995/96 leaf miner crisis. A

major problem was that many of the growers were using pesticides incorrectly, due to inadequate training or pressure from buyers and credit agencies.

US government agencies responded to these problems by sponsoring research on appropriate IPM techniques, providing training to increase awareness of pesticides and alternatives, and in general increasing local capacity to monitor and avoid excess pesticide residues in exported crops. This market facilitation approach appears to have reduced the number and severity of export-related problems (Julian, 1999). Indeed, some 80% to 85% of US consumption of snow peas continues to come from Guatemala.

Perhaps the most important lesson to be learned from this study is that aid agencies, well before embarking on a programme to promote an export product, should carefully examine the rules that apply to imports of that product in the intended markets, and to ascertain whether producers in the country of export are aware of and can comply with those rules.

References

Boardman, Robert (1986), Pesticides in World Agriculture: The Politics of International Regulation, Macmillan, London.

Bull, David (1982), A Growing Problem: Pesticides and the Third World Poor, Oxfam, Oxford.

CICP: Consortium for International Crop Protection (1988), "Environmental Assessment of the Highland Agricultural Development Project", Project Amendment, Phase 2, Consortium for International Crop Protection, College Park, Maryland.

CropLife International (1998), "Safe Use Pilot Projects: Guatemala, Kenya, Thailand", CropLife International, Brussels, www.afamin.net/documents/Crop%20Life%20Safe_Use_pilot_projects.pdf.

FDA: US Food and Drug Administration (1984), *Requirements of Laws and Regulations Enforced by the U.S. Food and Drug Administration* US Department of Health and Human Services, Food and Drug Administration, Rockville, Maryland, pp. 9-39.

Fisher, Richard W., Roberto Cáceres, Edgardo Cáceres and Danilo Dardón (1994), "Informe Final: Evaluación del Manejo de Plagas y Plaguicidas en Arveja China del Altiplano de Guatemala", unpublished final report on a study by Centro Mesoamericano de Tecnología Apropiada, El Instituto de Ciencia y Tecnologia Agrícola, Guatemala City, Guatemala and World Resources Institute, Washington, DC.

Julian, James, Guillermo E. Sánchez, Glenn H. Sullivan and Stephen C. Weller (1999), "Food Safety and Market Development Implications", in G.H. Sullivan, G.E. Sánchez and S.C. Weller (eds.), *Seventh Annual Report: Overview of the Latin American Site in Guatemala*, Integrated Pest Management Colloborative Research Support Program, Office of International Research and Development, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

Merwin, Ian and Marvin Pritts (1993), "Are Modern Fruit Production Systems Sustainable?", *HortTechnology*, April-June, Vol. 3, No. 2, pp. 130 ff.

Mucia, Marcelo (1994), "Sostenabilidad social: La experiencia de los productores de Patzún, Chimaltenango", in *Sostenibilidad de la Producción Agrícola No-Tradicional de Exportación por Pequeños Productores en Guatemala*, Instituto de Nutrición de Centroamerica y Panama, Memorias del taller, Guatemala City, Guatemala and World Resources Institute, Washington, DC.

Murray, Douglas (1994), Cultivating Crisis: The Human Costs of Pesticides in Central America, University of Texas Press, Austin, Texas.

Murray, Douglas and Polly Hoppin (1992), "Recurring Contradictions in Agrarian Development: Pesticide Problems in Caribbean Basin Nontraditional Agriculture", *World Development*, Vol. 20, No. 4, pp. 597-608.

Murray, Douglas and Peter Leigh Taylor (2001), "Safe Use: Not So Safe", *Pesticides News*, No. 54, December, pp. 6-7, www.pan-uk.org/pestnews/pn54/pn54p6.htm.

Powers, Nicholas and Richard Heifner (1993), *Federal Grade Standards for Fresh Produce: Linkages to Pesticide Use*, Economic Research Service Bulletin No. 675, US Department of Agriculture, Washington, DC.

Repetto, Robert (1985), "Paying the Price: Pesticide Subsidies in Developing Countries", Research Report No. 2, World Resources Institute, Washington, DC.

Thrupp, Lori Ann (1988), "Pesticides and Policies: Approaches to Pest Control Dilemmas in Nicaragua and Costa Rica", *Latin American Perspectives*, Issue 59, Vol. 15, No. 4, Fall.

Thrupp, Lori Ann (1990), "Inappropriate Incentives for Pesticide Use: Agricultural Credit Requirements in Developing Countries", *Agriculture and Human Values*, Summer-Fall, pp. 62-69.

Thrupp, Lori Ann, with Gilles Bergeron and William F. Waters (1990), *Bittersweet Harvests for Global Supermarkets: Challenges in Latin America's Agricultural Export Boom*, World Resources Institute, Washington, DC.

Sullivan, Glen H., Guillermo E. Sánchez, Stephen C. Wellwer, C. Richard Edwards and P. Phillip Lamport (2000), "Integrated Crop Management Strategies in Snow Pea: A Model for Achieving Sustainable NTAE Production in Central America", in *Sustainable Development International*, 3rd edition, ICG Publishing, London, pp.107-110.

Chapter 7

Limits on Pesticide Residues in Tea

This chapter discusses the effects of pesticide residue limits on exports by Indian tea producers and of the absence of internationally harmonised regulations. It draws attention to producers' complaints about the differences in the limits set by different countries and to what they perceived as the arbitrariness of Germany's limits, to reactions by consumer groups, and to the choice made by some Indian producers to shift to an "organic" product both to satisfy consumers and increase profit margins for a quality product. Aid from developed countries has helped producers in India to make the transition.

Introduction

In 1993 and 1994 several consignments of dried tea leaves (*Camellia sinensis*) from the Darjeeling district of India were tested and shown to contain residues of insecticides exceeding Germany's legal limit and were thereby either rejected by the importer or subsequently not allowed to be sold. The most widely cited example was a consignment of Darjeeling Gold brand tea from the market leader, Teekanne, which was found by the Institute for Environmental Analysis to contain residues of the insecticide tetradifon at levels as high as 240 microgrammes per kilogramme of tea (Hermes, 1995; Jha, 2000*a*). Residues of ethion, heptachlor, pentachlorophenal (PCP) and DDT were also found in Indian tea imported to Germany (Hermes, 1995; Jha *et al.*, 1999). Meanwhile, complaints were being made by other OECD importers about dicofol found in Assam, Terai and Booras teas (Jha *et al.*, 1999).

The events that were set in train following these revelations stemmed not so much from changes in Germany's policies — during the 1990s the German health authorities in fact made only minor modifications to their maximum residue limits (MRLs) for pesticide residues in tea — but to increased monitoring of tea imports, especially by consumer groups. That in turn boosted both the demand for and supply of organic and "bio-dynamic" teas from India, as well as from other exporters, bringing concerns over the certification of organic tea more to the fore.

Development of the environmental measure in question

Indian complaints have focused on the MRLs that Germany set for acaricides (pesticides used against mites), particularly ethion and tetradifon, alleging that they "were somewhat arbitrarily imposed because of lack of data from India on its pesticide safety limits for tea" (India, 2000; Jha, 2000a). The German approach to setting MRLs (and import tolerances) establishes specific MRLs for *all* agricultural products. As in other countries, the competent authorities normally set MRLs to reflect the residues that one would obtain using the minimum quantities of pesticide necessary to achieve adequate pest control, applied in such a manner that the amount of residue is the smallest practicable and is toxicologically acceptable. However, where insufficient data are available to assess a particular pesticide's risk, Germany applies a default value based on the limit of determination[1] (LOD) for the pesticide, *i.e.* the lowest level at which residues of the pesticide can be detected, quantified, and confirmed in the product. In common parlance, such a limit is referred to as a "zero" tolerance.

The MRL for ethion

Ethion (O,O,O',O'-tetraethyl S,S'-methylene bisphosphorodithioate) is a non-systemic organothiophosphate insecticide used in the control of leaf-feeding insects, mites and scale. The World Health Organisation (WHO) places the pesticide in Class II: highly to moderately toxic to humans by the oral route. When Germany established an MRL for ethion in 1994 it was acting in accordance with European Council Directive 76/895/EEC of 23 November 1976, as amended by Directive 90/642/EEC of 27 November 1990 and, more specifically, Directive 93/58/EEC of 29 June 1993. This Directive established a provisional MRL for ethion of 2 milligrammes per kilogramme (mg/kg) of dried tea

1. Also referred to as the "limit of detection" in some countries.

leaves. EU member states were given until 1 January 1998 to adopt this limit, but were allowed to adopt it earlier, as Germany did.

In recommending that MRLs be established for ethion in tea, the European Community was quite clear that it was working with incomplete information. As stated in Directive 93/58/EEC:

> … in the case of certain pesticides used in the production of *tea*, insufficient data exist under current standards to establish maximum residue levels; … Member States may therefore fix, whilst respecting Community law, maximum levels in order to allow sufficient time for the generation of the necessary data for a Community decision to be taken; … in the case of the pesticides *ethion*, omethoate and dimethoate used in the production of tea, sufficient data only exist to establish on a temporary basis maximum residue levels; … . [emphasis added]

The EU had recommended an MRL well above the chemical's LOD, and only slightly lower than the MRLs applied by some other countries. The US Environmental Protection Agency (EPA) was applying an MRL to tea of 10.0 mg/kg, for example. The Codex Alimentarius Commission, the international body that recommends standards for pesticide residues in foods, had not and still has not established an MRL for ethion in tea.[2] In short, Germany and the EU adopted an MRL that was lower than, but roughly of the same order of magnitude as, that being applied by other countries.

The MRL for tetradifon

Tetradifon [1,2,4-trichloro-5-(4-chlorophenyl)-sulfonyl benzene] is an organosulphur compound resembling DDT used in formulation as an acaricide, mainly to control the eggs and young active stages of phytophagous mites on horticultural crops, cotton, hops, coffee, tea and rice. Tetradifon is generally considered less toxic than ethion to humans[3] and other non-target species. For example, it is not hazardous to bees when used as recommended, whereas ethion is. Neither is tetradifon as irritating or mutagenic to mammals. It is, however, extremely stable in the environment and resistant to strong oxidising agents, acids and alkalis, heat and sunlight. Also, resistance to organophosphorus insecticides (including tetradifon) in mites collected from field and ornamental crops had been observed since the mid-1950s (Mansour and Plaut, 1979; Horowitz *et al.*, 1997).

Germany effectively established a zero tolerance for the chemical in 1983 when it revoked the registration of a tetradifon-containing crop-protection product, citing insufficient data on the insecticide's carcinogenicity and mutagenicity.[4] For the following nine years the German residue limit for tetradifon in any food stood at 0.050 mg/kg. Then, on 9 July 1992, the German Federal Health Office (BGA) lowered the limit to 0.010 mg/kg.

2. In fact, only one MRL for ethion — for citrus fruits (5.0 mg/kg) —has so far been established.

3. It has even been used as a food additive; *see* www.speclab.com/compound/c116290.htm.

4 . It is not clear if this distinction is what is meant by the International Programme on Chemical Safety's (IPCS) comment that the MRL in Germany seems to have been established for reasons other than its toxicity to humans (IPCS, 1987; IPCS, 1986).

The five-fold lowering of the MRL did not mark a significant change in policy, but an update of the legal limit in light of improved detection methods.[5] It was, nonetheless, a significant enough change to prompt a complaint from the European manufacturer of tetradifon, Philips, which set out its objections to the zero tolerance policy in a letter sent to the BGA in December 1992. The following April the BGA wrote back, explaining their reasons: more than a decade had passed since the active ingredient had been used on food crops in Germany and therefore the BGA had no up-to-date information — from *domestic* field trials — on which to make an adequate evaluation of its risks.

Whether the BGA ever considered MRLs established by other bodies is unclear. One problem was that neither the Codex Alimentarius nor the EU has ever established an MRL for tetradifon in tea or, for that matter, any other plant product. Those MRLs that have been applied by other OECD countries since the 1980s have been well above the LOD for the chemical. The United States' "maximum tolerance limit" for tetradifon in tea, for example, was until recently 8 mg/kg (IPCS, 1987).[6] In 1985 Sweden (not then a member state of the EU) adopted a "maximum acceptable concentration" for fruits and vegetables of 2 mg/kg.

The BGA did show a willingness to reconsider its MRL, however, when in May 1993 it requested additional data from Philips, which the company furnished two months later. On 4 November 1993 the BGA informed Philips that in light of this additional information they would propose the following (provisional) MRLs: 0.500 mg/kg for bell peppers (paprikas), tomatoes and citrus fruit, and 0.050 mg/kg for all other crops and crop products, including tea. These MRLs have remained unchanged since then, with one minor exception.[7]

The behaviour of consumer groups and importers

The restoration of the MRL to 0.050 mg/kg (from 0.010 mg/kg) for all food products, apart from a few crops grown in Europe, was still strict enough to block imports of some tea shipments. More importantly, however, the change attracted the attention of some important Germany-based consumer groups, thereby ensuring a high level of monitoring and enforcement. In January 1994, Meßzelle e.V., the Berlin-based *Institut für Umweltanalytik* (Institute for Environmental Analysis), published a study of pesticide residues found in Teekanne, the leading Darjeeling tea. Several German newspapers and, notably, the consumer-advocate magazine *Öko-Test*, ran articles on the story, noting that concentrations of tetradifon in some samples were as high as 0.240 mg/kg. Despite observations by the BBA (the German acronym for the Federal Biological Research Centre for Agriculture and Forestry) that tetradifon is not particularly toxic, and the fact that the limit had since been raised,[8] the main point picked up and repeated in press

5. Currently, the LODs published for tetradifon fall within the range of 0.006 to 0.03 ppm (parts per million) or 0.006 to 0.030 mg/kg (see, *e.g.* US EPA, 1998 p. 78).

6. On 6 August 2001 the US EPA notified the WTO of its intention to revoke specific import tolerances for residues of the insecticide tetradifon in all commodities, including tea, for which it had previously been approved (United States, 2001). The EPA's reason for proposing the revocation was that there remained no active registrations for tetradifon, the last one having been cancelled in 1990 due to non-payment of maintenance fees (US EPA, 2001).

7. On 5 November 1999 an additional MRL of 0.200 mg/kg was established for dried citrus peel.

8. *Öko-Test* would later allege that the BGA had raised the MRL for tetradifon in response to pressure from the *Verband des Tee-Einfuhr- und Fachgroßhandels e.V.*, Germany's Tea Import and Wholesale Trade Association (Hermes, 1995).

reports was that residues were 24 times the legal limit applicable at the time the tea was being sold.

Öko-Test continued to pursue the theme, sponsoring its own random residue tests and challenging the legitimacy of various eco-labels. In April 1995 it published a much more extensive report on contaminants in tea, citing "excessive" (*i.e.* over the legal limit) levels of several other pesticides in particular brands. In all, it analysed 48 black (*i.e.* fermented) teas from different providers, mainly Indian teas produced in the Darjeeling region. Six of the teas were found to have pesticide levels that exceeded Germany's legal limit (Roth, 1996), including one from Darjeeling that contained "the highly poisonous and cancerous pesticide DDT" (Hermes, 1995). In another Darjeeling tea the magazine found the acaricide quinalphos,[9] in addition to tetradifon. (That particular brand had been certified as a "bio-tea" by a German organic products certifier.) *Öko-Test* also tested 11 green teas, including several from the Darjeeling region. Although the *Öko-Test* article does not state how many failed to meet its approval, at least one — also certified as a "bio-tea" — was found to contain residues of both tetradifon and prothiofos, a general-purpose insecticide (Hermes, 1995).

A year later *Öko-Test* again had pesticide-residue tests performed on various teas, again mainly black teas from Darjeeling, plus a few green teas (Roth, 1996). This time only three teas were found to contain pesticide residues exceeding the legal limit. As before, teas carrying bio-labels were singled out for special opprobrium. And tetradifon was what they found.

The intense media attention given to pesticide residues in tea during this period has been attributed both to consumers' health fears and, increasingly, to their concerns about environmental conditions in the tea-producing areas. Health fears rose along with general misgivings about the safety of food, following the westward spread of radiation from the Chernobyl nuclear power plant in 1986 and, later, revelations about Bovine spongiform encephalopathy (BSE), hormones in milk, and so forth. Tea was supposed to be immune from such problems. As one German tea importer has pointed out, tea — particularly green tea — is regarded in Germany as a beverage consumed by health-conscious people (Tee-Import, 2001). The way journalists typically report violations of MRLs does not always encourage enlightened debate, however; often they imply that any quantity of residues above permitted levels constitutes in all cases a threat to consumers' health, rather than being in some cases simply an infringement of a zero-tolerance policy for a substance that is in fact permitted at much higher levels in other products, such as fruits and vegetables. Yet, in contrast with fruits and vegetables, which are consumed in their entirety, a significant proportion (one source, www.benjowskitea.de/kontakt/kritik.htm, claims 85-98%) of the pesticide residues in tea remain in the leaves after brewing, and is therefore discarded.

Connections between pesticides and environmental conditions in tea plantations were frequently highlighted in the press accounts of this period. In the first of *Öko-Test's* extended articles, for example, a tea merchant that was acknowledged to be furnishing tea largely free of detectable pesticide residues was nevertheless criticised for the way in which it was procuring its tea leaves: not from "bio-plantations" but from *any* plantation selling tea that could meet the residue limits, even if only by spraying sufficiently in advance of its harvest for the chemicals to have time to wash off or degrade. "The poison

9. Germany's MRL for quinalfos, 0.010 mg/kg, was also set equivalent to the LOD; this limit was adopted throughout the EU on 1 July 2001 (Directive 00/42/EC).

load of the workers and their health thus plays no role" in the company's purchasing policy, accused the magazine (Hermes, 1995). *Öko-Test's* second article began with the testimonial of an Indian tea-leaf plucker, extolling the improvements in his working conditions that had taken place since 1993 following the adoption of "ecological" production methods at the plantation where he worked (Roth, 1996).

Articles continue to appear in the written and electronic press linking overuse of pesticides with workers' health problems. One widely quoted (and reprinted) special report written for *Down to Earth*, the fortnightly journal of the Centre for Science and Environment (one of India's leading environmental NGOs), appeared in October 2000. In it the author charges that "the tea estates in Darjeeling continue to use large amounts of pesticides to increase production, … [perpetuating] potential health hazards for the estate workers and the consumers, besides killing their own exports" (Chawii, 2000). Purveyors of organic or bio-dynamic teas do not hesitate to distinguish their products along these lines: innocence by disassociation.

Trade issues and developing country responses

All tea exporters were affected to some extent by these events, but India, because its suppliers were implicated in specific shipments, was affected the most. At the time, and again since 1999, the country was the leading exporter of tea to Germany. Annual exports of tea from India during the years 1992 through 1996 were 20% below the average attained during the previous five years. (In 1997 they had returned to the level reached in 1991.) Some of this fall was no doubt due to factors other than Germany's pesticide regulations, such as increased competition from African producers of tea, and shrinking markets in Iraq, Iran and the former Soviet Union (Kim, 1995). Germany accounts for just 5% of India's tea exports by value, but it is an important market for teas from the densely populated and heavily tea-dependent state of Darjeeling, which produces most of its tea for export to OECD countries. In the mid-1990s Darjeeling saw its production fall while production in the rest of northern India continued to rise.

Whatever the sentiments of German tea consumers at the time, the "naming and shaming" campaign prosecuted by their advocates created much embarrassment for German tea importers and certification bodies, which in turn increased the pressure on their suppliers to ensure that their tea would meet Germany's strict residue limits. The stakes were high for India's tea industry: at the time the country employed more than 1 million people on its plantations, typically in whole-family groups.

Cognisant of the lack of established international MRL standards for most pesticides used on tea, the Indian government immediately started collecting the scientific data necessary to support the establishment of good-practice guidelines and maximum residue limits. Much of the available data were held by pesticide manufacturers, who were at first not forthcoming with what they regarded as proprietary information. At one point the government had to threaten the "deregistration" of several pesticides manufactured in India unless the industry furnished data that had been repeatedly requested of it.[10] Persistence eventually paid off, and in 2002 a national protocol was developed for

10. "Government of India will ban pesticides unless industry provides adequate data", communication from Priya Gupta, Assistant Director, Environment Protection Div. Consumer Education and Research Centre, Ahmedabad, India (www.poptel.org.uk/panap/archives/pe-india.htm). This communication first appeared in the *Economic Times*, 9 April 1996.

harmonising pesticide MRLs within the country with those prevalent at the global level (Saraswathy, 2002).

The government had already in 1992 decided to ban 12 pesticides for use in tea production, including tetradifon[11] and DDT[12], and to restrict the use of several others[13] deemed less hazardous (Jha 2000a).[14] Because it took several years for these pesticides to be used up, it is quite likely that whatever use was being made of tetradifon derived from these leftover stocks (CSE, 2002). Another contributing factor may have been the fact that teas bearing the appellation Darjeeling or Assam can be blended with teas from other areas (up to 50%); the Tea Board has asserted that it was most probably these other teas that contained the offending pesticides in at least some of the rejected shipments.

It is likely, whatever rules were in place, that their enforcement was weak (at least initially), because of the small number of agricultural inspectors available and the limited capacity of chemical testing laboratories.[15] At the time that Germany's residue limits began to be more vigorously enforced, only one institute in India, the Pesticide Residue Laboratory, was able to test commercial samples of tea for pesticide residues. (The Tea Research Association has since developed this capacity.) Another problem was the expense — over USD 200 per analysis — of undertaking the tests required to clear a consignment for Germany (India, 2000). Jha (2000a) regards this added cost as having been unaffordable for the bulk of India's tea exporters.

Exporters of tea, especially CTC (cut-tear-curl) and orthodox tea, complained that adopting tight residue standards on a large scale would increase their costs of production enough to affect their share of the world market (Jha *et al.*, 1999). The problem confronting producers differed by region. Entomologists have documented some 150 species of insect pests that attack the tea plant; about 125 can be found in north-eastern India (*i.e.* in the producing districts of Assam and Darjeeling).[16] In southern India the number is closer to 40. On the other hand, Assam and Darjeeling producers were in a better position to pass on higher costs to consumers, since the unique flavours and

11. Ironically, the main producer of tetradifon in India at the time was a German-owned manufacturer, which marketed the pesticide under the brand name of Tedion V18 (CSE, 2002).

12. Also said to have been banned were benzene hexachloride (BHC), aldrin, aldrex, endrine, heptachlor and chlordane.

13. Government guidelines provide that if the chemicals thiometon, dimethoate, monocroptos, fenicyphermethrin, fenvalerate, phorat, phosphomodon, formothian, acephate and carboxin are applied during the plucking season, the plucking that immediately follows these sprays should be discarded (Jha, 2000a).

14. Awareness of these domestic bans seems to have taken a while to percolate through the system. As recently as October 2000, the Indian government wrote in a communication to the WTO's Trade and Environment Committee (India, 2000) that "Tea exports have been affected due to developed countries' concerns about pesticide content. Although Indian exporters adhered to the maximum pesticide residue levels recommended by US Environmental Protection Agency (EPA), stricter limits (*e.g.* 0.01 mg [sic] of tetrafidon and 2 mg of ethion per kg of tea) imposed in some European countries became insurmountable, there being, apart from other problems, a cost of USD 234 per analysis." (p. 2) As late as October 2001, the Tea Board of India (an independent authority under the Ministry of Commerce) was advising growers on the proper application of pesticides, including and in particular dicofol, endosulfan, ethion and tetradifon.

15. A recent article in the online version of the *Asia Times*, for example, claims that Indian farmers are still taking advantage of a loophole in the DDT ban, which allows the pesticide to be used against mosquitoes in malaria-control programmes (www.atimes.com/ind-pak/CF14Df01.html).

16. According to India's Tea Board, http://tea.nic.in/.

geographic identities of their teas help make the demand for them less sensitive to price rises than for non-differentiated teas.[17]

Indian proponents of organic farming methods generally, and for tea in particular, naturally saw an opportunity to benefit from the situation. In January 1996 members of India's chapter of IFOAM (the International Federation of Organic Agriculture Movements) established a National Standards Committee and entrusted it with the task of preparing Basic National Standards for Organic Agriculture in India (Jha, 2000b).[18] The same year also saw the formation of the Indian Bio Organic Tea Association, a producers' group that promotes the common interests of those who cultivate, produce, process or market Indian organic tea (www.snonline.com/ibota). Organic tea production normally means using no synthetic chemical fertilisers or pesticides, and relying instead on livestock manure, composted crop residues and intercropping (*e.g.* of leguminous plants) for plant nutrients, and natural pesticides (such as neem oil and rotenone) or predators for pest control. Bio-dynamic agriculture takes a more holistic, even spiritual, approach to farming that predates and goes considerably beyond organic principles; it promotes, for example, the ideal of the self-contained farm: "that there should be just the right number of animals to provide manure for fertility, and these animals should, in turn, be fed from the farm" (Wildfeuer, 1995). Proponents of organic and bio-dynamic methods point to environmental benefits such as improved soil structure, greater biodiversity and restoration of balance in the ecosystem.

For various reasons, the uptake of organic production methods seems to have occurred more quickly in Darjeeling and Assam than in other tea-producing districts of India. Because yields from their tea plantations were stagnating,[19] producers in Darjeeling were especially open to alternative farming methods. At latest count, some 20 of Darjeeling's 87 tea estates had switched to full-scale organic tea cultivation, along with three in Assam, one in Dooars and two in South India.[20] Today, India accounts for almost two-thirds of the 4.5 million kg of organic black tea produced worldwide each year (Kilcher *et al.*, 2002). As estimated by the FAO (2004), it is estimated to have produced 3.5 million kg of organic-certified tea in 2003, compared with just 0.15 million kg in 1990 (Muraleedharan, n.d.). In the 1990s, however, only about half of India's organic tea estates were making profits (Jha, 2000a). Those that do have secured export contracts with sellers of single-origin and even single-estate teas, mainly in Germany, Japan and the United States. Some of the most successful estates are exporting herbal infusions as well as organic tea. Still others have started opening their gardens to eco-tourism, both to bring in additional revenues and to encourage long-term brand loyalty from their overseas consumers (Lagerwerf, 2001).

17. Many suppliers refer to Darjeeling as "the champagne of tea".

18. Ironically, one of the inspirations for these standards was a German, Rudolf Steiner, the founder of "bio-dynamic" agricultural methods (Meier, 1999).

19. This decline has been attributed to several factors: *i)* excessive usage of synthetic pesticides and fertilisers, which had rendered the soil virtually lifeless in many areas, causing soil erosion and landslides; *ii)* the development of pest resistance, to which many growers responded with even heavier applications of pesticides; and *iii)* the worn-out condition of the tea bushes, most of which dated from the founding of the estates in the late 19th century.

20. The Bombay Burma Trading Corporation Ltd. was the first company to demonstrate the feasibility of producing and marketing organic tea from southern India. Its Oothu estate, which began the conversion process in 1989 and was certified in 1991, is today the world's largest single organic tea field: with over 300 hectares and a capacity to produce almost 1 million kg annually (Daruvala, 2001).

For those tea estates that have chosen to undertake the conversion to organic or bio-dynamic production methods, renouncing synthetic chemicals is only the first step: in order to be able to sell their tea at a premium price they have to have their plantations certified. A major domestic player in the organic certification business is ENCON, a Maharashtra-based professional consultancy network established in 1996. ENCON provides pre-certification consultancies for training organic producers and processors on how to conform to standards set by the EU (EEC No. 2092/91), the United States Organic Foods Production Act (OFPA, under USDA), IFOAM, Codex Alimentarius and other international bodies. It also helps organic operators select suitable organic certifiers in overseas markets. However, neither ENCON nor any other south Asian certifying body has obtained equivalency of its organic standards with those of the EU. Foreign inspection and certification bodies must therefore be enlisted, even though in developing its standards for organic agriculture, the National Standards Committee had worked closely with the several European certification bodies (Bonapace, 2001).

Nonetheless, each certifying organisation has its own standards, which vary considerably. Moreover, certification is performed for a fee, and the inspection process must be repeated each year.[21] Although certification does not guarantee reduced frequency of tests for pesticide residues, it does enter into the equation of those whose business depends on the validity of an organic certification: a reputable organic producer can usually count on being subjected to fewer tests, which in the end means they can command higher prices for their tea.[22] For that and other reasons organic tea estates will go to great lengths to protect their certification. Some growers have even gone so far as to plant extra rows of trees between their land and that of non-organic neighbours, to create a barrier against drifting pesticide sprays (*Gourmet Retailer*, 1999).

Responses to developing-countries' concerns

The main intergovernmental forum for discussing problems connected with market issues pertaining to tea is the IGG (Intergovernmental Group) on Tea. The IGG on Tea was established in 1969 by the United Nations Food and Agricultural Organization's (FAO) Committee of Commodity Problems, initially as the Consultative Committee on tea. It has generally met every two years, rotating the venue of these meetings among its members, which include most of the world's tea-producing countries, as well as Canada, the European Community, Turkey, the United Kingdom and the United States. However, it was not until its 14th session, which took place in New Delhi, India on 9-11 October 2001, that the IGG on Tea finally decided to set up a Working Group of scientists from producing and consuming countries to examine the scientific data available in India and in other producing and consuming countries, with a view to recommending acceptable MRLs for pesticides in tea. It is expected that the results of this project will ultimately assist the Codex Alimentarius Commission in developing harmonised and universally acceptable standards.

21. Growers that fail to obtain certification can apply for certification again the next season and are usually given advice on how to meet the standards in the future.

22. Guzauskas (1997) describes a typical transaction: "Unless the tea estate had a reputation for organic teas and could produce reputable references, I simply told them I would have the teas tested at a local lab (which I did). I let them know that I would pay for the tests if the teas were clean. Otherwise they paid for the tests. Of five tea sources tested, only one failed."

At its 15th session, in August 2003, the IGG on Tea launched a new initiative aimed at achieving global harmonisation in fixing maximum residue levels (MRLs) in tea. Besides helping in the establishment of modern organic farms, the project will also develop international standards for organic tea. Following that, a certification process would be established to assist exporters.

Meanwhile, in order to encourage their Indian partners to reduce agri-chemical consumption and, ultimately, to develop an alternative, organic-based agriculture, a large number of European and US tea merchants (*e.g.* Starbucks) have begun to market organic Indian teas, especially Darjeeling, often adhering in addition to principles of fair trade. Several of these have channelled part of their profits into development activities.

One of the first was Germany's leading mail-order tea merchant, *Projektwekstatt Teekampagne* (Tea Campaign), an initiative of Günter Faltin, a professor of economic education at the Freie Universität of Berlin.[23] In 1996 the Teekampagne teamed together with the World Wildlife Fund's India affiliate (WWF-India), with the former providing DEM 3.5 million in funding for an afforestation and income-generation project in Darjeeling called "Save the Environment and Regenerate Vital Employment" (SERVE). The project has established nurseries, planted blocks of trees on degraded land and promoted apiculture as a source of additional income (www.wwfindia.org/proj_details). Another German mail-order supplier of organic tea, TopQualiTea, sponsors educational programmes to bring together organic agriculture experts from Europe and India with the managers of Indian tea plantations.

Sellers of tea bearing the Trans*Fair* label, which generally obtain their teas from small family- or worker-owned holdings or co-operatives, channel money to producers through the normal "Fair Trade" approach. Consumers pay a little extra for a registered Fair Trade product, and this additional income goes into a special fund that is administered by a democratically selected committee of employees. The funds can only be used for projects that benefit the workers' families, such as to purchase cows or children's playground equipment, or to build community centres, *i.e.* whatever the workers themselves judge important. Only producers who fulfil specific criteria with regard to workers' conditions (*e.g.* employment of children) are eligible for Fair Trade funds; certifying agencies in Europe oversee this process.

In addition to these intergovernmental and private efforts, Germany's Agency for Technical Co-operation (*Gesellschaft für Technische Zusammenarbeit* [GTZ]) has recently provided funds to help the Centre for Science and Environment (CSE), one of India's leading environmental NGOs, set up an independent laboratory for analysing pesticide residues; among the commodities in which the CSE plans to check for residues is tea.

Concluding observations

This case study shows in particular how the lack of international standards in areas such as pesticide residues can lead to confusion in exporting countries. It shows also that issues relating to the enforcement of an environmental standard — both on the importer's and the exporter's side — can play an important role in determining how disruptive or not the standard may be. Given prior warning and time to respond, exporters often can adapt

23. At 400 tonnes a year, the Teekampagne is also the world's largest importer of Darjeeling tea (www.teekampagne.de).

relatively smoothly. In the case of Indian tea exporters, however, the immediate trade effects (stopped shipments) came as a surprise as a result of stricter enforcement of an existing policy.

The study also shows that a common response of growers to stricter pesticide limits is to convert their holdings to organic production methods. In an industry with strong vertical connections between importers and producers, much technical assistance is available through the industry. Nonetheless, the growers must still rely on foreign certifying bodies to demonstrate their compliance. Finally, the fact that there already were several organic tea producers in India at the time that the pesticide residue limits started to be more rigorously enforced shows that not only differences in scale but also differences in production methods can lead to differentiated impacts. In this case, those estates that were already producing organic tea benefited from a surge in demand and in prices; those that were applying conventional growing methods had to adjust quickly or lose additional sales.

References

Benjowski, Franc (no date), "Tee in der Kritik" (Tea under criticism), Benjowski Teehandelshaus Berlin, www.benjowskitea.de/kontakt/kritik.htm.

Bharucha, Vasantha (1994), "Impact of Foreign Environmental Standards: India", in V. Jha, G. Hewison and M. Underhill (eds.), *Trade, Environment and Sustainable Development: A South Asian Perspective*, MacMillan Press for the UN Conference on Trade and Development, London, pp. 123-142.

Bonapace, Tiziana (2001), "Organic Agriculture: Environmental Issues and ESCAP Countries", Chapter III (pp. 81-106) in *Enhancing Export Opportunities through Environmentally Sound Business Development*, United Nations Economic and Social Commission for Asia and the Pacific, www.unescap.org/tid/publication/chap3_2120.pdf.

Centre for Science and Environment (2001), "Untapped Potential", *Down to Earth*, Vol. 10, No. 8, 15 September, reproduced in www.ciks.org/sep-nov-2001.PDF

Chawii, Lian (2000), "Tea, Pesticide Flavoured", *Down to Earth* (India), Vol. 9, No. 11, 31 October www.downtoearth.org.in/full.asp?foldername=20001031&filename=spr&sid=5.

Daruvala, Dinshah (2001), "Organic Tea from South India", *CommerNet*, 27 February, www.beveragesite.com/articles/2000/12/18/0D70D11A520546CA94D4F519D3136536.asp.

Faltin, Günter (1998), "Casting the Net Farther: For a New Culture of Entrepreneurship", paper presented to the 3rd meeting on Entrepreneurship, 20-28 November, Berlin, in German, www.entrepreneurship.de/downloads/das-netz-weiter-werfen.pdf.

FAO: Food and Agricultural Organization of the United Nations (2004), "Tea Commodity Note", Report No. ESC: TE 2004, November, FAO, Rome. www.fao.org/es/esc/common/ecg/28649_en_Tea_Note_Nov2004.pdf

Gourmet Retailer, The (1999), "Organic Teas: Trend or Solid Future?", November, www.forestrade.com/press_gourmet_retailer.htm.

Guzauskas, Richard (1997), "Organic Teas & Certification: Where Do I Start?", *Tea Leaves* (newsletter of the American Premium Tea Institute), Fall issue, www.teainstitute.org/newsletter.html.

Hermes, Peter (1995), "Tee: Gift und Galle" (Tea: poison and bile)", *Öko-Test*, April, www.carechannel.de/cgi/ot/otgs.cgi?suchtext=tee&doc=2224.

Horowitz, A.R., P.G. Weintraub and I. Ishaaya (1997), "Status of Insecticide Resistance in Insect Pests in Israel", Working Paper No. 2320-E, European Network for the Management of Arthropod Resistance to Insecticides and Acaricides, www.rothamsted.bbsrc.ac.uk/enmaria/database/israel/sriisrael.html.

India, Government of (2000), "The Study of the Effects of Environmental Measures on Market Access: Communication of India", Document No. WT/CTE/W/177, 27 October 2000, World Trade Organisation, Geneva.

IPCS: International Programme on Chemical Safety (1986), "Environmental Health Criteria 67: Tetradifon", United Nations Environment Programme, International Labour Organisation and the World Health Organization, Geneva, www.inchem.org/documents/ehc/ehc/ehc67.htm.

IPCS (1987), "Tetradifon: Health and Safety Guide No. 11", United Nations Environment Programme, International Labour Organisation and the World Health Organization, Geneva, www.inchem.org/documents/ehc/ehc/ehc67.htm.

Jha, Veena, Anil Markandya and René Vossenaar (1999), Chapter 8, "India", in *Reconciling Trade and the Environment: Lessons from Case Studies in Developing Countries*, Edward Elgar for the United Nations Conference on Trade and Development, Cheltenham, Glosteshire.

Jha, Veena (2000a), "Overview of the TBT and SPS Agreements and Possible Implications for India", discussion paper for the Havana Workshop on Trade and Environment (30 May-2 June), UNCTAD, Geneva, www.unctad.org/trade_env/docs/SPS and TBT doc.pdf.

Jha, Veena (2000b), "Production and Trade in Organic Agricultural Products", discussion paper for the Havana Workshop on Trade and Environment (30 May-2 June), UNCTAD, Geneva, www.topqualitea.com/english/projects.html.

Kilcher, Lukas, Markus Schäfer, Toralf Richter, Paul van den Berge, Joachim Milz, Reina Foppen and Anneke Theunissen (2002), Organic Coffee, Cocoa and Tea: Market, Certification and Production Information for Producers and International Trading Companies, published jointly by Research Institute of Organic Agriculture (FiBL), Frick, Switzerland; Naturland, Gräfelfing, Germany; and Swiss Import Promotion Programme, Zurich, www.sippo.ch/cgi/news/publications.asp?mode=6#org2

Kim, Beryl (1995), "India Tea and Environment", TED Case Study No. 260, American University, Washington, DC, www.american.edu/projects/mandala/TED/indiatea.htm.

Lagerwerf, Anne (2001), "Reshuffling the Tea Leaves — The Changes on the Demand Side", Industry Note No. 008-2001, Food & Agribusiness Research Department, Rabobank International, Utrecht, the Netherlands, www.rabobank.com/.

Mansour, F.A. and Plaut, H.N. (1979), "The Effectiveness of Various Acaricides against Resistant and Susceptible Carmine Spider Mites", *Phytoparasitica* 7, pp. 185-193.

Meier, Tom (1999), "Going Forward by Going Back: A Return to Organic Farming Restores Health to Both Soil and People at a Famous Tea Estate in India", *Conscious Choice*, January, www.consciouschoice.com/food/ambootiatea1201.html.

Muraleedharan, N. (no date), "Organic Tea in India — Problems and Perspectives", UPSAI Tea Research Foundation, Valparai, India, www.shaktibiotech.com/organic_tea_in_india.htm.

Öko-Test (1994), "Edeltee überschreitet Pestizid-Grenzwerte" (Noble tea exceeds pesticide residue limit), *Öko-Test*, February.

Öko-Test (1995), "Pestizide in Bio-Tee" (Pesticides in bio-tea), *Öko-Test*, January.

Roth, Eva (1996), "Tee: Wer hat das beste Blatt?" (Tea: Who has the best leaf?), *Öko-Test*, April, www.carechannel.de/cgi/ot/otgs.cgi?suchtext=tee&doc=3017&pos=0&splits=0:3819.

Saraswathy, H. (2002), "Your Cup of Tea", *Indigenous Agriculture News*, Vol. 1, Nos. 1, 2 and 3, July, pp. 1-2 (previously published in *Down to Earth*, 15 April 2002), www.ciks.org/upto%20july.PDF.

TopQualiTea (no date), "Environmental Responsibility", www.topqualitea.com/english/eko.html.

US EPA: United States Environmental Protection Agency (2001), "Oxadiazon and Tetradifon; Proposed Revocation of Tolerances", Federal Register, 1 August, Vol. 66, No. 148, pp. 39705-09, www.access.gpo.gov/su_docs/fedreg/a010801c.html.

United States, Government of the (2001), "Oxadiazon and Tetradifon; Proposed Revocation of Tolerances", Document No. G/SPS/N/USA/481, 6 August, World Trade Organisation, Geneva.

Wildfeuer, Sherry (1995), "What is Biodynamics?", Biodynamic Farming and Gardening Association, San Francisco, www.biodynamics.com/biodynamics.html.

Chapter 8

Limiting Pesticide Residues in Pineapples

Over the last 20 years, Ghana has expanded rapidly into the production of pineapples for export, particularly to the EU. This export trade was put at risk of being severely disrupted, however, as a result of new regulations relating to pesticide residues in food, introduced by the EU starting in the 1990s, and later of private standards on good agricultural practice introduced by a group of European importers and retailers of fruits and vegetables. Responding to a request from the ACP (African, Caribbean and Pacific) group of states, the European Commission created the Pesticide Initiative Programme (PIP) to help ACP companies comply with these food safety and traceability requirements; adopt good agricultural practice in the use of pesticides; and consolidate the position of small-scale producers in the ACP horticultural export sector. The programme is building capacity through technical support and training, and is helping enterprises keep up to date on European legislative developments. This chapter explores the PIP's activities in assisting Ghana's pineapple growers and exporters.

Introduction

As part of Ghana's economic recovery effort, launched in 1983, financial incentives were given by the government and donor agencies such as USAID and the World Bank to encourage the production of pineapple for export. Pineapple production has since expanded rapidly, especially during the last decade, with exports to the EU reaching 44 000 tonnes in 2003, a four-fold increase over 1993. Most of Ghana's pineapples are shipped to member states of the European Union.

This export trade was put at risk of being severely disrupted, however, as a result of the introduction by the EU in 1991 of rules relating to authorisations to market active chemical substances in plant-protection products, including pesticides, already being sold within the EU as of 25 July 1993 (henceforth "existing active substances"). The Plant Protection Product Directive (91/414/EEC) established a positive list of active substances, and since 25 July 2003 EU member states have been permitted to authorise the marketing and use of plant-protection products containing only these active substances, except where transitional arrangements apply. Although the active substance authorisation process does not bind third countries, the indirect effect is that maximum residue limits (MRLs) are normally set by default at the level of determination (LOD)[1] a year after withdrawal of an active substance. As a consequence of this rule, new MRLs for pesticide residues have had to be established for a number of pesticide-crop combinations, including combinations affecting pineapples and other tropical horticultural products.

An importer or producer who exceeds an MRL (whether set by national bodies or harmonised at the EU level) is currently subject to heavy fines. To avoid such fines, a number of private initiatives are currently being developed in Europe (for example EurepGAP) that aim at enabling retailers to prove that they have taken all necessary precautions to ensure that their providers respect good agricultural practice, and that the goods therefore do not contain any residue levels beyond the applicable MRL.

For pineapple producers in Ghana, who must chemically treat their crops against a wide range of pests and diseases (*e.g.* mealy bug, soil nematodes, wilt disease, internal browning and *Phythoptera*), these ever stricter requirements are necessitating major changes in production methods and in post-harvest record keeping. To help Ghanaian growers comply with these new requirements, several governmental and private-sector training programmes have been put in place, in collaboration with various national[2] and international agencies, to build capacity for pineapple cultivation and export. One particular initiative, entrusted to COLEACP (Comité de Liaison Europe-Afrique-Caraïbes-Pacifique), an inter-professional association of exporters, importers and other stakeholders of the EU-ACP[3] horticultural trade, and supported by funding from the European Commission, is providing a concrete response to the difficulties encountered by private companies in the export trade for fresh ACP fruit and vegetables, most notably by developing the necessary technical information and local capacity to enable ACP growers

1. The validated lowest residue concentration that can be quantified and reported by routine monitoring with validated control methods.

2. These include France's CIRAD (Organisme scientifique français spécialisé en recherche agronomique appliquée aux régions chaudes — French Scientific Organisation Specialising in Agronomic Research for Tropical Regions); Germany's GTZ (Gesellschaft für Technische Zusammenarbeit), the Netherlands' Natural Resources Institute, the UK's Department for International Development and the United States' Agency for International Development.

3. The 76 African, Caribbean and Pacific countries linked to the European Union by the Lomé Convention.

to meet the new European regulations. These efforts — and the adoption by the EU of a new regulation (No. 396/2005), which introduces greater flexibility in respect of MRLs applying to imports — may mean that disruptions in Ghanaian pineapple exports, once seen as inevitable, may never come to pass.

Development of the measures

European consumers have become accustomed to high standards of quality and uniformity in the fresh fruits and vegetables that they buy. Yet they expect those same foods also to be free of the pesticides and other manufactured chemicals that are often required to ensure those desired traits. Most of these chemicals, when used properly, pose no unacceptable risks to human health or to the environment. But a few widely reported accidents involving chemical contamination have contributed to growing public concern over the use of chemicals that in some cases may affect human health and safety or the integrity of the environment negatively.

In the EU, two regulatory processes determine what levels of pesticide residues are permitted in food marketed within the Community. One determines what active substances used in pesticides and other plant-protection products are authorised for use; the other determines the maximum concentration of residues for those substances in animal and plant products destined for human consumption. The two processes are related, and follow parallel tracks, but are governed by different European Council and European Commission directives. The following paragraphs summarise the development of EU regulations in these two areas.

EU regulations on authorising plant protection products

Until the 1990s, control over the authorisation, marketing, use and inspection of plant-protection products[4] within the EU was primarily the responsibility of the member states. Some established more rigorous requirements for registering and reregistering a pesticide than others, and this led to different rules for the same pesticide. One consequence of these differences in regulations was that they created barriers not only to trade in pesticides and other plant-protection products but also to trade in agricultural products treated with these products, thereby directly affecting the operation of the internal EU market itself. In July 1991, in an effort to bring order to the situation, the EU's Council of Ministers adopted Directive 91/414/EEC,[5] also known as "The Plant Protection Products Directive", or "The Authorisations Directive".

The principal aims of this Directive are to harmonise the methods used to test the toxicological and eco-toxicological properties of active substances; and to ensure that all authorised plant-protection products have no unacceptable effect on plants or plant products, no unacceptable influence on the environment in general and, in particular, no harmful effect on human or animal health or on groundwater. These aims are to be

4. Article 2.1 of Council Directive 91/414/EEC defines plant protection products as "active substances and preparations containing one or more active substances, put up in the form in which they are supplied to the user, intended to: *i)* protect plants or plant products against all harmful organisms or prevent the action of such organisms, in so far as such substances or preparations are not otherwise defined below; *ii)* influence the life processes of plants, other than as a nutrient (*e.g.* growth regulators); *iii)* preserve plant products, in so far as such substances or products are not subject to special … provisions on preservatives; *iv)* destroy undesired plants; or *v)* destroy parts of plants, check or prevent undesired growth of plants".

5. *OJ* L230, 19 August 1991.

achieved by imposing uniform rules on the conditions and procedures for the authorisation of plant-protection products applied by the member states, and to establish a Community list of authorised active substances, referred to as Annex I of the Directive. After the review of all active substances has been completed, foreseen by the end of 2008, member states can only authorise the marketing and use of a plant-protection product once its active substance(s) is listed in Annex I, except where transitional arrangements apply (mainly for essential uses).

Active substances have been added to Annex I as existing active substances have been reviewed and new ones authorised. In its application of the Directive, the Commission eventually identified a total of 1 021 active substances[6] being sold in the EU-12 as of 25 July 1993 (or in Austria, Finland, Iceland, Norway, Sweden or Liechtenstein as of 1 July 1994), and began a programme to assess them, initially expected to take ten years. The 1 021 active substances were identified in four stages, set out in four corresponding lists, of which the first three pertain to synthetic pesticides. The European Commission Review Programme was established to review these active substances, starting with products contained on the first list (Commission Regulation 3600/92/EEC).

Primary responsibility for initiating the review process for existing active substances rested with the chemical manufacturers operating in the EU. Any manufacturer wishing to keep one or several active substances on the market, or to introduce a new one, has had to prepare a technical notification dossier describing various characteristics of the product. Each dossier is then submitted to one or more EU member states, and a rapporteur member state is assigned to conduct an evaluation of the dossier, and to prepare a draft monograph. Following acceptance of the monograph by the other member states, the Commission notes its agreement and the active substance is listed (or not, as the case may be) in Annex I of the Directive.

The authorisation for an existing active substance is automatically withdrawn if no manufacturer expresses interest in supporting it or, having expressed an interest, fails to submit the required experimental data within the time limits specified in the regulations governing each stage in the review process. Naturally, chemical manufacturers' interest in generating the necessary data, which can be resource-intensive, was governed by the returns they expected from sales of the affected plant-protection products. They therefore tended to concentrate on defending active substances that were constituents of pesticides and other plant-protection products used on major crops. One consequence is that many existing active substances, and therefore pesticides, that are important to growers of tropical horticultural fruits and vegetables have not been supported. For example, in 2003, the manufacturer DuPont withdrew its support for the herbicide Bromacil and Bayer denotified the fungicide Triadimefon; in Africa both substances are used primarily on pineapple crops.[7]

Several Commission Decisions have extended the periods of authorisation for products based on existing active substances, so as to allow time to complete reviews that had not been finalised as of the original deadline of 25 July 2003. Table 8.1 summarises

6. The total number keeps being revised upwards, mainly because of the addition of new active substances to Stage 4, which consists of a range of plant protection products, including micro-organisms; substances authorised in human foodstuffs or animal feeding stuffs; plant extracts; animal products, attractants, repellents, traps and dispensers; rodenticides; substances used on stored plants or stored plant products; and specified commodity chemicals.

7. *PIP Magazine*, "Manufacturers withdraw their support for active substances", No. 1, September 2003, p. 2.

the status of the review programme. As of September 2004, less than 5% of active substance from Stage 1 had reached Annex I. Significantly, of the more than 1 000 active substances that were being marketed in the EU-12 as of 25 July 1993 (or in Austria, Finland, Iceland, Norway, Sweden or Liechtenstein as of 1 July 1994), almost half have already had their authorisations withdrawn. Most of the remaining are covered under transitional arrangements.

Table 8.1. Progress with the EU's review of existing active substances as of September 2004

Stage, or list	No. of active substances	Withdrawn	Decision pending	Included in Annex I	Deadline
1	90	27	24	39	2005
2	148	96	52	0	2005
3	399	252	147	0	2008
4	384	87	297	0	2008
Total	1 021	462	520	39	—

Because some of the supported active substances have toxicological or environmental problems that concern the rapporteur member state, it is not certain that all of those for which a final decision has not yet been taken will ultimately be included in Annex I. Unfortunately, those active substances included in List 2 will only be known in 2005, and those from List 3 (A and B) will be known at the earliest in 2008.

Setting maximum residue limits and import tolerances for pesticides

The processes for authorising pesticides for use in the EU and for setting MRLs and import tolerances (MRLs that apply specifically to imports) are linked but separate. The main consequence of an active substance being withdrawn from the approved list, whether because it has not been supported or because the Commission decides that it should not be included in Annex I, is that the MRLs for pesticides based on that active substance automatically revert to the appropriate lower limit of analytical determination (LOD), *i.e.* the lowest concentration of a pesticide residue that can be determined and measured quantitatively in a specific foodstuff with an acceptable degree of certitude by means of a method of regulatory analysis, within a year after its use within the EU has been forbidden.

Setting an MRL at LOD does not mean that an exporting country cannot use the affected pesticides, only that no measurable residues are allowed on any produce shipped to the importer, in this case the EU. Sometimes a very low MRL for a pesticide causes no problems for growers. Herbicides applied before planting usually leave no residues on pineapples by the time they are ready for harvest, for example. For other types of residues, however, the lowering of an MRL from, say, 5 milligrammes per kilogramme (mg/kg) to 0.01 mg/kg (the default LOD used by the EU), considerably increases the likelihood that a violation will occur.

For exporters, MRLs associated with pesticides *not* approved for use in the EU are not the only source of concern. So are MRLs for pesticides that *are* approved for use. The original framework, or base, legislation issued at the EU level relating to the MRLs of pesticide residues permitted in and on fruit and vegetables was Directive No. 76/895/EEC (the "Pesticide Residue Directive"), adopted by the Council of Ministers in November

1976. This Directive recognised the need for MRLs to be set in accordance with good agricultural practice (GAP), taking into account the toxicity of the active ingredient and its effect on human and animal health and on the environment.

One aim of Directive 76/895/EEC was to gradually set MRLs for every substance. Once an MRL had been set for a substance by the Commission, that MRL was to apply everywhere within the EU. This approach allowed national policies and MRLs to continue to apply in respect of substances not yet harmonised at Community level. In practice, it meant that the EU-wide MRLs were, in the vast majority of cases, confined to pesticide-crop combinations for which national MRLs did not already exist. And most pertaining to tropical fruits and vegetables were progressively set at the LOD.

The 1976 Directive was substantially amended and extended in Council Directive 90/642/EEC of 27 November 1990. This framework Directive, in addition to setting out new procedures for fixing maximum levels for pesticide residues in and on certain products of plant origin (excluding cereals), including fruit and vegetables, established a first list of Community-wide MRLs. This list, contained in Annex II to the Directive, has been updated and amended on numerous occasions. Significantly, for exporters of tropical fruits and vegetables, Commission Directive 2000/42/EC of 22 June 2000 (which came into force on 1 July 2001), one of the many "MRL directives", included MRLs for 33 active ingredients of pesticides for which no harmonised MRLs for particular product-pesticide combinations ("positions" in the language of the directive) had previously been established because of insufficient data (Boselie and Muller, 2002). Four of these pertained to pineapples, and all were set at the LOD.

Prior to the publication of Directive 2000/42/EC, additional data pertaining to many open positions had been provided by interested parties, thus permitting the fixing of MRLs above the LOD.[8] Some of these requests, backed up by data, came from trading partners who wanted the Commission to grant higher import tolerances for some pesticide-crop combinations that had already been fixed in the Annexes to the base Directives. This information was duly reviewed, but in some cases it was judged to be inadequate, and the Commission decided to fix the MRL at the LOD. For a few other positions the information was considered to be adequate, but the Commission decided that the setting of an MRL above LOD could give rise to unacceptable acute or chronic exposure of consumers to the residues. "In such cases", the Commission ruled, "it is appropriate to fix maximum residue levels at the lower limit of analytical determination."

EurepGAP

Government regulations form only part of the requirements now imposed by traders and retailers in the EU. Prime among these is EurepGAP, a set of normative documents suitable to be accredited to international certification standards. Work on these documents started in 1997 as an initiative of retailers belonging to the Euro-Retailer Produce Working Group (EUREP), who wanted to assure consumers that their fruits and vegetables were safe to eat. Central to the scheme are EUREP's standards and procedures for development of good agricultural practice. Initially EurepGAP focused on food safety and quality. More recently, it has paid attention also to environmental and social criteria, such as reducing the use of agro-chemicals and ensuring a responsible attitude towards

8. The established procedures for these requests require the submission of detailed experimental data on the toxicological properties of the active ingredients, their effect on human and animal health and on the environment, *i.e.* data similar to that required for a review of authorisation.

worker health and safety. Another aim of EurepGAP is to harmonise MRLs for pesticides in food. According to Dankers (2004), this harmonisation effort has been only partly successful, as the standards reference existing governmental regulations for pesticide residues, which are not yet harmonised across Europe.[9]

EurepGAP's Reference Standard for Fruit and Vegetables sets out norms for the whole agricultural production process of the certified product, "from before the plant is in the ground" to the (non-processed) end product (EurepGAP, 2004). It is intended to be a working document, subject to continuous improvement. The first edition of the reference standard (then called the "Protocol for Fresh Fruit and Vegetables") was produced in 2000 following a consultation period that lasted over three years. (A second version was issued in October 2001.) In addition to those who participated in various meetings, more than 600 people from more than 25 countries worldwide attended one or both of EUREP's two annual conferences in 1999 and 2000. The latest set of normative documents supporting the standard (Version 2.X), valid since September 2003, was developed by the 14-member EurepGAP Technical and Standards Committee (TSC) for Fruit and Vegetables, following consultations with producer organisations from outside the EU. In the 1990s, the TSC was dominated by retailers, but now it consists of equal numbers of representatives from retailers and suppliers. All the documents related to the EurepGAP scheme are freely available on its Web site (www.eurep.org/fruit/documents.html), in English, German and Spanish.

Growers' motivation for obtaining EurepGAP certification is to improve their access to European buyers of fruits and vegetables, particularly EUREP's leading retail and food-service members. Certification is not currently a guarantee of sales to those buyers, but may eventually become a prerequisite.

Bodies wishing to certify conformity with the EurepGAP standard have to be accredited by FoodPLUS GmbH, a commercial company which serves as the EUREP Secretariat. A prerequisite for accreditation is an ISO 65 accreditation (or its European equivalent, EN 45011). A novel feature of the EurepGAP system is that it allows certificates to be issued during a period of six months while the applicant certifier completes the accreditation process. According to Dankers (2004), such non-accredited certificates are routinely accepted by retailers.

EurepGAP's reference standard does not contain any special provisions for small, and often illiterate, producers in developing countries, which are often the main producers for export (through larger companies) of tropical fruits. However, a so-called "produce marketing organisation" (PMO), such as a producers' co-operative, can now obtain group certification if it is a legal entity and can demonstrate that it is capable of taking over the responsibilities of EurepGAP implementation on the part of its associated and contracted growers through an internal control system. If one farmer in the group is found to be non-compliant, the whole group may lose its certification.

9. Harmonisation of food safety standards is also being investigated jointly by European and North American food retailers through the Global Food Safety Initiative (GFSI). The GFSI has compiled a set of "Key Elements" to serve as the requirements against which existing food safety standards will be benchmarked. These key elements require: *i)* a food safety management system; *ii)* appropriate good practice; and *iii)* conformity with HACCP specifications. See www.globalfoodsafety.com/

Trade impacts and developing-country concerns

Initially, the main adverse trade effect of EU pesticide regulations on Ghanaian pineapple producers was the rejection of particular shipments. Such isolated incidents are often seen as threats to the reputations of growers from particular regions or countries.

In 2000, for example, residues of ethephon, a plant-growth regulator, were found in pineapple concentrate and juice exported from Ghana to Germany. Most of this shipment had been destined for use in baby food, which is subject to particularly strict regulations. Then, in July 2001, the EU-wide MRL for ethephon in pineapples came into effect, and in that same month the Italian government found residues exceeding the 0.5 mg/kg limit in a sample of pineapples shipped from Ghana (Boselie and Muller, 2002). Van der Roest (2003) reports that the resulting three-week cancellation of shipments cost Ghanaian exporters of pineapples tens of thousands of euros.

In Ghana, tracing pineapples sold on local markets to particular plots or producers is usually next to impossible. Nevertheless, following the incident in 2000 involving pineapple juice and concentrate exported to Germany, the Horticultural Association of Ghana (HAG) was able to trace the problem to a pineapple juice and concentrate manufacturer and exporter that had purchased and processed pineapple fruits obtained from a local market. The batch of juice and concentrate found in violation of ethephon limits had come from fruits that had been rejected by fresh pineapple exporters. A spokesperson for the HAG then published an article in the *Daily Graphic* (Ghana's leading newspaper),[10] declaring that the country's pineapples were indeed safe. He also called upon the HAG and its sister association, the Sea Freight Pineapple Exporters of Ghana (SPEG),[11] to educate and monitor their members in the responsible use and application of agro-chemicals, including ethephon.

Pineapple growers in Ghana, both large and small, are routinely trained in the correct use and application of agro-chemicals. Occasionally, however, in the rush to meet export orders, they apply excessive amounts. The over-use of defoliants and plant-growth regulators, like ethephon, is related to the scheduling of harvesting of fruits for export. Normally, farmers spray 45-50 ml per 1 000 fruits in order to ensure that the fruit will ripen within ten days. At that rate of application, the fruits ripen evenly, remain firm for two to three weeks after harvest, and attain the golden yellow colour that consumers desire, leaving little or no trace of the pesticide. However, some growers have been known to apply 100 ml or even 200 ml of ethephon when they receive an export order at short notice (*e.g.* for delivery within a week or less). Certain factors — such as mist, heat and rain — also influence the results obtained from treatment with ethephon. The lack of a GAP standard that would both maximise the efficiency of application and the respect of MRLs during all seasons led producers to double the number of ethephon sprayings of pineapples, or even to triple the dose in the rainy season. Over-application of growth-regulating chemicals shortens the shelf life of fresh pineapple fruits, and many end up being rejected as rotten.

10. Horticultural Association of Ghana, "Ghana's pineapple exports are safe", *Daily Graphic* (Ghana), 12 July 2000, p. 9. www.graphic.com.gh/.

11. HAG's membership comprises exporters, producer-exporters and smallholders, while SPEG's membership comprises producer-exporters and exporters who rely on supply of fresh pineapple fruit produced by smallholder farmers. Together the membership of these two associations account for more than 90% of the pineapple fruit exported from Ghana to EU member states.

A major reason for the inconsistent quality associated with exports of fresh pineapple from Ghana at the time was that analyses were normally not carried out to determine the cause of deterioration when a shipment of pineapples had been rejected. Due to lack of local analytical capacity, excessive residue levels were not detected and, as a consequence, those involved in the production and export chain could not control the risks of exceeding an MRL. An assessment of Ghana's laboratory capacity, carried out in the late 1990s for the European Chemicals Bureau, painted a dismal picture (http://ecb.jrc.it/natprof/ghana/Chap9.htm). Noting that in 1991 the Ghana Atomic Energy Commission (GAEC) had been equipped under an FAO Technical Cooperation Assistance programme to undertake national formulation control analyses of pesticides, it observed that the legal backing to support the activities of the laboratory and to make it operational was not enacted until December 1996. Moreover neither the GAEC nor most of the other ten laboratories in the country had been certified for good laboratory practice by the Ghana Standards Board or by any other reputable body.

Even before the aforementioned incident involving ethephon, the Ghanaian authorities had started to develop codes of good agricultural practice for the country's horticultural industry, to help their producers adapt to the new European commercial and regulatory requirements. Joining forces in this effort were Ghana's Food and Agriculture Ministry, its Ministry of Trade and Industries, the Ghana Standards Board and the Plant Protection and Regulatory Services Division, among others. They started with pineapples, the dominant and most organised segment of Ghana's horticultural industry. Development of the code for the pineapple industry was launched in late 1999 with a survey covering three large-scale pineapple producing and exporting companies (Integral Ghana Limited, JEI River Farms and Prudent Exports Limited). The results of this survey led to an agreement reached with SPEG (and later HAG) to develop a detailed code of good practice for their members. This code covers record keeping and chain-of-custody management, and addresses issues of employment and gender, environment, health and safety involved in the production and post-harvest handling of pineapples.

These domestic developments initially took place in isolation from those of EurepGAP. As news of EurepGAP's scheme began to filter back to Ghana, the first reaction was alarm. *The Daily Graphic* announced an imminent restriction[12] on the use of agro-chemicals in and on horticultural crops exported to the EU from Ghana. The article observed that the new requirements relating to the use of agro-chemicals on horticultural crops in Ghana were due less to importing governments' regulations on chemical residues than to new standards being applied by private market operators. Members of SPEG and HAG responded to this new challenge by forming their own "EurepGAP standing committee", charged with co-ordinating the training and certification of members to meet standards required under EUREP's codes of good agricultural practice.

Responses to developing-country concerns

Thanks largely to the existing institutional structure, which through COLEACP provided a mechanism by which growers in a large number of developing countries can express their concerns about changes in policies likely to affect their market access to the EU, the European Commission has been responsive to concerns raised in connection with its pesticide authorisation and MRL policies. These responses can be grouped into technical assistance and capacity building, as well as changes in the policies themselves.

12. *Daily Graphic*, 19 September 2001. A summary is available at www.ghana-exporter.org/briefs.htm.

Technical assistance and capacity building[13]

In 1999, COLEACP carried out an assessment, on behalf of the European Commission, of the impact Council Directive 91/414 would have on pesticides used in horticultural production in ACP countries, including Ghana. It showed that there would be an adverse effect on the viability of horticultural exporters in these countries, particularly if it led to the widespread adoption of MRLs near the LOD. This assessment prompted the Commission's General Directorate for Development, in 2000, to launch an Action Plan to support and assist the ACP countries, including Ghana, to adapt to changes in European regulations on pesticides and other agro-chemicals used in the preparation of products for export. As part of this plan, the Commission provided funds so that COLEACP could develop a new programme, the Pesticides Initiative Programme (PIP).

The PIP's immediate priorities were: *i)* to ensure that European commercial and regulatory requirements relating to pesticide regulations and traceability are appropriate for ACP exporters of horticultural products; and *ii)* to increase the capacity of all stakeholders in ACP horticultural industries to comply with those requirements once established. It hoped in the longer term to create the capacity within ACP countries to anticipate and manage the inevitable regulatory changes that may occur in the future, beyond those relating to the current pesticide problem.

In pursuit of its first objective, the PIP surveyed European importers and distributors of fresh fruits and vegetables, to assess what traceability and other guarantees they require in order to demonstrate compliance with pesticide import tolerances. It also consulted with pesticide producers and research institutions in both EU and ACP countries to determine which combinations of active substances and crops they considered most important for ACP countries. Following these discussions, PIP met with experts and officials in the Commission and in the EU member states, to reach agreement on which MRLs and import tolerances should be given priority in the ongoing review and harmonisation process. PIP's ultimate goal in these discussions was to obtain agreement from the EU to set import tolerances for pesticide-crop combinations considered to be priorities in tropical and sub-tropical regions at levels that reflected GAP and scientific information on toxicology and eco-toxicology, rather than simply at the default LOD, provided, of course, that the pesticides concerned were not highly toxic.

Achieving that goal required generating new data, however. Prior to carrying out trials of pesticides on crops in the field, the PIP reviewed existing technical procedures, and the advice given to enterprises, to determine what revised crop protocols would be economically viable for ACP growers but also acceptable to regulators. Next, with the help of COLEACP, it negotiated partnership agreements with six pesticide manufacturers: BASF, Bayer, Calliope, DOW AgroSciences, DuPont de Nemours and Syngenta. These partnership agreements have enabled PIP not only to tap into the extensive information base these corporations have developed on the pesticides they

13. This section focuses on technical assistance and capacity building provided by COLEACP and its Pesticide Initiative Programme. In addition, numerous other bodies, both public and private, have contributed resources in this area. For example, in 2000, Amex International, a US-based consulting firm, in collaboration with the US Agency for International Development (USAID) helped introduce EurepGAP codes of practice. Producers of agricultural products are also working with Amex to incorporate cost-tracking software into their operations and to improve their management and marketing.

manufacture, but also to enlist their assistance in preparing and submitting import tolerance dossiers to the Commission.[14]

The pineapple field trials started early in 2004 in Ghana's neighbour (and the world's leading pineapple exporter), Côte d'Ivoire. These trials enabled experts to analyse the level of residues of pesticides at various stages in the fruit's growth. Based upon the results obtained from the trials, PIP's experts will revise the crop protocols so that they can achieve compliance with EU MRLs without losing the efficacy of the pesticide. The final step will be to disseminate information to growers on the maximum pesticide doses they may use on their crops to achieve the specified residue levels.

The PIP's second objective involves increasing the capacity of both horticultural producers and their support structures, particularly those responsible for ensuring produce quality and conducting conformity assessment. It involves four components: diagnosis of capacity-building needs, training, implementation of control systems, and external validation of improvements (*e.g.* via certification).

Training represents virtually half of most ACP companies' requests for assistance from the PIP. One of PIP's major activities is organising collective workshops for middle management, which the PIP calls "the spearhead" of its training programme, because of their grasp of technical subjects and their role in transferring know-how to their subordinates. Several such workshops have been organised in ACP countries, including one in Ghana. The content of each workshop is usually based on PIP's seven thematic modules: food safety procedures management, EU regulations, the safe use of pesticides, hygiene, traceability and production management tools, pest recognition and crop protection, and access to information. The PIP employs local instructors and other service providers for these workshops whenever possible.

These collective training workshops have benefited mainly the larger, exporting companies. To reach small growers and their farm workers, PIP also supports in-company training sessions. In addition, PIP responds to specific requests from growers. In July 2002[15] SPEG and HAG invited PIP to assist their members in adjusting to the high quality standards required by EU importers of pineapples. In 2004 PIP experts carried out a study in Ghana to assess these producers' needs and found that, to improve traceability, better information was needed on the boundaries of individual farms. The PIP's response was to draw up a list of producers and begin mapping these plots.[16]

A primary aim of PIP has been to improve the human, technical and financial resources of conformity assessment systems in the ACP exporting countries. As a first step, it compiled an inventory of laboratories located in ACP countries that were capable of conducting chemical analyses of pesticide residues. Next, in 2002, it carried out audits of several of the identified African laboratories, including at least one in Ghana.[17] These audits were intended to assist the laboratories in fulfilling their control function in respect of European regulations, but also to upgrade their ability to ensure that products intended for local markets comply with the countries' own food safety standards.

14. *PIP Magazine*, "Manufacturers withdraw their support for active substances", No. 1, September 2003, p. 2.

15. Personal Communication between Christian Foli and the General Manager of SPEG, September 2002.

16. "Ghana: tracking down pineapples", Info PIP, No. 25, September 2004, p.2.

17. "Audit missions in African laboratories", *PIP Info*, No. 11, January 2003, p. 2.

Once the audit has been conducted, and needs identified, PIP can provide support for training laboratory staff. PIP's innovative approach involves teaming up with a laboratory in Europe. Staff from the ACP country laboratory are sent to the European laboratory, where they undergo three to four weeks of intensive training. After its staff have completed the course, the applicant laboratory operates under a two-year patronage system. This involves on-site monitoring of the laboratory by a specialist every three to four months, who checks to see whether the methods of analysis are being implemented correctly. After this transitional period, the laboratory is eligible to apply for accreditation (*e.g.* ISO standard 17025) with the support of its patron.[18]

In the meantime, Ghana has been upgrading its laboratory equipment. In September 2002, for example, the Ghana Standards Board, one of the country's leading scientific institutions, received a gas chromatograph to be used in analysing chemical residues in agricultural produce.

Regulatory changes

In recent years the Commission has made several important changes, both small and large, to its pesticide policies. First, it has on several occasions revised upwards some of its MRLs for pesticides in pineapples. In early 2002, for example, it adopted new MRLs for two pesticides used in pineapple cultivation. It revised the MRL for ethephon, from 0.5 mg/kg to 2 mg/kg (effective September 2002) and later in the year it approved a request for the establishment of an EU-wide MRL of 3 mg/kg for the fungicide triadimefon. This latter request, submitted by the pesticide manufacturer Bayer, brought the European MRL for triadimefon in line with the international Codex standard for triadimefon residues in pineapples (Table 8.2). Nonetheless, several of the more important MRLs remain lower than those of Codex.

Much more important for APC exporters of tropical horticultural products in the long run is the new Regulation (EC) No. 396/2005 of the European Parliament and of the Council, adopted on 23 February 2005, which simplifies and consolidates existing legislation.[19] The Commission had long been aware that differences in national MRLs for pesticides in individual member states created trade problems not only for exporters to the EU but also for re-exporters within the EU. (National MRLs are not necessarily valid throughout Europe and can vary from one country to another for a single active substance or crop.) To avoid such problems in the future, the Commission organised in 2002 a multi-stakeholder consultation on ways to consolidate and simplify existing legislation in this area, and in March 2003 it put forward a concrete proposal [COM 2003/0052 (COD) of 14 March 2003). The final regulation, aims to harmonise all MRLs at the EU level and ban member states from setting MRLs unilaterally. As of September 2004, the EU had harmonised 218 MRLs, while 775 MRLs remained to be harmonised.[20]

18. "How does PIP support laboratories?", *PIP Info*, No. 14, May 2004, p. 4.

19. Specifically, Directive 76/895/EEC, Directive 86/362/EEC, Directive 86/363/EEC and Directive 90/642/EEC.

20. "Towards European harmonisation of MRLs", *PiP Magazine*, No. 5, December 2004, p. 2.

Table 8.2. EU and Codex Alimentarius Commission MRLs for selected pesticides in pineapples, November 2003

Mg/kg

Pesticide	CXL[1]	EU	Limit of determination	Remark
Deltamethrin	0.01	0.05	0.05	
Diazinon	0.10	0.02	0.02	
Ethephon	—	2.00	0.05	
Heptachlor	0.01	0.01	0.01	
Methidathion	0.05	0.02	0.02	
Methomyl	0.20	0.05	0.05	
Triadimefon	3.00	3.00	0.10	

1. MRL set by the Codex Alimentarius Commission.

Source: European Commission.

Crucially, for exporters, the new regulation introduces greater flexibility in respect of MRLs applied to imports. Specifically, if good agricultural practice for the crop when grown outside the EU differs from GAP in the EU, and if it results in a residue value greater than the harmonised European MRL, an exporter may request an import tolerance set at a higher level than the existing MRL, provided, as always, that the import tolerance has no negative effects on consumer health. While this new rule is less important for pineapples (which are not grown in the EU) than for other crops, it marks a major shift in the approach the EU has taken towards the setting of MRLs for imported crops.

Concluding observations

This case study illustrates the dilemma of a developing country like Ghana that invests substantial resources in an export-oriented industry, only to face the possibility of restricted access to a developed market because of unanticipated government regulations or private standards, in this situation as a result of the process of reviewing and harmonising European regulations on maximum residue levels and import tolerances for pesticides in fresh agricultural products. Fortunately, the Commission of the European Communities, before the ban on deregistered pesticides fully went into effect, recognised that the application of zero tolerance levels to agro-chemicals used in the Ghanaian pineapple industry would mean near or total collapse of the industry, because the associated pests and diseases can only be controlled satisfactorily using recommended chemicals.

By assisting the development of local capacity and helping affected firms (especially small firms and small-scale producers) understand the new regulations and adapt to their requirements, the Pesticides Initiative Programme has enhanced dialogue between the different players in the ACP-EU horticultural chain. The ultimate aim of the PIP is to anticipate and manage the inevitable regulatory changes that could occur in the future, beyond those relating only to the current pesticide problem.

Chapter 9

Phytosanitary Measures Affecting the Import of Fresh Durian Fruit

This chapter discusses Australian measures designed to ensure that plant pests linked to durian fruit, which are not present in Australia, do not enter the country in shipments of the fruit in a fresh state. It describes the lengthy and difficult negotiations with Thailand, which exports the fruit and regarded some of the conditions for testing either unreasonable or protective of Australian growers, and the Australian authorities, which wanted to avoid the entry of new pests in the imported fruit. The two countries have discussed the possibility of co-operative research, and Australia has agreed to fund research that should benefit Thai pest control systems.

Introduction

Durian (*Durio zibethinus* Murr.) is a spiky, odoriferous fruit highly esteemed by many Asians for its exquisite flavour. Native to the tropical rainforests of the Malay peninsula and the island of Borneo, its range has spread throughout south-east Asia, and many of the durian harvested in that region come from wild trees. Trees planted from seed take as long as 15 years to bear fruit, which explains in part the fruit's high production costs and retail prices: a medium-sized, two-kilogramme fresh durian can fetch up to USD 20 in Asian city markets (Lim, 1997).

Thailand is the world's leading producer of the fruit, followed by Malaysia and Indonesia. More than 90 000 families are engaged in durian cultivation in Thailand, producing on average close to one million tonnes of the fruit each year. Between 6% and 10% of its total production is exported, worth about THB 3.5 billion (USD 80 million) each year (Lim, 1997; Arunmas, 2000).

Australia's own durian industry traces back to 1975, when clonal material was imported from south-east Asia. Orchard plantings started in 1980 in northern Queensland, followed four years later in the Northern Territory. Commercial production only began in the mid-1990s. Currently, Australia has fewer than 50 growers of durian (with a total of around 10 000 trees), located mainly along the north coast of Queensland and in a small area surrounding Darwin, Northern Territory. Half of the harvested fruit is consumed locally; the rest is shipped to major cities, such as Melbourne and Sydney (O'Gara, 2001).

Thai producers of durian consider Australia to be an important export market because of its large and relatively affluent ethnic-Asian population, estimated at 2 million (Arunmas, 2000). Thailand has been seeking to export durian to Australia since 1991 and, starting in 1996, was allowed to ship it to Australia in frozen form. However, progress in establishing trade in *fresh* durian fruit has been slow, initially because of difficulties that the Australian Quarantine and Inspection Service (AQIS) encountered in obtaining sufficient information on Thai plant pests. This information is crucial to conducting a thorough import risk analysis (IRA). The phytosanitary measures[1] stipulated in the IRA, which was completed in 1999 following consultations with stakeholders (including Thailand's plant quarantine officials from the Ministry of Agriculture and Co-operatives), have been criticised by the Thai government as too stringent and too expensive. At the same time, the measures have been challenged by some Australian growers as insufficient to protect their orchards from exotic pests, particularly the durian seed borer (*Mudaria luteileprosa*) and the coffee mealybug (*Planococcus lilacinus*). The Australian government, for its part, maintains that the measures are intended to prevent the entry and establishment of pests and diseases of quarantine concern and are based on an international standard for sampling fruit which requires the cutting of a certain number of fruit from each consignment to ensure that pests are not present.

1. SPS measures, including those intended "to protect animal or plant life or health within the territory of the Member from risks arising from the entry, establishment or spread of pests … ", are treated under the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (the "SPS Agreement") as distinct from other technical regulations and standards necessary to protect public health or the environment. Inasmuch as exotic pests can threaten natural ecosystems, as well as horticultural crops, measures to prevent their entry are closely associated with environmental objectives; however, they may not be classified as "environmental measures" under the current terms of the Agreement on Technical Barriers to Trade (the "TBT Agreement") or the SPS Agreement. The measures discussed in this case study were imposed by Australia's biosecurity authorities to protect plant life and health from risks arising from the entry, establishment or spread of particular pests.

Australia's biosecurity authorities have stated their willingness to review the import protocol critically, and to examine their measures with a view to determining whether any are redundant and could be removed without compromising the level of phytosanitary security they consider appropriate, but only at the end of the first year of trade. Meanwhile, the Thai government refuses to endorse the import protocol because it believes that the pre-export sampling requirement stipulated in the IRA is unworkable and impracticable. In short, the Australian authorities require that a track record of trade be established before it can consider relaxing some of its phytosanitary measures on fresh durian, but Thailand's position is that such trade is not commercially viable while the current measures remain in place. In the interest of avoiding an impasse, authorities from both countries are discussing proposals for research into non-destructive sampling (such as rapid-scan x-ray imaging) which, if effective, could eliminate the requirement for durian to be cut open for inspection.

Development of the measure[2]

Early bilateral discussions

Australia — ecologically distinct and geographically isolated from the rest of the world — has managed so far to remain free of many of the plant pests found in other countries. However, when exotic pests *have* managed to establish a foothold on its shores, they have typically spread quickly, unchecked by natural predators. Often, the pests inflict considerable damage on crops, most of which, with the exception of macadamia nuts, are themselves transplants from elsewhere, and have at times even transformed native ecosystems. Mindful of the irreversibility of exotic pest introductions, the Australian government has traditionally taken what it freely admits is "a very conservative approach to quarantine" (AQIS Executive Director, Digby Gascoine, quoted in Creagh, 1999). Thus, when representatives from Thailand's Government first expressed interest in exporting fresh fruit products, including durian, to Australia (at a meeting of the Australia-Thailand Joint Trade Committee in 1991), the Australian delegation's first request was for details of local pests and diseases known to afflict the commodities that Thailand wished to export. The subsequent discovery process proved to be much lengthier than either party originally imagined, however, and was not concluded until AQIS completed its draft IRA on the importation of durian eight years later.

The main problem seems to have been one of different understandings of what the process would entail. Soon after the 1991 bilateral trade meeting, Thailand furnished Australia with a list itemising 12 diseases and three arthropod pests of durian. AQIS considered the list as far from complete because, among other omissions, it failed to mention the arthropod pests of durian that had been recorded in a report ("A Host List of the Insects of Thailand") that the Thai government's own Department of Agriculture had issued a few years earlier. AQIS then formally requested more comprehensive information on the incidence, importance, distribution and control of pests and diseases in Thailand. No further information was provided from Thailand until 1994, when the Thai authorities provided a list of five arthropod pests and seven pathogens of durian "known to occur in Thailand". A literature search identified additional pests and diseases recorded on durian in Thailand, as well as in neighbouring countries. AQIS considered it possible that some of the organisms not yet recorded in Thailand were present there. In March 1995, the Thai authorities were again asked for further information on three specific pests

2. The chronology of events described herein draws heavily on AQIS (1999).

recorded as present in Thailand, and on five pests found on durian in neighbouring countries.

Additional discussions on durian importation were held with Thai representatives at a meeting of the 3rd Australia-Thailand Joint Technical Working Group on Quarantine and Food Inspection in September 1995. Thailand soon thereafter provided new information on durian diseases and fruit bagging trials. Australia responded by allowing Thailand to start exporting whole frozen durian to Australia; shipments began in April 1996. In May 1996, AQIS requested yet more information on Thailand's durian producers, this time on their chemical control of mites, timing of fruit bagging, and details of the damage, prevalence and biology of pests. At a bilateral trade meeting between Thailand and Australia in October 1996, Australia agreed in principle to allow *fresh* durian to enter Australia on a trial basis (making it the first fresh fruit grown in Thailand allowed to enter Australia), conditional on Thai exporters adequately controlling certain insect pests (*Bangkok Post*, 1996).

In August 1997 Thailand submitted a new list of pests and diseases recorded in association with durian in Thailand. This much-expanded list included 49 arthropods and 16 diseases. Finally satisfied that it had collected sufficient information, in January 1998 AQIS informed key stakeholders that it was ready to initiate an IRA on the importation of fresh durian fruit from Thailand according to the criteria and procedures outlined in its recently published *Import Risk Analysis Process Handbook* (AQIS, 1998a).

Import risk analysis

As a first step, in May 1998 AQIS arranged for an Australian plant quarantine expert to visit Thailand to assist Thai officials with the compilation of the scientific information necessary to gain access to the Australian market for fresh durian fruit. This visit also provided Thai officials with the opportunity to observe the technical issues of how to monitor, record and report disease and pest risks, and to help Thailand develop its domestic quarantine processes and meet its international obligations.

Finally, after engaging in further consultation with stakeholders, including the Thailand Ministry of Agriculture and Co-operatives and the Thailand Plant Quarantine (TPQ) service of the Thailand Department of Agriculture, on 19 January 1999 AQIS released its draft IRA for comment. Three weeks later it notified the WTO's Committee on Sanitary and Phytosanitary Measures ("the SPS Committee") of its proposed import requirements for fresh durian fruit from Thailand. In its notification, Australia envisaged that these rules would enter into force in June 1999.

The proposed import requirements were, in effect, an extension of arrangements under which imports of frozen durian were already being allowed. However, numerous additional protective measures were introduced to guard against the risk of importing exotic pests and diseases (AQIS, 1998b).

- First, fresh durians could originate only from plantations in eastern Thailand (an area in which roughly half of Thailand's durian are produced).
- The plantations would have to have in place an intensive integrated pest management (IPM) system and a monitoring programme.
- Shipments could be made only between 1 April and 30 September, i.e. the period during which the pest cannot survive in Australia. (This schedule also fits well with

Australia's production season, which commences in October and tails off in early May.)

- Before export, quarantine inspectors working for Thailand's Plant Quarantine Service would have to cut open and inspect random samples of fresh fruit (according to the methods set out in the AQIS's National Sampling Plan) in order to check for the presence of durian seed borer (DSB). DSB is an internal fruit borer, which develops inside the durian fruit without producing discernible external symptoms. In shipments of fewer than 1 000 durians, up to 450 fruit would have to be randomly selected and cut open for inspection; for bigger consignments, up to 600 would have to be cut open.
- On arrival, each consignment would be inspected by AQIS, and 600 fruit from each consignment would be randomly sampled for inspection under 10-X magnification. Fruit showing surface damage or punctures would have to be cut for internal examination for DSB. If any live quarantine pest, including DSB, were found in the sample, the entire consignment would be re-exported or frozen to destroy DSB. The reasons for failure would then have to be established and appropriate remedial action agreed upon between TPQ and AQIS before trade could be permitted to recommence.

No questions or complaints were raised in the SPS Committee in response to Australia's notification, but in the two months during which domestic and Thai stakeholders were given to comment on the draft, it attracted 34 written comments (AQIS, 1999). Most of the comments sent in by Australian industry groups, growers and state and federal government departments and research organisations raised questions about the adequacy of the phytosanitary measures recommended by AQIS, some suggesting that the biosecurity risks were greater than AQIS had described and demanding that it apply even more-stringent measures, or that it continue to prohibit the importation of fresh fruit.[3] In preparing its final IRA, AQIS responded to these concerns by adding several additional phytosanitary requirements to the import protocol, but it firmly resisted calls to prohibit or further delay trade.

Thailand's Department of Agriculture, for its part, asked for changes to the import protocol to make it less stringent. Some of their written comments related to the quarantine risk-level status of particular pests associated with durian fruit. AQIS responded by downgrading four of the eight identified quarantine pests, from a high-risk level to a low-risk level, meaning that fewer or less costly phytosanitary measures would be required to control for these pests. However, AQIS left unchanged the high risk level status of three pests — DSB, coffee mealybug and scale insect (*Saissetia* sp.) — which meant that strict pest-control and inspection measures would nevertheless have to be applied (Table 9.1).

3. As early as 1997 Australian producers had started raising objections to the idea of importing fresh durian, registering particular concern over the quarantine risk level status of four insect pests that were not present in Australia.

Table 9.1. Summary of Australia's phytosanitary measures to be implemented for the eight quarantine pests associated with durian fruit from Thailand

Insect pest scientific name	Common name	Quarantine risk level	Detection/ monitoring survey	Integrated pest management	Fruit bagging	Air brushing of fruits	Insecticide dip	Standard inspection	Fruit inspection by cutting
Coccus sp.	Scale insect	Low						√	
Icerya sp	Stem scale insect	Low						√	
Hemicentrus attenuatus	Horned tree hopper	Low						√	
Mudaria luteileprosa	Durian seed borer	High	√	√	√				√
Planococcus lilacinus	Coffee mealybug	High				√	√		
Pseudococcus sp.	Mealybug	Low						√	
Remelana jangala ravata	Fruit eating moth	Low						√	
Saissetia sp.	Scale insect	High				√	√		

Source: AQIS (1999).

The Thai authorities argued that the preventive measures already being taken by Thai durian growers should be sufficient to reduce the risk of infestation by DSB, and maintained that there had been no reported outbreaks of DSB at economic levels in their country in recent years. AQIS's position was firm, however. It had "scientific evidence that DSB is the most destructive pest of durian in Thailand and other growing areas in south-east Asia" and was of the opinion that a systems approach to DSB management, verified by fruit-cutting inspection, would provide the required high level of security against the introduction of DSB (AQIS, 1999). More generally, the Thai authorities argued that:

- AQIS had established too many risk-management conditions for the different pests, making it technically unrealistic, economically unfeasible and difficult for Thai farmers and officials to comply.
- Registration of each grower's orchard would be impractical, trade-restrictive and should not be mandatory.
- The measures proposed were comparatively more stringent than those of other durian-importing countries, which require only general inspection and certification.

AQIS responded to these comments by pointing out that it had revised and streamlined the risk-management measures to the extent that it thought prudent, and that the amended phytosanitary requirements "were technically justifiable and appropriate to ensure quarantine security for Australia." Furthermore, in AQIS's view, the measures it had proposed were based on relevant international standards, guidelines and recommendations. Finally, it observed that "Australia maintains its sovereign right to apply phytosanitary measures to the extent necessary to protect human, animal or plant

life or health on the basis of a pest risk analysis and seeks to ensure that Australia's appropriate level of protection from pests of quarantine concern is met." The final IRA report was issued on 17 November 1999 (AQIS, 1999).

The release of the report initiated a 30-day period of appeals. Following procedures set out in its *Import Risk Analysis Process Handbook*, AQIS was asked to convene an IRA Appeal Panel (IRAAP)[4] in order to consider the 47 appeals that had been lodged, all from domestic growers or grower associations. The IRAAP's recommendations were delivered on 24 February 2000. The Panel declared that it had "found no evidence that any relevant technical or scientific information had been ignored, and concluded that AQIS had handled the process consistent with Government policy, and in harmony with international standards, and that it had met the consultation process requirements of the *Handbook* (AQIS, 2000). However, it upheld appeals relating to transparency of the analysis (on four issues) and recommended that AQIS address these deficiencies. AQIS subsequently produced a supplement to the IRA (AQIS, 2000), satisfying the IRAAP that the requirements of its *Handbook* had been met.

The Australian Director of Animal and Plant Quarantine's determination that fresh durian from Thailand would be permitted entry into Australia took effect on 3 August 2000.

Issues raised by developing-country exporters

Although import conditions for fresh durian as indicated in the IRA were agreed with Thailand's plant quarantine officials from the Ministry of Agriculture and Co-operatives, the Thai government refused to sign the Arrangement Document for Thai Durians, a prerequisite for trade in fresh durian to commence, because in their view it was both unworkable and impracticable.

In November 2000, Thailand — supported by the European Communities, India and the Philippines[5] — brought its concerns relating to the access of Thai fresh durian to the Australian market to the attention of the SPS Committee.[6] Generally, it complained that Australia's phytosanitary standards for fresh durian were more stringent than called for under internationally accepted rules. (Its Agricultural Ministry later pointed out that Thailand had applied international standards to imports of Australian grapes, oranges, cherries and apples.) In particular, it argued that:

- *Limiting trade to only half the year was unnecessarily restrictive*. In view of the other measures required by the AQIS, which include integrated pest management, a monitoring programme, and pre-export inspection, Thailand questioned why Australia deemed it necessary to limit the importation period for durian. It considered that the measure was not consistent with Article 4.2 of the Agreement on Agriculture and Article XI of GATT 1947.

4. The IRAAP normally comprises the Chair of the Quarantine and Exports Advisory Committee (QEAC), the Director of Animal and Plant Quarantine, the Chief Plant Protection Officer or Chief Veterinary Officer (as appropriate) and one other member of the QEAC.

5. The Philippines, another potential exporter of durians, was also at the time facing stringent regulations on fruit shipments to Australia.

6. In accordance with the Committee's procedure, it then followed up its oral intervention with a set of written questions for Australia (Government of Thailand, 2000).

- *Limiting trade to fruit from only one area of Thailand was at variance with internationally accepted principles*. Thailand repeated its claim that it had experienced no pest outbreaks at economic levels in recent years. As well, durian growers in Thailand had actively taken up pest-preventive measures, which would reduce the risk to a certain level: plantations are registered and must conform to high quality standards under Thailand's Good Agricultural Practice schedule.7 Thailand requested that Australia therefore consider importing durians on the basis of whether or not the fruits are free from pests or diseases, rather than on the basis of whether they come from a pest-free area or not. "Besides", they added, "we would be interested to hear from the Australian delegation on the concept of 'like product', especially when the durians are treated under the same condition."
- *Requiring almost half of the fruits to be cut open for inspection was excessive.* As air cargo is the most cost-effective way of delivering fresh durian to Australia (fruits have a very short shelf live of 2-3 days), the normal individual consignment would contain from 500 to 1 000 fruits. Thus one fruit would need to be cut and inspected for every non-cut fruit destined for sale in the Australian market, doubling the cost of durian in each shipment.
- Requiring Thai exporters to bear the cost of all AQIS audits and inspections of durians shipped to Australia placed an undue burden on trade. Thailand was especially concerned that these expenses would add to the already high costs of production and exportation for its small-scale growers and that they would not be able to afford to cover these costs.

They concluded by stressing that "we would like to assure the Australian delegation that all the points we raised are not meant to undermine Australia's plant health and quarantine policy but rather to suggest alternatives of less-trade-distorting measures".

A month later, evidently less than fully satisfied with Australia's formal written response to its questions (see below), the Thai government called upon the Association of South-East Asian Nations (ASEAN) to take up the issue (Arunmas, 2000). Its Agriculture Department went even further and urged the Thai Government not to sign a trade memorandum proposed by Australia until "fair regulations" on durian and other fruit were introduced. Its spokesperson urged ASEAN members to help Thailand bring pressure to bear on Australia, which it felt was restricting Thai durians because they competed with locally grown fruit.

Responses to developing-country concerns

In responding to Thailand's complaints about the conditions AQIS had established for import of fresh durian fruit from Thailand, the representative of Australia to the SPS Committee noted that these conditions had been discussed with the Thai government while still at a draft stage. He then explained the justification for Australia's requirements on cutting of fruit, seasonal shipments and restricting imports to durian from the eastern region of Thailand:

7. In November 2000, Thailand's Agriculture Department warned durian exporters that they would need to follow new export regulations by attaching a sticker on the stem of each fruit so that it could be traced easily if complaints arise about poor quality shipments abroad. Details required on the sticker included the licence number of the exporter and a note requesting that buyers return the fruit if they found its quality unacceptable. The requirement came into force in 2001. Department officials would be sent to buying countries to make random checks on shipments, and exporters who failed to provide quality products would be blacklisted and their names publicised abroad (*Bangkok Post*, 2000).

- The sampling requirement followed an international standard, which set an objective of 95% statistical confidence that a particular pest (in this case, durian seed borers) will be found in no more than 0.5% of consignments.8 Australia followed a similar cutting regime for inspection of exports and imports for several other fruits and vegetables, and even for Australian mangoes transported between certain states within Australia. Technically, the sampling rate specified for Thai durians is not half a consignment: AQIS's sampling rate requires that a 450-unit sample from lots of less than 1 000 fruits and 600-unit random sample from lots of more than 1 000 be inspected by fruit cutting in order to detect DSB. AQIS has stated both in the draft and the final IRA, and also at various meetings with the Thai authorities, that culled (i.e. fruit not up to export standard) fruits can be included in the random sample; in fact, the sample could be comprised solely of culled fruit. This means, for example, that Thai durian exporters could send a full 2 000-fruit consignment to Australia and use the culled fruit as the required 600-unit sample.
- The seasonal restrictions had a scientific basis, but in any case bracketed the main durian fruiting season in Thailand, information on which had been provided by the Thai government.
- The area restrictions reflected the assessment of Australian authorities that orchards in the eastern region of Thailand applied more advanced agro-economic and pest management regimes than those in other regions of the country. At the time of AQIS's technical visit to Thailand to inspect the durian industry's procedures and practices, the Thai authorities informed AQIS that the visit should be restricted to the Chanthaburi region. The reason why the Thai authorities wanted to focus on that region was that it was the most important durian-producing area in Thailand, and most of the durian for export was sourced from that area. Also, most of the information available on the distribution of durian pests in Thailand, and on biological investigations, relates to the eastern provinces. Negligible monitoring information on DSB has been provided on the other producing areas. Given that these other areas have not been visited by technical experts from Australia, no scientific assessment could be made on their suitability for exporting durians to Australia.

In its written reply, Australia did not address the issue of the costs of AQIS audits and inspections of durians, but elsewhere it has pointed out that the requirement for Thai exporters to bear these costs is current and accepted practice in Australia and in a number of its other trading partners. For example, currently all exports of "ya" pear (*Pyrus bretschneideri*) from China, Fuji apple from Japan and all future exports of table grapes from California require audits or pre-clearance from AQIS inspectors, and these services will have to be paid for by the industry in that particular country. Similarly, countries such as Korea, Japan and Chinese Taipei require Australian exporters to sponsor their quarantine officials in connection with exports of citrus fruit, mangoes, stone fruit, apples and pears. In the view of the Australian government, it would be unreasonable for Australian taxpayers to assume these costs for Thai exporters of durian.

The Australian delegate acknowledged that the conditions it had imposed on the importation of durian were very strict, but said they were justified by the pest and disease situation of Thailand. He noted, however, that AQIS was willing to review arrangements

8. In order to reduce the economic costs of inspection, Australia also indicated that the TPQ could include in its random sample cut fruit that would otherwise be rejected for other reasons.

after one year of trade to see if adjustments could be made, subject to maintaining Australia's biosecurity needs.

Bilateral discussions continued. In July 2001 Australia and Thailand agreed to study the possibility of a bilateral agreement to open up and diversify trade between the two countries. Thailand's foreign minister stressed again that the free-trade agreement must solve the problem of import restrictions on Thai farm products, including durian. His Australian counterpart was reported as saying that the agreement would provide a framework to solve this problem, as well as others.

In October 2001, however, Thailand informed the SPS Committee that, despite numerous bilateral meetings, no agreement had been reached. Thailand again asked Australia to adjust its import restrictions to make them more commercially viable. Australia pointed out that the risk analysis for durian completed in 2000 had indicated that other, non-destructive methods of sampling, *e.g.* X-ray technology or irradiation, could be substituted if data could be furnished on their efficacy. As of that point, however, the Australian authorities had received no information from Thailand to demonstrate that these (or any other sampling methods) would provide an equivalent level of protection.

Meanwhile, in addition to engaging in dialogue with its Thai trade-policy counterparts, Australia began funding research that should ultimately benefit Thai growers of durian by improving their pest-control systems. Even while Thailand was making its first representation to the SPS Committee, in November 2000, consultations over collaborative agricultural research were being held at a meeting between the Australian Centre for International Agricultural Research (ACIAR) and representatives of relevant Thai government ministries, departments, universities and research organisations. Among the priorities identified for future co-operation were: technological quality assurance approaches to non-invasive testing methods for quarantine pests; non-chemical disinfestation technology; and policy and market research on sanitary and phytosanitary standards relating to trade. One ACIAR-sponsored collaborative project with Thailand (and Vietnam, another nascent durian producer) aims to find better ways to control *phytophthora*,[9] one of the most destructive diseases of durian (O'Gara, 2001). An important outcome of this research will be the development of a set of recommendations to farmers on how to apply integrated disease management (IDM) to the fruit.

In November 2002 the Thai and Australian trade ministers issued a joint Ministerial declaration, which called for enhanced consultation on SPS issues. The joint Thai-Australian working group took up the issue of durian at its meeting the following March. The upshot was that the Thai authorities agreed to explore various pest-free production alternatives and to collaborate with Australia in a trial of reproscan (non-destructive) inspection methods, in lieu of fruit cutting. At a subsequent meeting of the SPS Committee, Australia's representative said her authorities understood Thailand's concerns and were keen to work towards a mutually agreeable solution (WTO, 2003).

9. Phytophthora is a fungus-like "water mold" that causes numerous diseases in tropical plants. According to O'Gara (2001), there are 67 recognised species of Phytophthora. Many of these species are pathogenic on plants, the most prominent example of which is *Phytophthora infestans*, the primary cause of the potato blight and resulting famine in Ireland in the 1840s. Phytophthora has a devastating potential because it is multi-cyclic and can produce inoculum (*i.e.* the infectious agent) continuously after the initial infection, as long as conditions remain favourable.

On 1 January 2005, the Thailand-Australia Free Trade Agreement (TAFTA) entered into force. Among the top nine commodities listed by Thailand as a priority for market access, number four on the list was durian.

Concluding observations

This case study illustrates the difficulty that exporters, in this example a developing country exporter, may encounter in responding fully to genuine concerns about pest and disease entry and the impact on the importer's competing domestic industry. As one Australian delegate to the WTO observed, "it [is] difficult for any country, and particularly for developing countries, to have a clear awareness of the existence and prevalence of all relevant pests and diseases, although this information [may be] critical for the undertaking of a risk analysis" by the importing country (Government of Australia, 2000; WTO, 2001). Such difficulties suggest a possible role for international organisations in helping exporting countries to develop better and more timely information on the true pest and disease status of their agricultural industries.

Australian governments have consistently adopted a highly conservative — but not a zero-risk —approach to risk management, which they assert is both transparent and scientifically based (AFFA, 2001). Still, as can sometimes happen when exotic species are at stake, phytosanitary measures may be so strict that no trade will take place. For Thai exporters of durian, Australia's expressed willingness to review its measures after a year of trade in the fruit provided a tantalising prospect that their government might be able to short-circuit the process by putting diplomatic pressure on Australia. At the same time, given the effort Australia had to expend to obtain information on the pest and disease status of durian production in Thailand, Australia's own biosecurity authorities have taken an approach that, at least initially, reflects some uncertainty about the efficacy of its trading partner's ability to comply. Nonetheless, Australia has stated publicly that it is keen to finalise bilateral arrangements so that inspections of packing houses and orchards can begin in Thailand and import permits be issued. A solution to this issue may be found in the willingness of both countries to co-operate on research into the efficacy of non-destructive fruit-sampling techniques.

References

AFFA: Agriculture, Fisheries and Forestry — Australia (2001), "Australia's Relationship with the World Trade Organisation (WTO) — Submission from the Department of Agriculture, Fisheries and Forestry — Australia (AFFA)", Submission to the Joint Standing Committee on Treaties, Australian Parliament, Canberra, Australia, www.aph.gov.au/house/committee/jsct/wto/sub311.pdf.

Arunmas, Phusadee (2000), "Durian Import Rules 'Too Strict' — Thais Want ASEAN to Take up the Issue", *Bangkok Post*, 4 December. www.foodmarketexchange.com/datacenter/news/dc_ns_index_detail.php3?newsid=1482.

AQIS: Australian Quarantine and Inspection Service (1998a), *The AQIS Import Risk Analysis Process Handbook*, ACT, Canberra.

AQIS (1998b), Draft Import Risk Analysis for the Importation of Fresh Durian Fruit (Durio Zibethinus Murray) from Thailand, ACT, Canberra.

AQIS (1999), *Final Import Risk Analysis on the Importation of Fresh Durian Fruit (*Durio Zibethinus *Murray) from the Kingdom of Thailand*, ACT, Canberra, www.affa.gov.au/content/publications.cfm?Category=Biosecurity%20Australia&ObjectID=61491AA3-2917-42FB-A4256F6AD94FF29F.

AQIS (2000), A Supplement to the Final Import Risk Analysis on the Importation of Fresh Durian Fruit (Durio Zibethinus Murray) from the Kingdom of Thailand, ACT, Canberra.

Bangkok Post (1996), "Trade Cooperation Reached — Thai, Australia Agree on New Pacts", 31 October, http://archives.mybangkokpost.com/bkkarchives/frontstore/.

Bangkok Post (2000), "New Stickers Will Certify Durian Quality", 22 November, www.foodmarketexchange.com/datacenter/news/dc_ns_index_detail.php3?newsid=1063.

Creagh, Carson (1999), "Strict Controls to be Imposed on Imports of Fresh Durian", Media Release, 17 November, Australian Quarantine and Inspection Service, ACT, Canberra. www.affa.gov.au/corporate_docs/publications/media_releases/quarantine/archive/mrdurian.htm.

Government of Australia (1999), "Committee on Sanitary and Phytosanitary Measures — Notification — Australia — Durian fruit from Thailand", Document code G/SPS/N/AUS/83, 8 February.

Government of Australia (2000), "Australia's Import Restrictions on Durian: Response from Australia to Thailand's Statement at the Meeting of 8-9 November 2000", Document code G/SPS/GEN/218, 22 November, World Trade Organisation, Geneva.

Government of Thailand (2000), "Australia's Import Restrictions on Durian: Statement by Thailand at the Meeting of 8-9 November 2000", Document code G/SPS/GEN/217, 22 November, World Trade Organisation, Geneva.

Lim, T.K. (1997), "Durian", in Keith Hyde (ed.), *The New Rural Industries: A Handbook for Farmers and Investors*, Rural Industries Research & Development Corporation, ACT, Canberra, pp. 279-285, www.rirdc.gov.au/pub/handbook/durian.html.

O'Gara, Emer (2001), "Management of Phytophthora Diseases in Durian", Project Number ACIAR PHT/1995/134, University of Melbourne, Melbourne, www.foodmarketexchange.com/datacenter/news/dc_ns_index_detail.php3?newsid=1482.

Shenon, Philip (1994), "Love It or Hate It, This Is the Forbidding Fruit", *The New York Times*, 18 July. www.ecst.csuchico.edu/~durian/news/nytimes2.htm.

WTO: World Trade Organisation (2001), "Committee on Sanitary and Phytosanitary Measures — Summary of the Meeting Held on 8-9 November 2000 — Note by the Secretariat", Document code G/SPS/R/20, 16 January, paras. 11-14.

WTO (2003), "Committee on Sanitary and Phytosanitary — Summary of the Meeting Held on 2–3 April 2003 — Note by the Secretariat", Document code G/SPS/R/29, 17 June, paras. 48-50.

Chapter 10

Sustainability Labels for Wood and Wood Products

This chapter describes a Dutch bill to make registration of the origin and production process of wood and wood products compulsory. It reflects the Dutch government's and the country's "green" party's wish to reduce the pressures on forests, and particularly tropical forests.

Introduction

The Netherlands is the world's tenth-largest importer of wood and wood products. More than 90% of its total apparent consumption of sawn wood is imported, and about 12% of these imports come from tropical forests (Institute of Forestry and Forest Products *et al.*, 2004). Important developing-country suppliers from outside the EU include Malaysia, Indonesia, China, Brazil and Cameroon (UN Commodity Trade Statistics Database, http://unstats.un.org/unsd/comtrade/).

In 1994, legislation was proposed in the Netherlands, by a member of the political party Groen Links, to make registration of the origin and production process of wood and wooden products compulsory. It would also have required the labelling of imported products and restricted trade in wood and wooden products produced in a non-sustainable way. Following notification to the European Commission, sponsors of the bill revised their proposal, stripping it of the import ban on non-sustainable wood. The 1998 version of the bill would have obliged sellers of wood products to keep records of the origin of those products and, later, mark them either with a positive label ("sustainable forest management guaranteed") or a negative one ("sustainable forest management not guaranteed"). The certification needed to obtain the positive label would have used criteria very similar to that of the Forest Stewardship Council (FSC).

In 1998, the revised proposal was re-notified to the European Commission and newly notified to the WTO, prompting many negative responses from EU member states and several members of the WTO. The sponsor of the bill subsequently revised the bill in 2003. The bill now omits the previous requirement of a mark on wood products for which it cannot be demonstrated that they originate from an area that produces wood using sustainable methods and calls instead for the creation of a voluntary certification and labelling scheme.

Development of the environmental measure

Since the early 1990s the Dutch government has been trying to reduce the pressure on forests, particularly tropical forests, created by its consumers' imports of wood and wood products. (The Netherlands' domestic production of forestry products is less than 10%.) The government is particularly concerned about the links between forest management practices and biodiversity, deforestation and climate change.

Initially the government pursued its policies through a combination of voluntary initiatives, financial support for improving reforestation strategies, and active participation in international negotiations. However, voluntary measures and the various national programmes to stimulate the demand for and supply of sustainable wood appeared to be having minimal effect.[1] In 1999, only 1% of the timber used in the Netherlands was certified as having come from forests that had been certified as sustainable. Moreover, the Dutch consumer market for wood and wooden products suffers from a lack of transparency and inadequate or even at times incorrect consumer information, such as misleading sustainability claims.

Responding to what it saw as the failure of existing measures, in 1994 a Dutch political party, *Groen Links* (Green Left), proposed legislation on the labelling of wood

1. For example, the International Tropical Timber Organisations (ITTO) goal to limit timber trade to sustainable timber by the year 2000 has not yet been reached.

and wood products. The bill was initially based on a ban which was to enter into force on 1 January 2000, and which was aimed at the import, placing on the market and further trade in non-sustainably produced wood. This ban was to be preceded by a regime that would become progressively more stringent: until 1 January 1998, the import or placing on the market of wood would require a declaration of its origin; after this date, there would be an obligation to keep records; with effect from 1 January 1999, an approved management plan for the area would also be obligatory and, finally, with effect from 1 January 2000, an obligatory certificate for the wood would be required. Wood that could not be shown to have been produced sustainably would from that date have been banned. This date was not unintentional: it was meant to support a goal of the International Tropical Timber Organisation (ITTO) that all trade in tropical timber by the year 2000 should come only from sustainably managed forests.

In 1995 the Dutch government, pursuant to its EU obligations, notified the proposed legislation to the European Commission. The Commission and other EU member countries objected to the import ban, and The Netherlands Government withdrew its notification. The sponsors of the bill then considerably amended it. In addition to making the various obligations effective at a later date, they also made them less stringent. For example, the obligatory management plan was replaced by an obligation to apply a label to the product, showing whether an approved management plan was in place. And, most importantly, the ban on importing or trading in wooden products if they originated from an area where production did not take place in a sustainable manner was removed.[2]

Under the revised proposal, with effect from 1 July 1999, somebody placing a wooden product on the market for the first time in The Netherlands would have had to keep a record of the origin of the products. Six months from that date (*i.e.* with effect from 1 January 2000), all wooden products placed on the Dutch market would have had to bear a mark indicating either that the product originated from an area subject to an approved management plan or that it did not. This management plan would have had to be approved by a body recognised by the Council for Accreditation, which itself would be responsible to the Minister for Housing, Spatial Planning and the Environment; producers would not have been restricted to using only Dutch certification organisations, however.[3]

The proposal based its certification criteria on those of the FSC, and even included the FSC's criteria in it in a way that allows regional or location-specific characteristics to be taken into account. Existing initiatives, of which the FSC certification is the best known, are of a voluntary nature. The FSC is considered (by the author of the Dutch proposal) to be the most widely supported certification initiative for sustainable forest management, enjoying support from companies, governments and NGOs. In this way, it was hoped, the Dutch initiative could be linked to all FSC initiatives around the world.

In 1998 the amended bill was then re-notified to the European Commission and to the WTO's Committee on Technical Barriers to Trade. Following further reactions to the

2. Apparently, the possibility of banning non-sustainable wood in future was not ruled out entirely. According to Bercken (2000), the 1998 version of the bill contained a clause that required the Minister of Housing, Planning and Environment to undertake an assessment of the measure a few years after its implementation; should the measure prove to be ineffective, the government would be authorised to consider instituting a ban on sales of non-sustainable wood.

3. A few exceptions to the rules would have been allowed where labelling would be impossible or would lead to unwanted environmental effects. It would not be required for products with a minor wood content (so-called "complex products"), for example, for products like toothpicks and matches, or for recycled wood and recycled paper.

proposal, the bill was further amended and discussed in the Lower House (*Tweede Kamer*) of Parliament. The newly revised bill was passed by the Lower House in April 1998. In February 2000 the bill's deadline for the obligation to keep records concerning the origin of the products was changed to 1 July 2001, and the deadline for the obligation for wooden products placed on the Dutch market to bear a mark indicating either that the product originated from an area subject to an approved management plan or not was changed to 1 January 2002.

Trade issues and developing-country responses

Although the measure had not yet been implemented, early versions of the bill attracted much criticism from developed and developing countries alike.[4] Countries argued that the initiative is a violation of The Netherlands' obligations under international trade law, notably the General Agreement on Tariffs and Trade (GATT) of 1994 and the Technical Barriers to Trade (TBT) Agreement. The European Commission also stated that the bill would contravene EU regulations. The objections relevant to developing countries may be summarised as follows:

- The measure was disproportional, considering its trade impact and environmental benefits.
- Costs of certification would be too high for many small businesses and developing countries; small-scale wood producers in particular would face disproportional costs of certification.
- Countries which do not yet have a system for FSC labelling would be at a disadvantage once the measure is implemented.
- Obligatory labelling would hinder self-regulation and developing countries' own labelling initiatives.
- The measure could have a significant negative impact on people in forest-dependent, rural and indigenous communities.

Malaysia, in its comments, was quite clear in its view that the proposed draft legislation, if implemented, would create a barrier to trade as it would unfairly impede the import of "red" labelled timber and timber products. Including a red (*i.e.* negative) label on wood that has not been certified as being sustainable creates an additional problem: lack of proof of sustainability does not necessarily mean that the wood was not produced in a sustainable way. It means only that the wood has not been *certified* as being sustainable, perhaps only because of lack of awareness of the scheme. Others argued that if encouragement of sustainable forest management is the goal, there is little to be gained from excluding products certified to other credible forest certifications (*i.e.* non-FSC), or indeed non-certified product produced in accordance with sustainable forest management principles and practices.

4. Ten EU member states (Germany, Sweden, Belgium, France, Spain, Italy, Austria, Finland, Portugal, United Kingdom) and the European Free Trade Aassociation (EFTA) responded to the Netherlands' second notification to the European Commission, and six WTO members (Canada, Indonesia, Malaysia, Norway, Poland and Thailand) responded to its WTO notification.

Responses to developing-country concerns

The main sponsor of the Dutch proposal, Marijhe Vos, MP, has responded in writing to these critics by pointing out that the costs of certification would be low compared with the revenues from timber earned by the producing companies. However, she acknowledged that very small-scale wood producers might be disadvantaged. In response, Ms. Vos revised the bill to include an explicit measure to help defray the costs for small-scale wood producers: group certification, a system whereby one certificate is obtained for all members of a group. By means of group certification, the producers would be able to pool costs, logistics and administrative burdens. The system of group certification is also allowed by the FSC and has been applied successfully in several countries, including Germany, Switzerland, the Solomon Islands and the United Kingdom (England and Wales).

The Dutch upper house discussed the Vos bill at its plenary sessions in April and July 2002. It considered that the bill, and in particular the obligation on negative labelling, would very likely be in violation of EU and WTO legislation, and thus decided that the bill would not be acceptable. Ms. Vos announced that the bill would be amended, as it eventually was. In 2003, the bill was amended yet again (Parliamentary documents II, parliamentary term 2002-03, 28 631, nrs. 4, 5 and 7), and the impact the measure would have on the internal market was considerably reduced. In April and June 2004 the main elements of its proposed measures (http://alpha.lsd.lt/lt/doc/20040087.EN.txt)were notified, respectively, to the WTO (G/TBT/N/NLD/62) and the European Commission.

In the meantime, the Minister for Housing, Spatial Planning and the Environment began work on drawing up a model for a certificate for sustainably managed forests, for a certificate for tracing systems for sustainably produced wood and for a mark indicating that the wood to which it has been applied has been produced by sustainable methods (for details see the aforementioned notifications). A broad variety of environmental organisations and organisations for indigenous people were consulted, as well as organisations representing the forestry and the forest-based products industry (Institute of Forestry and Forest Products *et al.*, 2004). A draft set of assessment guidelines and an assessment protocol were produced in 2003, and in 2004 these were evaluated in different pilots. The results of these trials were discussed with various stakeholders before the documents were finalised in late 2004. The measure is expected to be adopted early in 2005.

Concluding observations

It is clear that early versions of the draft legislation on the labelling of wood and wood products proposed by the Dutch Parliament raised a number of issues, including proportionality, the consistency of the measure with the Netherlands' international trade obligations, and the possibility that the proposal would undermine its own environmental objectives by encouraging consumers to move towards non-renewable building materials. However, the Dutch government duly notified the WTO of this proposed measure and responded to many of the comments and criticisms by amending the bill, not just once but twice. In this case, in other words, the process seems to have worked as intended.

References

Bercken, F.H. van den (2000), "Voorkeursbehandeling voor duurzaam geproduceerd hout?", *BrisMagazine*, Vol. 1, No. 3, November, www.bris.nl/BrisMagazine/BrisMagazine_bestanden/Overig/2000_3_Voorkeursbehandeling_hout.htm.

Malaysia, Government of (1998), "Notification of the government of The Netherlands — proposed legislation on the compulsory labelling of timber and timber products (wood and wooden products) — Submission by Malaysia", Document No. G/TBT/W/96, 9 November, World Trade Organisation, Geneva.

Institute of Forestry and Forest Products, Netherlands' Timber Trade Association, Netherlands' Paper and Board Association, Netherlands Ministry of Economic Affairs, and Ministry of Agriculture, Nature and Food Quality (2004), "The Netherlands National Market Report", presented to the 62nd session of the ECE Timber Committee (5-9 October 2004), United Nations Economic Commission for Europe, Geneva, www.unece.org/trade/timber/mis/market/market-62/netherlands.pdf.

Netherlands, Government of (1998), "Notification — The Netherlands", Document No. G/TBT/Notif.98/448, 2 February, World Trade Organisation, Geneva.

Netherlands, Government of (2004), "Notification — The Netherlands", Document No. G/TBT/N/NLD/62, 21 April 2004, World Trade Organisation, Geneva.

Voorstel van wet van het lid M. Vos tot wijziging van de Wet milieubeheer (duurzaam geproduceerd hout), 23 982 en 26 998, Eerste Kamer, m vergaderjaar 2000-2001, 23 982 en 26 998, nr. 173a, 19 April 2001.

Voorstel van wet van het lid M. Vos houdende tweede wijziging van het Voorstel van wet van het lid M. Vos tot wijziging van de Wet milieubeheer (duurzaam geproduceerd hout), 28 631 Nr. 11, Tweede Kamer der Staten-Generaal, Vergaderjaar 2002–2003, 1 September 2003. www.eerstekamer.nl/9324000/d/286/w28631b1.pdf.

Information from *Groen Links*, Mr. Wolfgang Richert (AIDEnvironment), September 2001.

Information from *Milieudefensie*, Mrs. Hilde Stroot, September 2001.

Chapter 11

Adapting Turtle-excluder Devices to Local Conditions[1]

This chapter discusses US technical standards for protecting sea turtles when fishing for shrimp. Exporters of shrimp to the United States must be certified as meeting the same environmental goals. Different local conditions meant that Costa Rica encountered difficulties in using the US device. The process of finding a solution acceptable to both is described.

1. This case study is based on a longer paper ("Sanitary and Environmental Trade Barriers in Costa Rican Fisheries") prepared by Max Valverde (researcher for Fundación Ambio, Costa Rica, funambio@racsa.co.cr) as a contribution to the Workshop on Standards and Trade, 16-17 May 2002, Geneva. Permission from UNCTAD to draw on that paper for this case study is gratefully acknowledged.

Introduction

Pursuant to Section 609 of the United States Public Law No. 101-162 (the "Shrimp-Turtle Law"), all shrimp harvested with technology that may adversely affect certain species of sea turtles protected under US law may not be imported into the United States, unless the President annually certifies to the US Congress: *i)* that the harvesting country concerned has a regulatory programme governing the incidental taking of sea turtles in the course of such harvesting which is comparable to that of the United States, and that the average rate of that incidental taking by the vessels of the harvesting country is comparable to the average rate of incidental taking of sea turtles by US vessels in the course of such harvesting; or *ii)* that the fishing environment of the harvesting country does not pose a threat of incidental taking to sea turtles in the course of such harvesting.

While the Shrimp-Turtle Law does not mandate that other countries use a specific technology, for the purpose of these certifications a regulatory programme would most effectively achieve an average rate of incidental take of sea turtles if, as in the United States and other countries, it included a requirement that all commercial shrimp trawl vessels, operating in waters in which there was a likelihood of intercepting sea turtles, use at all times a turtle excluder device (TED), which is basically, a cage that lets shrimp through into a trawl net but lets turtles escape. TEDs had to be comparable in effectiveness to those used by the United States. In Costa Rica, however, the TEDs, built to US fishing conditions, were soon found to be unsuitable for Costa Rican circumstances, where there is a high presence of debris. The escape gates of the TEDs would block up, requiring more engine power in the trawling process, and hence more fuel. And more debris in the net meant fewer shrimp: it has been estimated that trawling with a standard US TED in Costa Rican waters yields 70% debris and 30% shrimp.

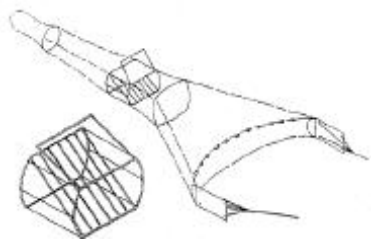
These problems made Costa Rican shrimpers reluctant to use TEDs. That, combined with poor enforcement by the national authorities, led to insufficient use of the device. In April 1999, a US inspection team found serious problems on almost all of the boats inspected. The US authorities promptly ruled that, as of 30 April 1999, Costa Rica could no longer export shrimp to the American market.[2] Costa Rica initiated formal procedures to seek a modification of the TEDs' in order to adjust it to their particular fishing environment. After one year of scientific studies commissioned by Costa Rica, the United States approved an adapted TED appropriate for that country.

Development of the measure

In the United States, the drowning of sea turtles in shrimp trawls was identified as a serious problem in the 1970s. In 1980, the National Marine Fisheries Service (NMFS) unveiled the TED as a solution to the problem. The first design of a TED was a box-like cage with a trap door, fitted into the neck of a shrimp trawl. Modern versions of a TED include an angled grid sewn into a net, with an escape opening cut into the net at the trailing end (see Figure 11.1.) Shrimp and other small items slip through the bars and are caught in the bag end of the trawl. Large animals such as turtles and sharks, when caught at the mouth of the trawl, strike the grid bars and are directed toward the escape opening. The NMFS has demonstrated that TEDs are effective at excluding up to 97% of sea turtles, with minimal loss of shrimp.

2 Communiqué from Richard Baltimore, US Embassy Minister, to Esteban Brenes, Costa Rican Agriculture Minister, 4 May 1999.

Figure 11.1. Drawing of a turtle-excluder device



Source: Northeast Fisheries Science Center.

In 1980 the NMFS proposed voluntary use of the devices by shrimp fishermen. Finally, in 1987, the United States issued regulations, pursuant to the Endangered Species Act (ESA) of 1973,[3] requiring that all US shrimp trawlers use TEDs or tow-time restrictions in specified areas where there was significant mortality of sea turtles associated with shrimp harvesting.[4] After delays due to challenges in state and federal courts, the 1987 regulations became fully effective in 1990 and were modified to require the use of TEDs at all times and in all areas where shrimp trawling interacts in a significant way with sea turtles.

Initially, the regulations affected only US operations and boats. However, the US shrimp-fishing industry complained that fishing operations in countries exporting to the United States were not subject to these requirements, placing them at a competitive disadvantage with trawlers based abroad. One of its representative organisations, the Georgia Fishermen's Association, Inc., decided to join the cause as a plaintiff alongside the environmental groups.[5]

The US Department of State initially interpreted Section 609 as applying only to nations of the wider Caribbean region, on the understanding that this was Congress's intent. In 1991 and 1993 the United States issued guidelines that limited the geographical scope of Section 609 to shrimp harvested in the Caribbean and Western Atlantic area.[6] In 1994, the US government initiated negotiations involving 23 countries from North, Central and South America, as well as the Caribbean region, on an international convention aimed at protecting endangered species of sea turtles. Substantive negotiations on a draft Inter-American Convention for the Protection and Conservation of Sea Turtles concluded on 5 September 1996. Countries joining the agreement must prohibit the intentional capture or killing of sea turtles, protect sea turtle habitat and nesting areas, and reduce, to the greatest extent practicable, accidental harm to sea turtles in the course of fishing activities. The Convention entered into force on 1 May 2001.[7]

The tougher US line stems from a series of far-reaching decisions by the US Court of International Trade (CIT), triggered by judicial complaints filed by environmental groups,

3. All six species of sea turtles found in US waters are protected under the ESA.

4. Hereafter the "1987 Regulations" (52 *Federal Register* 24244, 29 June 1987).

5. *See Earth Island Inst. v. Christopher*, 913 F. Supp. 559 (Ct. Int'l. Trade 1995).

6. Specifically, Mexico, Belize, Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Venezuela, Trinidad and Tobago, Guyana, Surinam, French Guyana and Brazil.

7. As of 15 May 2001, the Convention had nine parties: Brazil, Costa Rica, Ecuador, Honduras, Mexico, the Netherlands, Peru, Venezuela and the United States.

according to which turtles should be protected outside the area initially identified by the Department of State because of their highly migratory nature. The groups also argued that the actual language of the Shrimp-Turtle Law places no geographical limitation on its implementation. Several environmental organisations acted as plaintiffs before the CIT: the Earth Island Institute, the American Society for the Prevention of Cruelty to Animals, the US Humane Society and the Sierra Club. In addition to the environmental arguments, there were also commercial concerns. In December 1995 the CIT found the 1991 and 1993 guidelines inconsistent with Section 609 insofar as they limited its geographical scope. It then directed the US Department of State to prohibit, as of 1 May 1996, the importation of shrimp or shrimp products wherever harvested in the wild with commercial fishing technology, unless otherwise certified by the US Department of State.

In April 1996, the Department of State published revised guidelines to comply with the CIT order of December 1995. These new guidelines extended the scope of Section 609 to shrimp harvested by all countries.[8]

Issues raised by developing country exporters

Costa Rica relies on the US market for over 80% of its shrimp exports. Its competitiveness has not been affected as a result of the TED requirement, however. Indeed, it slightly increased its share of the US market from 0.5% to 0.6%. However, it has had to enact national legislation, adopt a technical regulation not suitable for its natural conditions, modify its fishing practices and face a three-week import ban.

Until 1995 Costa Rica encountered no problems in exporting shrimp to the United States. Its real problems began in 1995 when the CIT extended the geographical scope of the ban and directed the US Department of State to prohibit, no later than 1 May 1996, imports from all countries not certified.

Costa Rica decided neither to initiate litigation before the WTO nor to join the subsequent disputes.[9] Instead, Costa Rica's fisheries authority, INCOPESCA (Instituto Costarricense de Pesca y Acuacultura), issued a Board Resolution requiring the use of TEDs for shore-trawl shrimp fishing, effective on 1 May 1996, the day that the CIT's order went into effect.[10] Henceforth, in order to fish for shrimp, trawl operators had to obtain a permit from INCOPESCA. As of mid-2001, 73 fishing boats were permitted by INCOPESCA to conduct trawling operations.[11] If a vessel is found without a permit or in violation of its conditions, penalties can be levied on the owner of the fishing permit, its

8. 61 Federal Register 17342, 19 April 1996, Section 609(b)(2).

9. In 1997, Malaysia and three other countries challenged the US measure in the WTO. Costa Rica reserved its third-party rights in accordance with Art. 10 of the WTO Dispute Settlement Understanding, but it did not submit any allegations; see Report of the Panel, at 6. In 1998, the WTO Appellate Body found that Section 609 was justified under Article XX(g) of the GATT (relating to the conservation of exhaustible natural resources), but that the United States' application of the measure unjustifiably discriminated against exporting nations. The United States modified its application to address the Appellate Body's recommendations. Malaysia then alleged that the United States had not complied with the Appellate Body's report, but the Appellate Body in October 2001 rejected all of Malaysia's claims.

10. INCOPESCA's Board of Director's Resolution A-JD/061-96, 16 April 1996.

11. Interview with Fernando Víquez, Technical Adviser of INCOPESCA, 3 July 2001. The largest 73 of the semi-industrial fishing vessels capture 28% of Costa Rica's white shrimp; the rest is captured by some 3 000 small-scale or artisanal fishermen. Their small boats are not required to use TEDs since they do not use trawl nets.

captain or both. Also, either the permit holder or the captain can be temporarily suspended from fishing. Following the requisite inspection by US authorities, Costa Rica was certified for the first time that same May.

To implement its international and other national commitments for the conservation of sea turtles, Costa Rica adopted on 8 May 1998, together with Nicaragua and Panama, the Co-operative Agreement for the Conservation of Sea Turtles of the Caribbean Coast of Costa Rica, Nicaragua and Panama (Taft and Carranza, 2000). An important part of this agreement is the execution of a regional management plan for the Caribbean coast of these countries.

Notwithstanding these good intentions, INCOPESCA encountered major enforcement problems owing to lack of resources and the low pay given to inspection personnel. The initial reluctance of Costa Rican fishermen to use TEDs made enforcement even more difficult. Their opposition was not against the use of TEDs *per se*, but against their technical specifications. The main reason was that the TEDs required by the United States were not suitable for the biological conditions of Costa Rican coasts. Based on their experience in the Gulf of Mexico, the United States set bar spacing at 4 inches (10 centimetres). However, the Costa Rican marine environment presents different circumstances. In contrast with the Gulf of Mexico, the Costa Rican shoreline receives water from short but highly torrential rivers. A considerable amount of organic material is carried by these rivers to the shoreline, where shrimp fishing takes place. This is especially true in the two-thirds of the year during which rainfall is heavy. Accordingly, considerable amounts of organic waste accumulate on the seabed. These conditions do not exist off the coasts of the US states bordering the Gulf of Mexico or off the Atlantic coasts of Florida, Georgia or the Carolinas, where most US shrimp are harvested.

The TEDs imported from the United States at a cost of USD 300 each were constantly becoming obstructed by organic waste, provoking economic losses. First of all, jammed TEDs required more engine power in the trawling process, which translated into increased fuel costs. Most important, however, it was estimated that in an average trawl 70% would be waste and 30% shrimp. [12] The TEDs were even failing in respect of their primary purpose — helping turtles — as the turtles could not escape from the clogged devices. Many shrimpers stopped using TEDs. These problems, compounded by inadequate surveillance capacity on the part of INCOPESCA, led to incomplete use of the device.

US inspectors had already visited Costa Rica once (in 1997) to explain the functioning and design details of TEDs. In April 1999 another inspection team, this time composed of technicians and representatives of the US Department of State and the US Embassy, conducted an assessment of Costa Rica's compliance with the TED requirement. What it found was implementation problems in all the fishing vessels it examined. Moreover, when discussing the national enforcement programme with the local fisheries personnel, the team found that the TEDs enforcement regime was not as comprehensive as it could have been.[13] The Costa Rican authorities, cognisant of the implications of this finding, began a series of diplomatic efforts in order to prevent a trade measure under Section 609. Five days later, INCOPESCA sent a letter to the

12. Telephone interview with Javier Catón, Puntarenas Fishermen Chamber President, 20 June 2001. TEDs imported from the United States are made from aluminium. According to Mr. Catón, these have little durability, so some Costa Rican fishermen began building their own TEDs out of galvanised iron, at a lower cost.

13. *Ibid*.

US Ambassador explaining in detail the Costa Rican enforcement measures at the time.[14] Meetings at the Embassy followed this letter.

Despite these efforts, Costa Rica was not certified to the US Congress. The US authorities informed their Costa Rican counterparts that, as of 30 April 1999, the country could no longer export wild-harvested shrimp to the American market.[15] Yet, in that same communiqué, after a diplomatic intercession by the Costa Rican Ambassador to the United States to the Department of State, indications were given that another inspection trip would take place on 10 May 1999. This pre-announced inspection went very well. On 18 May the Under-secretary of State certified Costa Rican shrimp operations as compliant with Section 609. The country could resume exporting shrimp.[16]

Soon after, Costa Rica initiated formal procedures to seek a modification of the TEDs' dimensions. Two important studies were carried out in order to support this petition. The first, conducted by a team led by a prominent Costa Rican authority on sea turtle conservation, concluded:

> [I]n the white shrimp fisheries of Costa Rica the amount of logs and debris inhibits proper TED function and may cause significant shrimp and fish loss up to 37.7% and 43% respectively. Bottom-shooting, 8-inch Seymour TEDs with enlarged escape holes apparently improve performance, recording losses between 4% and 12% of the shrimp catch. In deeper waters, where organic debris is not a problem, 4-inch bottom-shooting Super Shooter TEDs work efficiently, but do not reduce by-catch to a significant extent. Turtles in Costa Rican waters are not caught when an 8-inch deflector bar is used, contrary to when a 10-inch bar is used, which allows turtles through the grid and into the cod end of the net. The continuation of research into the performance of Super Shooter and Seymour TEDs with 6- and 8-inch bar spacing is necessary to advise the Costa Rican shrimping industry on models and modifications that suit the industry best, without endangering the sea turtles.[17]

These scientific studies led to a specific modification proposal by Costa Rica, the "Tico-TED",[18] which sustains a shrimp loss of only 10%, compared with a 40% loss reported when using the US design.

On 17 April 2000 Costa Rica became the fourth Western Hemisphere nation to ratify the Inter-American Convention for the Protection and Conservation of Sea Turtles; the United States ratified the Convention six months later. The Convention entered into force on 2 May 2001, 90 days after deposit of the requisite eighth instrument of ratification. Article IV, paragraph 2(h) of the Convention calls upon each Party to take appropriate and necessary measures for:

> "[t]he reduction, to the greatest extent practicable, of the incidental capture, retention, harm or mortality of sea turtles in the course of fishing activities, through the

14. Communiqué from Herbert Nanne, INCOPESCA's Executive President, to Thomas Dodd, US Ambassador to Costa Rica, PESCP/024-99, 29 April 1999.

15. Communiqué from US Embassy Minister Richard Baltimore to Esteban Brenes, Costa Rican Agriculture Minister, 4 May 1999.

16. Communiqué from Richard Baltimore, US Embassy Minister, to Esteban Brenes, Costa Rican Agriculture Minister, 20 May 1999.

17. *Ibid*.

18. "Tico" is local slang for a Costa Rican citizen.

> appropriate regulation of such activities, as well as the development, improvement and use of appropriate gear, devices or techniques, including the use of turtle excluder devices (TEDs) pursuant to the provisions of Annex III [which sets out technical criteria regarding their use and exceptions to their use], and the corresponding training, in keeping with the principle of the sustainable use of fisheries resources".

Article XV, paragraph 3, states that "The Parties shall endeavour to facilitate trade in fish and fishery products associated with this Convention, in accordance with their international obligations." Additional provisions encourage parties to render technical assistance and allow for the possibility of establishing a special fund for purposes such as assisting the parties that are developing states in fulfilling their obligations under the Convention, including providing access to the technology deemed most appropriate for conserving sea turtles.

Responses to developing country concerns

The US Department of State finally agreed to a modification in the technical specifications of the TEDs, allowing on 16 August 2000 a 2-inch (5 cm) increase in the spacing of the deflection bars, for a maximum distance between deflection bars of 6 inches (15.2 cms). Accordingly, INCOPESCA issued a resolution implementing this decision.[19] In addition, the technical specifications provided for aluminium deflector tubes with a 1.5-inch (3.75-cm) minimum exterior diameter and a minimum interior diameter of 1/8 inch, or 0.75 inch external-diameter aluminium deflector bars. The 6-inch modification is provisional and subject to reports that the Costa Rican authorities must send to the United States on its effectiveness.

On 1 March 2001, the NMFS conducted a visit for the 2001 certification. Even though the inspectors found general compliance with US TED regulations, some flaws were pointed out. In particular, the NMFS noted that few of the TEDs inspected and being used in Costa Rica met the exact technical specifications provided by the US government.[20] Many of the non-compliant TEDs had become bent or warped to some degree, creating deflector-bar spacing greater than six inches. This was attributed to the fact that most of them were locally built, using steel rods and not aluminium pipes, which the NMFS considers stronger. In their opinion, Costa Rica's national TEDs were "unnecessarily heavy and structurally weak, two conditions which lead to poor performance for turtles and shrimp".[21]

Rather than declare Costa Rica non-compliant, however, the NMFS offered to help locate US suppliers of technically compliant TEDs. Once again, the country was certified to the US Congress. Since then, INCOPESCA has reported an improvement in the general compliance with, and enforcement of, the TED regulations.

Concluding observations

This case study underscores the importance of designing technical standards in a way that can allows them to be adapted to local conditions, while still meeting the

19. INCOPESCA's Board of Directors' Resolution AJDIP/331-2000 of 18 August 2000.

20. National Marine Fisheries Service Inspection Report to INCOPESCA, March 2001.

21. Letter from John Mitchell, NMFS research fisheries biologist, to Ricardo Gutiérrez, INCOPESCA's Technical Director, 13 April 2001.

environmental objective. The TEDs that Costa Rica agreed to use were initially designed with US fishing conditions in mind, but were manifestly unsuitable for use in the shallow, debris-clogged waters in which Costa Rican fisherman dragged their trawls.

The study also shows, by way of example, that when an exporting country makes a good-faith effort to embrace emerging environmental norms (*e.g.* by enacting its own national legislation), its efforts to highlight implementation problems are likely to be taken seriously by the country or countries applying those norms. Undertaking scientific studies to back up its claims regarding the inappropriateness of TEDs built to US specifications also helped Costa Rica obtain help from the United States, the importer country, in devising new technical parameters and locating potential suppliers. Finally, the importance of bilateral co-operation, and of having both exporting and consumer countries fully engaged in international environmental agreements, is highlighted.

References

Samocha, Tzachi (1999), "More Seafood, Please", *Journal of the American Society of Agricultural Engineers Review*, Vol. 6, No. 4, April, pp. 11-12.

Skou, Lene (1996), "Rules to Protect Sea Turtles Could Block Shrimp Imports", *Journal of Commerce*, 30 April, p. 4.

Taft, Lucinda K. and Roxana Silman Carranza (2000), "The Cooperative Agreement for the Conservation of Sea Turtles of the Caribbean Coast of Costa Rica, Nicaragua and Panama", in Heather Kalb and Thane Wibbels (compilers), *Proceedings of the Nineteenth Annual Symposium on Sea Turtle Conservation and Biology*, 2-6 March 1999, South Padre Island, Texas (NOAA Technical Memorandum NMFS-SEFSC-443), National Marine Fisheries Service, Silver Spring, Maryland, www.nmfs.noaa.gov/prot_res/readingrm/turtlesymp/19turtle.pdf.

Government Regulations Translating Internationally Agreed Standards

Chapter 12. Phasing Out Methyl Bromide

Chapter 12

Phasing Out Methyl Bromide

This chapter discusses the process by which the ozone-depleting chemical, methyl bromide, an effective fumigant, is being phased out. An important innovation of the Montreal Protocol was the creation of a special fund to help finance efforts to find substitute products and have them adopted. However, an unintended consequence of accelerated research on finding alternatives is new pesticide/crop combinations for which associated import tolerances (residue limits) have in a number of cases not yet been established.

Introduction

Methyl bromide is a fumigant used in agriculture for killing nematode worms, weeds and other soil pests, to control pests in structures and around stored commodities (especially grains), and for quarantine and pre-shipment uses. Although cost-effective as a broad-spectrum biocide, it is also highly toxic to humans and a potent ozone-depleting chemical, with a potential — atom for atom — for destroying 60 times more stratospheric ozone than chlorine from chlorofluorocarbons (CFCs). Among other consequences, ozone depletion contributes to human health problems caused by increased exposure to ultraviolet-B radiation (UV-B).

Recognising the threat represented by methyl bromide to the ozone layer, the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer agreed in 1997 to a global phase-out schedule for methyl bromide. This schedule requires that developed countries phase out the chemical by 2005 and that developing countries freeze its consumption by 2002, achieve a 20% reduction by 2005, and phase it out completely by 2015.

This action presents a major technical challenge, since for many uses methyl bromide is still the cheapest and most reliable fumigant on the market. It could also present difficulties for trade. For one, developed countries, as they phase out methyl bromide for use within their own borders, may come under pressure to prohibit the importation of crops grown with the help of methyl bromide. Already, several OECD member countries have phased out the use of methyl bromide entirely or in particular applications, and some non-governmental organisations (NGOs) have called for the labelling of particular products as methyl-bromide-free. Ironically, developing countries use very little methyl bromide in the production of food that is consumed within their borders; almost all of it is consumed to grow and treat cash crops for export, such as tobacco, cut flowers, strawberries and bananas. The Parties to the Montreal Protocol anticipated that developing countries would need assistance in adjusting to the methyl-bromide ban and created a special Multilateral Fund to help find and develop alternative chemicals and production technologies. However, as they apply substitutes for methyl bromide in new pesticide/crop combinations, exporting countries will need to ensure that the import tolerances for residues of those substitutes are established in the countries to which they plan to export, and that they can indeed meet those tolerances.

Development of the environmental measure

In 1992, the 128 Parties to the Montreal Protocol (hereafter, "the Parties"), having examined the scientific evidence on the ozone-depleting potential of methyl bromide, decided to list it as an ozone-depleting substance (ODS). As set out in the Copenhagen Amendment, the Parties also agreed to freeze production in 1995 at 1991 levels, and to study the matter further. At the 1995 meeting of the Parties, global methyl bromide controls were added, calling for a phase-out for industrial nations in 2010, and a freeze in 2002 based upon an average of the years 1995-98 for developing nations. Within two years, however (at their ninth meeting), the Parties had accelerated global controls (reductions in consumption[1]) on methyl bromide for developed countries, and set a date for a complete phase-out for developing countries.

1. Under the control measures of the Montreal Protocol, "consumption" is defined as production plus imports minus exports.

The 1997 Montreal Amendment (which has 63 Parties) sets separate schedules for industrialised ["non-Article 5(1)"] and developing ["Article 5(1)"] countries. Article 5(1) countries are those whose annual per-capita consumption and production of ODS is less than 0.3 kg. Currently, 130 of the 175 Parties to the Montreal Protocol meet these criteria, including three OECD member countries: Korea, Mexico and Turkey. The two sets of schedules commit:

- Developed, or non-Article 5(1), countries to achieving a 25% reduction by 1999 (based on 1991 consumption levels), a 50% reduction by 2001, a 70% reduction by 2003, and full phase-out by 2005.
- Article 5(1) countries that have become Parties to the Montreal Amendment to freezing their use of methyl bromide by 2002 (based on average 1995-98 consumption), achieving a 20% reduction in its use by 2005, and phasing it out completely by 2015.

Table 12.1. Critical use exemptions for methyl bromide in 2005

Kilogrammes

Country	Initial permitted critical use exemptions	Additional permitted critical use exemptions	Total
United States	7 659 000	610 665	8 269 665
Italy	2 133 000	165 225	2 298 225
Israel	0	1 074 000	1 074 000
Spain	1 059 000	0	1 059 000
Japan	284 000	464 000	748 000
France	407 000	67 635	474 635
Greece	186 000	41 280	227 280
Australia	145 000	1 900	146 900
United Kingdom	128 000	6 330	134 330
Canada	55 000	6 840	61 840
Belgium	47 000	12 824	59 824
Portugal	50 000	0	50 000
Germany	0	45	45 250
Poland	0	44	44 100
New Zealand	0	40	40 500
Switzerland	0	8	8 700
Netherlands	0	120	120
Total	12 153 000	2 589 369	14 742 369

Sources: First column: UNEP, "Report of the First Extraordinary Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer", Doc. No. UNEP/OzL.Pro.ExMP/1/3, UNEP, Nairobi, 27 March 2004, p. 26; www.unep.org/ozone/Meeting_Documents/mop/Ex_mop/1ex_mop-3.e.pdf; second column: UNEP, "Report of the Sixteenth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (Advance copy)", Doc. No. UNEP/OzL.Pro.16/17, UNEP, Nairobi, November 2004, pp. 34-45, www.unep.org/ozone/Meeting_Documents/mop/16mop/16mop-17.e.pdf.

A process was also created to allow exemptions from the methyl-bromide phase-out schedule for "critical uses". In August 2003 the Methyl Bromide Technical Options Committee of the United Nations Environment Programme's (UNEP) Technology and Economic Assessment Panel (TEAP) released a draft (version 3) of a "Handbook on Critical Use Nominations for Methyl Bromide" (UNEP, 2003), and in March 2004 the meeting of the Parties approved, on recommendation of the MBTOC, 12 153 tonnes of critical use exemptions for 2005. By comparison, in 2001 total consumption of methyl bromide by all 34 developed countries was 23 488 tonnes (developing countries consumed 18 058 tonnes). On top of these exemptions, in November 2004 the Parties to the Protocol agreed to permit an additional 2 589 tonnes worth of exemptions in 2005. In all, 17 developed countries received critical-use exemptions, of which more than half were allocated to the United States (Table 12.1). At the same time, the Parties approved a total of just over 11 700 tonnes worth of exemptions in 2006, and "provisionally" approved a further 3 000 tonnes worth of exemptions, subject to a review by scientific and technical experts.

Soon after the Copenhagen Amendment was adopted, several OECD member countries developed regulations banning the use of methyl bromide for certain uses, and, in some cases, altogether (Table 12.2). The US Environmental Protection Agency at one point considered accelerating the phasing out of methyl bromide in the United States, but in light of the 1997 Montreal Amendment to the Protocol (and changes to the Clean Air Act enacted in 1998), it conformed the US methyl bromide phase-down schedule to that specified for all industrialised nations under the Protocol. The possible trade effects of a ban were, and remain, a major issue for the agricultural sector, as summarised in an industry newsletter published before the multilateral targets were adopted (Babb, 1995):

> First, although domestic farmers will be banned from using methyl bromide, *no limitations will be imposed on the importation of crops* and other products that have been treated with methyl bromide outside the United States. This inequality has angered opponents of the phase-out, who feel it makes US farmers less competitive because, they claim, alternatives to methyl bromide are less effective and more expensive. Second, because some countries require methyl bromide treatment as a condition of entry for agricultural products, *a ban on the chemical will preclude exporting to certain markets*.… Third, *large quantities of products imported by the United States* and formerly treated with methyl bromide upon entry *will have to be banned*, re-exported, destroyed, or treated with alternative pest control methods to make them safe for consumption. [emphasis added]

Because the use of methyl bromide for the purposes of quarantine and pre-shipment was exempted from the Montreal Amendment's phase-out schedule, concerns about possible trade effects stemming from a total ban have become moot. However, such "critical uses" (which also include some preharvest uses as well) have yet to be fully defined and enumerated under the Protocol.

Meanwhile, anti-methyl bromide advocacy and lobby groups in several countries have begun to ask supermarkets and other retail outlets to label products that were produced without methyl bromide. Since 1998, for example, Australian campaigners have been developing a scheme to label fruit and other products sold in that country as "methyl-bromide-free". The Food Commission, a UK-based consumer advocacy group, has called for a similar labelling schemes in the United Kingdom, and has asked supermarkets to label fruits and other produce as "Grown without use of methyl bromide" (Ojanji, 2001). Meanwhile, various eco-labelling schemes in northern Europe (see

Chapter 17) have made strict avoidance of methyl bromide and other soil fumigants a criterion for the use of their seals. Changes in importers' laws relating to the labelling of produce as "organic" have also meant that fruits and vegetables fumigated with methyl bromide to control for pests after harvesting could not be sold as organic.[2]

Table 12.2. OECD countries restricting or phasing out methyl bromide before Montreal Protocol deadlines

Country	Action	Other restrictions
Canada	25% reduction in 1998; phase out by 1 January 2005, with intermediate steps.	—
European Union	Accelerated schedule: 60% reduction by 2001, 75% reduction by 2003	Quarantine and pre-shipment uses capped at 1996-98 levels; "critical use" exemptions to be re-examined annually
Austria	Prohibited as of 1 January 1998	—
Denmark	Prohibited as of 1 January 1998	Phase-out includes quarantine and pre-shipment uses
Finland	Prohibited as of 1 January 1999	Phase-out includes quarantine and pre-shipment uses
Germany	Soil uses not permitted since the 1970s. Treatments for foodcrops and stored grains have been phased out	—
Italy	Use prohibited in region of Lake Bracciano; Fields may be fumigated only one year in two in all other regions; allowable application rates reduced	—
The Netherlands	Soil uses not permitted since 1992	
Sweden	Soil uses prohibited in 1993; structural and post-harvest uses prohibited as of 1 January 1998	—
Iceland	All uses prohibited since 1994	—
New Zealand	25% reduction in 1998, 35% reduction in 1999, 45% reduction in 2000, 60% reduction in 2002, 75% reduction in 2004, phase-out by 2005	—
Switzerland	Soil uses not permitted since the 1970s	—

Source: Schafer (1999).

Trade issues and the responses of developing countries

The responses of developing countries to the setting of multilateral targets for phasing out methyl bromide have been mixed. Some developing countries, such as Jordan and Guinea, have voluntarily set time frames to phase out the chemical by 2005, *i.e.* within the same time-frame as developed countries. One incentive for Jordanian agriculture is to try to expand its export base. But its motivation also appears to be accelerated by the numerous injuries that are caused each year by improper handling of the toxic chemical.

Those countries that have resisted the targets have generally expressed concern about the cost-effectiveness of alternatives. This has been a central issue among affected user groups in countries as diverse as Chile, Indonesia, Kenya, Myanmar, Paraguay and Sri

2. See, for example the article by Philippa Stevenson, "Organic Growers Get Helping Hand", *The New Zealand Herald*, 6 May 2002, www.nzherald.co.nz/storydisplay.cfm?storyID=1843614&thesection=business&thesubsection=agriculture.

Lanka, but also among users in many OECD countries. Another concern frequently voiced by developing-country exporters is that even though they would like to phase out the substance, they are still required by several OECD countries to use it for pre-treating commodities (or the wooden packing crates in which they are shipped) prior to export (Schafer, 1999). Finally, some in the industry worry that, having found an alternative to methyl bromide in a particular use, they may be unable to export to certain countries because those countries will have not yet adopted an import tolerance for the particular pesticide/crop combination.

As the production and consumption of methyl bromide is phased out and banned in more developed countries, some have predicted that manufacturers of the substance will be tempted to sell increasing quantities to developing countries that do not have vast resources to invest in researching safer alternatives. Commercial farms in Africa producing cut flowers and specialty fruits and vegetables for export to developed countries are some of the most intensive users of methyl bromide in the world. Kenya, for example, uses 5% of its foreign exchange earnings to import methyl bromide (mainly from Israel); exports of cut flowers — the main crop, along with strawberries on which methyl bromide is used —account for 13% of the country's export revenue. Methyl bromide is used not only as a soil fumigant, but also as a post-harvest pest control measure in order to meet the phytosanitary requirements of its import markets. If cost-efficient alternatives to the pesticide are not found before it is completely banned, farmers in Kenya and elsewhere may have no other choice than to stop producing these export products completely.[3]

Responses to developing-countries' concerns

Multilateral responses

Initially, there was no special mechanism to assist developing country parties to the Montreal Protocol to comply with its control measures. At their second meeting (London, June 1990), however, the Parties established The Multilateral Fund for the Implementation of the Montreal Protocol to provide financial and technical assistance, including the transfer of technologies, to meet that need. The Multilateral Fund, which began operating in 1991, is financed by contributions from industrialised countries. As of 28 February 2001 the contributions made to the Fund had amounted to USD 1.22 billion. Projects to find or develop alternatives to methyl bromide became eligible for support from the Fund in 1995, when developing countries were given a target date (2002) for freezing the use of methyl bromide (Schafer, 1999).

The Multilateral Fund is currently financing 58 methyl bromide alternatives projects in 36 countries to help those countries efficiently and cost-effectively phase out methyl bromide. Multilateral Fund projects are implemented in partnership with the governments of developing countries by the United Nations Development Programme (UNDP), its Environment Programme (UNEP) and its Industrial Development Organisation (UNIDO), along with the World Bank and the development agencies of industrialised countries. In addition, the Food and Agriculture Organization (FAO) is assisting UNEP to create awareness among farmers on this issue. Among the recent products of this collaboration are a manual for training extension workers and farmers on alternatives to methyl bromide for soil fumigation, and a report on validated alternatives to the use of methyl

3. "Danger Chemical Behind Nation's Multi-billion Cut Flower Industry", *The East African Standard* (Nairobi), 18 March 2002, http://allafrica.com/stories/200203180130.html, accessed 30 July 2002.

bromide for soil fumigation (www.uneptie.org/ozonaction/library/reports/main.html; www.efi.fi/cis/english/creports/netherlands.html).

To communicate the results of their demonstration projects, UNEP and UNIDO have jointly established a special web-site, "MAP to a Healthy Harvest" (www.uneptie.org/unido-harvest). The Web site is the first to provide information on the experiences and results of methyl-bromide alternative projects and is intended to be used as a tool in efforts to adopt more environmentally sustainable agricultural practices. As more information from these projects becomes available, the Web portal will be updated regularly and support other OzonAction Programme efforts, such as the Regular Update on Methyl Bromide Alternatives (RUMBA). A selection of UNEP and UNIDO activities is described below.

UNEP

In 1992 UNEP established a Methyl Bromide Technical Options Committee (MBTOC) to identify existing and potential alternatives to methyl bromide. The MBTOC reports to the TEAP, which advises the Parties on scientific, technical and economic matters related to the control of ODS and alternatives. The Committee currently consists of 39 members from 23 countries representing a wide range of methyl-bromide-related expertise, including scientists, users, NGOs and government representatives. UNEP also provides various clearinghouse services (*e.g.* the training and networking of ODS officers), as well as assistance with the development of national ODS phase-out strategies and support for the strengthening of institutions.

Early in 2001, UNEP and representatives of ten environmental and agricultural NGOs from around the globe convened in Paris to launch a joint initiative that will raise awareness about methyl bromide in ten developing countries. UNEP's Methyl Bromide Communication Programme is the first project under the Montreal Protocol for which funds have been provided to utilise the expertise of NGOs in phasing out ozone-depleting chemicals. At the meeting, NGOs developed strategies for reaching farmers and other pesticide users, including organising workshops with farmers, meeting with government officials and developing press strategies. These organisations are now carrying out the communication programmes in their own countries.

UNIDO

UNIDO's role involves setting up demonstration projects to evaluate various chemical and non-chemical alternative technologies, generally as part of an Integrated Pest Management (IPM) programme tailored to local farming conditions. The first of these projects began to take shape in 1997 and now cover 12 different crops and eight different commodities and structural applications. Although these projects do not lead to a direct reduction of methyl bromide, the evaluation of alternatives under local conditions paves the way for successful future investment projects. As of August 2000, 32 projects had been completed. The main emphasis of this assistance lies in:

- Providing policy advice, and capacity building to the governments and various key players of the relevant industries.
- Creating and enhancing awareness of the environmental hazard posed by methyl bromide.

- Training and development of skills in using cleaner production technologies, as well as in testing, quality control and standardisation.
- Technical and financial support to enterprises in converting their production lines to ozone-friendly technologies.
- Replacing or retrofitting equipment for adaptation to the new substances.

National responses

In addition to contributing to the Multilateral Fund, several OECD countries have also helped developing countries through other mechanisms. Several have created Web sites dedicated specifically to disseminating information on their regulations affecting methyl bromide and on alternatives to its use.[4] Many are supporting research into methyl bromide alternatives for crops that are also grown by developing countries, and a few of their development agencies are rendering more direct assistance. For example, Germany's Agency for Technical Co-operation (*Gesellschaft für Technische Zusammenarbeit* [GTZ]), which implements technical co-operation projects with developing countries on behalf of the German Federal Ministry for Economic Co-operation and Development, has given a high priority to the rapid phase-out of methyl bromide. GTZ has undertaken a variety of agricultural projects with developing country partners and agricultural agencies. They include:

- IPM projects in Argentina, China, Egypt, El Salvador, Ghana, Honduras, Jordan, Madagascar, Malawi, Mauritania, Morocco, Panama, Syria, Tanzania and Thailand.
- Pesticide projects in Brazil, China, Jamaica and Mozambique.
- Regional projects in biological plant protection for food crops in 26 countries in Africa: IPM for vegetables and fruit crops in six countries; post-harvest protection in for countries; research and development projects on a variety of agricultural issues; and pesticide control and disposal services worldwide.5

Concluding observations

The process by which the ozone-depleting chemical, methyl bromide, is being phased out provides an example of the benefits of reaching multilateral consensus on the banning of a substance that is harmful to the environment at a global scale. First, participation in the development of the measure itself was open to all countries, including developing countries. Second, developing countries were given extra time to implement the measure. From the start, the Parties to the agreement anticipated the adjustment problems that developing countries would face in finding alternatives to the banned substance and learning how to use apply them in a cost-effective manner, and created a special fund to finance research, information dissemination activities and technology transfer. These activities are already catalysing the phase-out in developing countries, to the benefit of all. However, as farmers replace methyl bromide with other pesticides, exporters and development agencies will need to work closely with regulators from importing countries to make sure that the new pesticide/crop combinations are compatible with the importers' residue tolerances for those products.

4. See, for example, those listed at www.unepie.org/ozonaction/library/otherpubs.html - national.

5. For more information see www.gtz.de/de/4030.htm.

References

"Alternatives to the Application of Methyl Bromide", www.gtz.de/post_harvest/x0279e/x0279e08.htm.

Babb, Suzanne (1995), "Debate on Methyl Bromide Ban Continues", *Market Asia*, Vol. 2.5, November-December.

FAO: Food and Agricultural Organization of the United Nations (1999), "Alternative Phytosanitary Treatments to Methyl Bromide for Tropical Fruit Exports", FAO Committee on Commodity Problems, Rome, www.fao.org/docrep/meeting/X1402E.htm, accessed 7 October 2001.

Miller, Melanie (1998), "Replacing Methyl Bromide in Developing Countries — GTZ Approach and Case Studies", in Anna Williams (ed.), *Proceedings of the 1998 Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reductions*, Methyl Bromide Alternatives Outreach (in co-operation with the Crop Protection Coalition, the US Environmental Protection Agency and the US Department of Agriculture), Fresno, California. http://mbao.org/1998airc/051miller.pdf.

Ojanji, Wandera (2001), "Rich Countries Betray Local Flower Industry", *The Nation* (Nairobi), 4 January. http://allafrica.com/stories/200101040195.html.

Schafer, Kristin S. (1999), *Methyl Bromide Phase-out Strategies: A Global Compilation of Laws and Regulations*, OzonAction Programme of the United Nations Environment Programme Division of Technology, Industry and Economics (UNEP TIE), Chatelaine, Geneva, www.uneptie.org/ozonaction/library/mmcfiles/3020-e.pdf.

Twum-Barima, Rosalind and Laura B. Campbell (1994), Protecting the Ozone Layer through Trade Measures: Reconciling the Trade Provisions of the Montreal Protocol and the Rules of the GATT, United Nations Environment Programme Division of Technology, Industry and Economics (UNEP TIE), Chatelaine, Geneva.

UNEP: United Nations Environment Programme (2003), *Handbook on Critical Use Nominations for Methyl Bromide*, Prepared by the Technology and Economic Assessment Panel and Methyl Bromide Technical Options Committee, UNEP, Paris.

Wildfeuer, Sherry (1995), "What is Biodynamics?", Biodynamic Farming and Gardening Association, San Francisco, www.biodynamics.com/biodynamics.html.

Government Regulations Affecting Trade in Products of Organic Agriculture

Chapter 13

Standards for Organic Foods and Beverages

This chapter draws attention to the complexity of setting standards for "organic" goods and beverages, a growing market particularly in the developed countries.

Introduction

The three case studies in this section relate to national regulatory frameworks for products of organic agriculture. The frameworks typically establish standards over a wide range of areas. Most standards relate to a single sector of the economy, such as those that specify the safety features of electrical appliances (Vaupel, 2001). Organic standards, however, must address many issues: production methods; certification; accreditation of the certifying bodies; the use of labels and other indications; chain-of-custody management; surveillance systems to protect consumers against fraud; and special procedures for clearing customs.

As defined by the Codex Alimentarius Commission (FAO/WHO, 1999), organic agriculture is a holistic production management system that:

> promotes and enhances agro-ecosystem health, including bio-diversity, biological cycles and soil biological activity. It emphasises the use of management practices in preference to the use of off-farm inputs .... This is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system.

Consumers who buy products of organic agriculture rather than (generally less expensive) products of conventional agriculture usually do so for one or more of the following reasons: *i)* they consider organic agriculture to be less harmful (or even beneficial for) the environment compared with other farming methods; *ii)* they believe that the foods and beverages produced by organic agriculture are more "healthy" (*e.g.* contain a better balance of trace minerals), or at least safer to eat, than similar products of conventional agriculture; and *iii)* they prefer to purchase products from family-owned farms, or at least farms that are smaller on average than those not applying organic techniques (though there is no reason why the size or ownership structure of organic farms need be different from "conventional" farms).

Increasing consumer emphasis on what they consider to be safer and more environmentally friendly food has helped to fuel a phenomenal expansion in the market for products of organic agriculture over the last decade. The average annual growth rate has been 25%, varying from 10% to 50% in different markets (ITC, 2001; Rundgren, 2000). The world market for organic products was worth around USD 25 billion in 2004, of which 15% was traded. Imports of organic products are evenly divided between the United States (47%) and the EU (42%), with Japan taking most of the rest (11%). Farmers earn a premium of about 15% to 30% for organic foods or beverages, depending on the product and the market.

Standards for organic foods have certainly helped increase consumer confidence and reduced fraudulent claims, a major reason given by governments for establishing national standards. A survey by the International Organic Accreditation Service (IOAS) found that some 32 countries have fully implemented rules regulating what can be sold as "organic", and almost as many are currently drafting or in the process of implementing or drafting regulations (Commins and Kung Wai, 2002). Some of these rules only cover standards relating to production, *e.g.* what substances can be added to soils or sprayed on plants, how long the conversion period from conventional agriculture must be, how organic plots must be segregated from non-organic plots, and so forth. The three countries discussed in Chapters 14-16, however, all have comprehensive regulations, with provisions for supervising and approving or accrediting certifiers (Bowen, 2002).

In addition to these national standards are those that have been developed by private bodies. The pre-eminent private standard is the IFOAM Basic Standard (IBS), which was initially published in 1980 by the International Federation of Organic Agriculture Movements, a non-governmental organisation founded in 1972. The IBS has continued to be revised, generally every two years, most recently in August 2002 (Mattsson, 2002). The IBS aims at international harmonisation, while allowing for adaptation nationally and regionally. In 1992 IFOAM established an independent Accreditation Programme (the IOAS), which provides for multilateral agreements between accredited certifiers through recognition of functional equivalence (on the basis of the IFOAM International Basic Standards) and bilateral acceptance between two certification bodies (based on products and additional bilateral requirements).

Table 13.1. Chronology of major milestones in the development of organic standards

Year	Event
1967	The Soil Association (United Kingdom) publishes the first organic standards
1972	Founding of IFOAM
1974	Oregon State (United States) adopts organic legislation
1979	First California Organic Foods Act enacted
1980	IFOAM Basic Standards published
1985	France enacts organic legislation
1990	Organic Foods Production Act passed in the United States
1991	EU Regulation 2092/91 adopted
1992	Establishment of the IFOAM Accreditation Programme
1992	Codex Alimentarius Commission starts developing guidelines
1999	Codex Alimentarius guidelines adopted
1999	EU organic livestock regulation published
2000	Japanese organic regulation published
2000	US national organic standards published
2001	Japanese organic regulation comes into effect on 1 April
2002	US national organic standards come into effect on 21 October

Source: Adapted from Rundgren *et al.* (2002).

More recently, international guidelines for organic standards have been developed by national governments co-operating through the Codex Alimentarius (a joint FAO/WHO commission for food standards). Work on these guidelines started in 1992, and they were finally adopted in 1999.

As can be seen from Table 13.1, private, national government and international governmental standards, regulations and guidelines have emerged at different times and have influenced each other to varying degrees. Japan, for example, was able to draw heavily on the Codex guidelines in developing its own regulations; the EU, which promulgated its regulations before the Codex Alimentarius Commission started work on its guidelines, did not have that option.

"The result", as Diane Bowen wrote recently for an OECD workshop on organic agriculture (Bowen, 2002), "is at present, an increasingly chaotic system for international

trade of organic products." She further notes that this situation is ironic, given that one of the main aims of establishing organic standards and regulations has been to foster the market for organic products. Observers of international trade have identified several systemic problems and challenges that have resulted from this welter of standards and conformity assessment procedures (Crucefix, 2002):

- Import discrimination whereby compliance is required with standards not always suitable to the agro-ecological conditions of exporting countries.
- Multiple accreditation of certification bodies in order to access the three main organic agriculture markets (Europe, Japan and the United States).
- Multiple certification of organic producers and traders in order to access the three main organic agricultural markets.
- Difficulties for traders, due to different interpretation of rules by certification bodies.
- Enormous workloads (and delays) for authorities in negotiating bilateral equivalency agreements.
- Limitations of the effectiveness of bilateral agreements in cases of products with ingredients sourced from around the globe.
- Lack of recognition by national regulations of private multilateral agreements, such as that between IOAS-accredited certification bodies.

These issues are explored in greater depth in Chapters 14-16.

References

Bowen, Diane (2002), "International Harmonisation of Organic Standards and Guarantee Systems", paper presented to the OECD Workshop on Organic Agriculture, 23-26 September,Washington DC.

Crucefix, David (2002), "Report of the IFOAM Conference on Organic Guarantee Systems", International Federation of Organic Agriculture Movements (IFOAM), Tholey-Theley, Germany, www.ifoam.org/.

Commins, Ken and Ong Kung Wai (2002), "Status of National Organic Regulations", in G. Rundgren and W. Lockeretz (eds.), *IFOAM Conference on Organic Guarantee Systems: Reader*, International Federation of Organic Agriculture Movements, Tholey-Theley, Germany, pp. 8-11.

ITC: International Trade Commission (2001), *Overview of World Markets for Organic Food & Beverages 2000* (estimates), Geneva.

Mattsson, Eva (2002), "IFOAM Adopts Revised Basic Standards", *The Organic Standard*, Issue 17, September, pp. 11-12.

Rundgren, Gunnar (2000), "Organic Markets", paper prepared for the conference, *Entering the World Organic Trade*, Bangkok, November, www.grolink.se/papers_studies.htm

Rundgren, Gunnar, Suzanne Vaupel, David Crucefix and Francis Blake (2002), "History of Organic Certification and Regulation", in G. Rundgren and W. Lockeretz (eds.), *IFOAM Conference on Organic Guarantee Systems: Reader*, International Federation of Organic Agriculture Movements, Tholey-Theley, Germany, pp. 5-7.

Vaupel, Suzanne (2001), "The International System of Standards and Conformity Assessment", IFOAM Discussion Paper (May), International Federation of Organic Movements, Tholey-Theley, Germany.

Chapter 14

The European Union's Import Procedures for Organic Foods and Beverages

This chapter describes EU import procedures for organic foods and beverages. It describes problems that have arisen for the certification or accreditation of producers, notably in developing countries. Examples are taken from Uganda, Chile and Mexico.

Introduction

In June 1991 the European Union (EU) enacted a new, Community-wide regulatory framework for "organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs". Council Regulation (EEC) No. 2092/91 (henceforth "the Regulation") provides for:

- A set of minimum production and processing rules that must be satisfied in order for a product to be labelled "organic".
- A specific inspection regime that is obligatory for all operators involved in the placing of products from organic farming on the market, whether they are produced in the EU or imported from third countries.

A major objective of the Regulation was to provide the organic farming sector with a precise, legal definition of the term "organic", thereby harmonising the multitude of definitions existing at the time in EU countries. The adoption of Community-wide standards has made it easier for EU consumers to identity products of organic farming and has provided them with assurances that these products have indeed been produced organically.

The impact of the Regulation on developing country exporters has been mixed, however. On the one hand, it has created new opportunities for exporters. Besides being a major producer, the EU is also one of the world's largest import markets for products of organic agriculture. About 80 countries, 60 of them developing countries, currently export certified organic foodstuffs to the EU (European Commission, 2000). Coffee, tea, bananas and other tropical fruits are among the products most commonly imported from developing countries.

However, the nature of the rules poses difficulties for countries where natural conditions differ significantly from those in Europe and for countries with weak governmental structures. Moreover, because much of the implementation of the Regulation has been left to the discretion of the EU's member states, multiple interpretations of particular rules are possible. In particular, import procedures, introduced on a temporary basis to provide alternative routes for imports from countries unable to obtain an equivalency agreement with the EU, have led to delays in shipments and uncertainty about future access to the EU market. These problems have affected exporters in a number of developing countries. The examples discussed below involve Uganda, Mexico and Chile.

The European Commission has responded to these problems by developing a new "European Action Plan for Organic Food and Farming". Among the changes in policy envisaged is increased support for capacity building in developing countries in favour of organic agriculture. The Commission is also exploring what further measures could be used to facilitate trade in organic products from developing countries.

Development of the environmental measure

Organically labelled products were considered with suspicion by many segments of the European industry during the 1970s and 1980s, including farmers that applied conventional technologies and practices, food processors and even some public administrations. Consumers also found the plethora of logos and product claims confusing and less than fully trustworthy. The lack of a clear definition of the term

"organic" in the European Union, and of a well-organised inspection system, were identified as major problems. In the 1980s organic farmers in the European Union initiated work on a legal framework for organic agriculture, which eventually culminated in 1991 in the publication of Council Regulation (EEC) No. 2092/91.[1]

Although the objective of organic farming is to develop environmentally sustainable agricultural practices, the main aim of the Regulation was to protect consumers from dishonest marketing and to ensure fair competition among producers. However, the Regulation is also intended to enable farmers applying organic production methods to compete with producers that do not apply organic production methods, or who apply them only to a limited extent. The drafters of the Regulation felt that such protection was needed to encourage farmers to make the necessary investments, and undergo the transition period, required to complete the conversion from conventional to organic farming. To help them in this conversion process, many member states have provided financial support to producers, which is matched by the European Commission under its agri-environmental programmes.

Since the EU was the first legislative body to develop a national regulation on organic agriculture, it could not harmonise its rules with those of other countries.[2] There already existed, however, a set of "Basic Standards of Organic Agriculture and Food Processing", which had been developed during the 1980s by the International Federation of Organic Agricultural Movements (IFOAM), a non-governmental federation of organic producers, processors, traders and institutions involved in research and training. Indeed, IFOAM had been one of the groups lobbying the European Community in the 1980s to ensure that its planned regulation of organic food production furthered the development of organic agriculture. Nonetheless, no formal procedure was followed to harmonise the two sets of standards.[3]

While the Regulation applies throughout the Community, many of the details relating to its implementation differ from one member state to another. For example, some countries apply additional public standards that affect organic production, especially with respect to animal husbandry. In the area of labelling, overlapping rules apply. The EU has developed a single logo for organic products (Figure 14.1), but it can only be used for products originating within the EU. At the same time, six member states have developed public labels of their own, and in several of them restrictions apply to the use of these logos on products originating from outside the EU. France's "AB" (*agriculture biologique*) logo, for example, can be used on foodstuffs containing plant products produced in a third country only if the raw materials are unavailable or cannot be produced within the EU (Rundgren, 2002).

1. DG Agriculture, Unit for quality of agricultural products, Sub-unit for quality policy, is in charge of the Regulation 2092/91 and the Article 14 committee (which decides on amendments and implementation measures). Supervision of the Regulation is carried out by Food and Veterinary Office, SANCO D3. In addition, the DGs responsible for environment, legislative matters and labelling, and the internal market are consulted to a certain extent when new proposals are prepared.

2. Lately, however, the European Commission reached an agreement with the Japanese government on the recognition of equivalence of the EU Regulation by the new regulatory system in Japan (at present one-way: only for EU exports to Japan); see *The Organic Standard*, Issue 2, p. 10. An equivalency agreement between the United States and the EU does not seem to be "on the immediate horizon" (Bowen, 2001).

3. Although they differ in terms of structure and detail, the EU Regulation and the IFOAM Basic Standard are broadly similar in substance.

Figure 14.1.The European Commission's organic logo

Another distinctive feature of the EU system is that both semi-governmental organisations and private bodies are involved in certifying organic production. However, private certification bodies are not automatically authorised to operate across the EU, and in Austria, Germany and Spain, certification bodies have to obtain separate approval from each region or state in which they operate (Rundgren, 2002). In Denmark and Finland, the inspection of organically produced food is integrated into the normal food inspection systems, rather than involving separate certifiers.

Responsibility for the "approval" and supervision of certification bodies (referred to as "inspection authorities" in the Regulation) rests with the designated competent authority, usually the member state's Ministry of Agriculture or an agency designated by that ninistry. The EU's executive body, the European Commission, does not normally approve the credentials of certification bodies.[4] However, private certification bodies have to fulfil the requirements of the EN 45011 norm. Basically, this is the European edition of the International Organization for Standardization's (ISO) Guide 65, "General Requirements for Bodies Operating Product Certification Systems"; in four EU member states the competent authorities insist on full accreditation to EN 45011 as proof that the certifying organisations fulfil the norm's requirements.

Except in Austria and the United Kingdom (which charges a GBP 339 initial application fee and a GBP 339 annual fee), the member states' competent authorities do not charge private certification bodies for approving their credentials. By contrast, charges for accreditation — which many member states require of certifiers operating outside the EU and which is typically carried out by national accreditation bodies — can range from below EUR 5 000 to EUR 20 000 a year (Rundgren, 2002). No specific allowance is made for IFOAM accreditation. Nevertheless, eight certification bodies in the EU have already received IFOAM accreditation or have applied for it; these bodies all operate in countries where accreditation to the EN 45011 norm is not mandatory.

There is no evidence that developing country interests were explicitly considered in the design of, or in the process of amending, the rules. Initially, information about the rules reached exporters and exporting countries primarily via importers and certification bodies. An accessible brochure describing the rules, which devoted two pages to import procedures, was issued only in 2000 (CEC, 2000b). Nowadays, information is also provided in several languages on the Commission's Web site (http://europa.eu.int/comm/agriculture/qual/organic/index_en.htm).

4. The main exception occurs when an EU member state requests the Commission to approve a third country's inspection body and asks that it be added to the "list". This Article 11(7) procedure has been used only once in respect of a certification body from Hungary (Kung Wai, 2001).

The Regulation allows two main procedures for allowing imports from third countries. The original intention was that imported products would be marketed as organic in the EU only if they came from countries with which the European Commission haD established equivalence, *i.e.* countries able to guarantee that any organic product exported to the EU fulfils requirements equivalent to those of the Regulation [Article 11(1)]. In order to be included on this "third-country" equivalence list, the exporting country's government must, among other things, adopt a national standard for organic production, supervise and approve inspection bodies (private or official), and set up a system to issue official certificates. Once the Commission has assessed and approved a country, it is the exporting country that guarantees that the products fulfil the EU requirements. At present, six countries are listed: Argentina, Australia, Costa Rica, Israel, New Zealand and Switzerland. In Argentina's case, a favourable equivalence determination was made in 1996, almost four years after receipt of its request. Costa Rica applied for a determination of equivalence in February 1999 but only recently received it. About 20 countries have applied to be listed, and a larger number of countries have signalled interest but have not yet completed applications.

When the Regulation was introduced, it soon became evident that the process of approving countries was too lengthy to ensure an adequate and reliable supply of organic foods. An exceptional way of approving imports was therefore added, Article 11(6), known also as the "importer derogation".[5] Today, the large majority of imports still enter through Article 11(6) procedures. Under these procedures, imported organic products may be marketed as such if the importer can furnish the competent authority in the member state with satisfactory proof that the product was produced and inspected in accordance with the EU rules. Responsibility for import approval is thus placed on the member states. The exception was to be limited to a few years, but has since been extended several times, most recently to 31 December 2005.

In September 2001 the European Commission issued Regulation (EC) No. 1788/2001) which mandates that *original* certificates of inspection must now be presented at the point of entry[6] into the EU.[7] (Previously, the original copy of these certificates only had to be delivered to the premises of the first consignee.) The new Regulation, which went into effect on 1 November 2002, must also be used for imports covered by individual marketing permits.[8]

5. In total, since its introduction, Council Regulation (EEC) No. 2092/91 has been amended more than 25 times.

6. These certificates do not need to physically accompany the consignment of goods. However, the sooner the certificate reaches the competent authority, the sooner they can endorse it.

7. A proposal was also circulated to introduce requirements for "transaction certificates" for intra-EU trade, in order to prevent fraud; among other requirements, it would have required the same kind of documents as are now needed for all imports to the EU. The proposal has not been accepted, however, because it is seen as too costly and bureaucratic for traders (see *The Organic Standard*, Issue 4).

8. In detail, the certification body operating in the third country must issue the certificate of inspection as a single original, after checking the inspection documentation and the commercial documents of the consignment. In the case of marketing authorisations operating in accordance with Article 11(6), the competent authority of the EU member state must declare on this original certificate of inspection that the consignment is covered by such an authorisation before customs procedures begin. This task may also be delegated to the importer's certification body.

Trade issues

The production rules in the EU regulation are detailed and designed in accordance with farming conditions within the EU. Importation is always possible, of course, provided that: the importer furnishes the competent authority of the importing member state with sufficient evidence that the imported products were produced according to production rules equivalent to those laid down in Article 6 of the Regulation; that the products were subject to inspection measures of equivalent effectiveness to those referred to in Articles 8 and 9; and that these inspection measures are consistently and effectively applied.

The system, however, especially its positive lists of authorised substances,[9] is relatively inflexible and must be adjusted when it is to be applied, for example, in areas with climate conditions that differ from those in which the standards were developed. (Adaptation to local conditions is one of the principles of organic farming.) The nature of the rules is generally not a problem for exporters in listed countries, where only equivalency with the Regulation is required, although there are signs that legislators in exporting countries "copy" the EU Regulation instead of developing legislation more suitable to local conditions (Axelsson Nycander, 1999). This situation is more troublesome for exporters from non-listed countries, who must follow the EU Regulation more strictly.

The listing procedure implies that organic farmers in non-listed countries may be at a disadvantage. Organic producers in countries that lack a functioning state administration, or where the state does not feel it has enough resources to develop the necessary legal and administrative framework for organic farming, are barred from using Article 11(1) procedures, even if their products are certified and meet the EU requirements for cultivation. The Article 11(6) procedure has been offered as an alternative, but it entails much more paperwork for exporters, importers and inspection bodies. And, in contrast with the 11(1) procedure, specific import permissions need to be obtained for each consignment. Another problem is that, in practice, Article 11(6) procedures are applied differently in different member states. The result is arbitrary decisions, uncertainty and greater information requirements for exporters and importers, and distorted trade.

One of the consequences of Regulation (EC) No. 1788/2001, if applied as expected, is that the time period during which the third country's certification body must carry out the necessary inspections and issue an original certificate of inspection may be inconveniently short, especially for products that are normally sold in the fresh state. (Applications for marketing permits must be presented to the competent authority of the importing member states some months before products can be imported.) These new regulations are expected to limit flexible reactions to short-term offers in the organic marketplace, and companies that regularly split consignments will be faced with greater bureaucratic obstacles than those that keep consignments whole.

The fact that the Article 11(6) importer derogation is slated to expire on 31 December 2005 naturally generates a great deal of uncertainty, and normally would make it difficult for producers to make long-term investments in forging strong export relationships. In a

9. The substantive requirements in the EU Regulation are structured as positive lists, *i.e.* they set out in detail what methods and substances (*e.g.* wood ash) may be employed. There are no clear criteria or procedures for including new substances on the positive lists of authorised substances.

study on Uganda, however, it was found that no exporters were even aware of the fact that, formally, Article 11(6) would be closed within a few years' time (see below).

Smallholder group certification

In developing countries, where many farmers are poor and cultivate small plots of land, inspection and certification is excessively expensive. In most developing countries, therefore, group certification based on internal control systems (ICSs) is practised. Group certification is possible only when there are sufficiently large numbers of farmers growing the same crops by the same methods and under similar conditions. In early 2001 delegates at a workshop which brought together certifiers, producers' groups, traders and competent authorities from all over the world agreed on a definition of an ICS: "a documented quality assurance system that allows the external certification body to delegate the annual inspection of individual group members to an identified body or unit within the certified operator" (Elzakker and Schoenmakers, 2001). The idea is that the main task of the certification body is to evaluate the proper working of the ICS, rather than do the primary inspections. IFOAM has developed criteria[10] for smallholder group certification.

The EU Regulation was developed for European conditions and does not give clear room for recognising the work of an externally inspected ICS and accepting group certification. According to EU rules, each farmer has to be inspected annually by an independent inspector. In practice, EU member states treat group certifications differently, again creating uncertainty among producers and in many instances causing shipments to be delayed or stopped. For instance, one member state has requested that at least 25% of all farmers must be externally inspected every year, where as others require 5% or 10% or no set figure (Elzakker and Schoenmakers, 2001).

Accreditation or conformity with ISO 65 or EN 45011

Accreditation — or quality control of bodies that perform inspection, tests or certification — is becoming more widespread but has not yet broken through in all areas. In the food inspection area, for example, there are typically only one accredited certification body in most European countries. Since 1 July 1999, all bodies inspecting organic production must conform to European standard EN 45011 (or equivalently, ISO 65). The guarantee that the bodies conform to the EN standard can either be given by an official accreditation organisation, or in the case of EU member states and "listed" countries, by the country's competent authority. The requirement has created acute problems for organic exporters in developing countries where accredited certification bodies are virtually non-existent owing to the length and cost of the process or because the country has no official accreditation body. In particular, it disqualifies a number of developing country certifiers (*e.g.* in Chile) that previously had been active in certifying exports to the EU (Twarog and Vossenaar, 2002).

Based on the ISO 65 criteria, IFOAM has developed an accreditation system specifically for organic farming. The accreditation is carried out independently by the International Organic Accreditation Service (IOAS). Unlike the EN or ISO standards, this

10. The criteria require annual internal inspections of all operators, as well as an annual inspection of the group by an external inspection body. The proportion of farmers that must be externally inspected varies depending on the number and size of the operations involved, as well as the degree of uniformity, the production system and the management structure.

system focuses on production rather than product certification, and it applies not only to the structure and processes of the inspection bodies but also to practical supervision activities. Discussions with the European Commission over the last four years about what is needed for the IFOAM accreditation system to be deemed equivalent to ISO 65 has not yet led to any clear result. In practice, however, IFOAM accreditation is accepted by several EU member states. In many markets, retailers think IFOAM provides the best guarantee that production inspections are carried out thoroughly. Again, different application of rules in different member states can create an uncertain situation for exporters.

Developing-country responses

Since 1991 several countries have implemented laws to regulate production, sales and trade in organic goods (Vaupel, 2001a). Many of these, especially exporting countries, have patterned their laws on those of the EU, largely as a way to secure continued access to the EU market.[11]

Uganda

Uganda has emerged over the last six years as the leading African country in organic production. Some 20 000 smallholder farmers manage about 50 000 hectares (1.6% of the cultivated land area), producing organic arabica and robusta coffee, cotton, sesame seeds and a variety of fruits (Walaga, 2001).

A case study on organic exports from Uganda to the EU showed that organic exporters face many constraints (Axelsson Nycander, 2000). Many of these, such as high transport costs, certification and separate handling of the products, as well as lack of access to specific market information, relate to bottlenecks in the early phases of market development. The study found, moreover, that the EU import regime was exacerbating a number of these problems. Most exporters that were interviewed complained that they lacked information about what rules applied. The three exporters that had already tried to ship certified foodstuffs had experienced delays in obtaining the necessary import licences. Since customers may lose interest if there are delays, and because the quality and value of agricultural products degrades quickly over time, such delays may have severe consequences. For instance, the products may have to be sold as conventional (*i.e.* non-organic) products at a much lower price.

One case in point was the first organically certified robusta coffee, which was ready for export by September 1999. Import clearance was held up for several months, and by the time the clearance was obtained, the customer had lost interest. In February 2000, the two containers were still at the factory in Kampala. The delays were due to the fact that certification by the Swedish certifier KRAV was not readily accepted by some EU member states. The problems were partly caused by general confusion about how the requirement that inspection bodies must conform to EU standard EN 45011 should be enforced. It is difficult to clarify exactly what happened in such cases, and to find out whether the exporter, importer, certifier or governmental authority in the importing country sent or did not send the necessary document at a certain point in time. Suffice it to note that, because so many parties are involved, and specific importing licences have to

11. For an account of the development of legislation on organics in Central America and India, see Soto (2001), Mahale (2001) and Center for Science and Environment (2001).

be obtained for each consignment, the risk is high that somewhere the flow of information and documents may be held up.

Early in 2001 key Ugandan stakeholders formed the National Organic Agriculture Movement of Uganda (NOGAMU). One of the aims of NOGAMU is to persuade the government to establish a regulatory framework for organic agriculture. NOGAMU is working in close co-operation with a number of government agencies and "has learnt from the European experience and is working to avoid a situation where there are parallel organic standards under the government and the private sector" (Walaga, 2001).

Chile

Chile has been actively involved in the marketing of organic food products (mostly fresh and processed fruits and vegetables) since 1994. According to estimates for the 1999/2000 season, organic exports accounted for approximately USD 4 million. The EU has been one of its main export destinations. However, between 1998 and 2000, the share of Chile's organic food exports shipped to the EU declined drastically, from 64% to 34% (Bañados and Garcia, 2001). The decline was due both to quality-related problems with some exported products (*i.e.* medicinal herbs and wild products) and to the fact that Chilean certification bodies were no longer recognised in the EU because of the new ISO 65 requirement. Owing to difficulties in obtaining information, a study of the impact of the EU Regulation on the Chilean supply chain was unable to determine which factor was most important.

In 1999 Chile established a national organic law, including a scheme of inspection, certification and accreditation, as a response to increasing demands by international markets. One of the law's objectives was to bring the Chilean system into compliance with the strictest organic regulations, *i.e.* those of the EU. During the same year, Chile requested that it be included in the EU's list of approved countries.

Mexico

UCIRI (Union of Indigenous Communities in the Istmo Region) is an organisation of almost 3 000 small farmers in southern Mexico, with 15 years of experience in exporting organic coffee to Europe. The organisation complains that on several occasions containers have sat in ports for months because of documentation problems. Once, for example, they were finally able to get the coffee in through another EU member state, but almost lost their customer. The strict treatment of group certification seems to have been one of the reasons for the problems. Now, they say, they have to be certified by two different certification bodies (one of them Swiss) in order to continue exporting to Europe. Many smaller organisations cannot afford this, and try to be certified by US bodies and export to the United States (however, when US regulations come into effect, the situation may change). They add: "our main concern is that the new regulations create more interest in paperwork than in the actual ecology. Instead of curbing possible fraud they only increase the possibilities of fraud." (Van der Hoff, 1999, 2000)

Responses to developing-country concerns

In June 2004 the European Commission adopted a new "European Action Plan for Organic Food and Farming". The Action Plan puts forward a list of 21 concrete policy measures that it wants to see implemented, including several that would positively affect

imports from developing countries. Relevant text from Action 19 and Action 20 are given below (CEC, 2004):

> **Action 19**
>
> Step up efforts to include third countries in the equivalency list, including on-the-spot assessments.
>
> Amend Council Regulation (EEC) No 2092/91 on organic farming, replacing the current national derogation for imports by a new permanent system making use of technical equivalency evaluations by bodies assigned by the Community for that purpose. This could include, following appropriate consultations, developing a single and permanent Community list of inspection bodies recognised as equivalent for their activities in third countries not already on the equivalence list.
>
> Continue to ensure that the definition of equivalence with third countries takes into account the different climate and farming conditions and the stage of development of organic farming in each country.
>
> Upon entry into force of this system, offer all imported products access to the EU logo.
>
> **Action 20**
>
> Establish a systematic comparison between the Community standard on organic farming, Codex Alimentarius guidelines and the IFOAM standards (see also Action 2). Step up efforts towards global harmonisation and development of a multilateral concept of equivalency based on the Codex Alimentarius guidelines in cooperation with Member States, third countries and the private sector. Support capacity-building in developing countries under the development policy of the EU by facilitating information on the possibilities offered by more general support instruments to be used in favour of organic agriculture. Further measures to facilitate trade in organic products from developing countries will be considered.

This plan came in response, in part, to strong demand from consumers in recent years, but also from an awareness of the limitations of the original legislation. It is based on extensive consultations, which included an o-line consultation in 2003, a public hearing in January 2004, and meetings with EU member states and other stakeholder groups.

Concluding observations

The promulgation in 1991 of a EU-wide regulation on the organic production of agricultural products, and of procedures for certifying those products, helped to harmonise within the European Community what until then had been a highly fragmented and largely unregulated market. Consumer confidence in organic products has accordingly increased.

However, implementation of many details of the Regulation was left to the discretion of the member states, which added to the information requirements of exporters. Procedures for importing organically produced products to the EU were initially expected to be facilitated by the negotiation of equivalency agreements between the European Commission and the governments of the exporting countries. It is now evident that obtaining equivalency requires several years to negotiate, especially for developing countries. The main alternative procedure, which allows products from third countries to enter the EU if the importer submits documentation that the products have been produced

and certified according to standards equivalent to those of the EU, is more burdensome (as each consignment requires a separate authorisation), and has led in some cases to shipments being delayed. Finally, the temporary nature of this "importer derogation" added to uncertainty over future market access.

Recognition by the European Commission that the conformity-assessment procedures for importing organic produce, especially from developing countries, needed fixing, is leading to fundamental changes in its regulations. These changes, combined with a more active policy of supporting capacity building, should go a long way towards facilitating trade in organic products from developing countries.

References

Axelsson Nycander, Gunnel (1999), "Council Regulation 2092/91: Consequences for the Import of Organic Products from Developing Nations", Swedish International Development Authority (Sida). (English version 2000-03-02).

Axelsson Nycander, Gunnel (2000), *Securing Access to the EU Market: Organic Exports from Developing Countries: Case Study on Uganda*, Swedish International Development Authority (Sida), Stockholm.

Bañados, Felipe and Marian Garcia (2001), "Impact of EU Organic Product Certification Legislation on the Development of the Chilean Organic Supply Chain", presented at the *72nd EAAE Seminar Organic Food Marketing Trends*, Chania, Crete, Greece, 7-10 June, http://organic-research.com/ (requires subscription).

Bowen, Diane (2001), "The US National Organic Program: Moving Towards Implementation", *The Organic Standard*, Issue 5, September, pp. 13-14.

CEC: Commission of the European Communities (1999), Council Regulation (EEC) No 2092/91 of 24 June 1991 on Organic Production of Agricultural Products and Indications Referring Thereto on Agricultural Products and Foodstuffs (consolidated non-authoritative version).

CEC, Directorate General for Development (2000a), "Agricultural Sub-Sector Strategy Paper", Brussels. http://europa.eu.int/comm/development/body/theme/rurpol/outputs/agricultural/agriculturalssp.pdf.

CEC (2000b), *Organic Farming: Guide to Community Rules*, http://europa.eu.int/comm/agriculture/qual/organic/brochure/abio_en.pdf.

CEC (2004), "European Action Plan for Organic Food and Farming", SEC(2004)739 and COM(2004)415 final, Brussels, 10 June. http://europa.eu.int/comm/agriculture/qual/organic/plan/comm_en.pdf.

Center for Science and Environment (2001), "Untapped Potential", *Down to Earth*, Vol. 10, No. 8, 15 September.

Crucefix, David (2001), "IFOAM Accreditation: Organic Industry Self-regulation", *The Organic Standard*, Issue 2, June, pp. 15-17.

Elzakker, Bo van and Michiel Schoenmakers (2001), "Smallholder Group Certification", *The Organic Standard*, Issue 1, May, pp. 6-11.

FAO/WHO Codex Alimentarius Commission, Alinorm CAC/3232-1999.

ITC (2001), "Overview of World Markets for Organic Food & Beverages 2000" (estimates).

Mahale, Prabha (2001), "Indian Regulations for Organic Products", *The Organic Standard*, Issue 4, August, pp. 1-2.

Rundgren, Gunnar (2000), "Organic Markets", paper prepared for the conference, *Entering the World Organic Trade*, Bangkok, November, www.grolink.se/papers_studies.htm.

Rundgren, Gunnar (2002), "Overview of the Implementation of the EU Organic Regulatory System", *The Organic Standard*, Issue 9, January 2002, pp. 3-10.

Soto, Gabriella (2001), "Organic Certification in Central America", *The Organic Standard*, Issue 4, August, pp. 7-10.

Sakuyoshi, Mutsumi (2001), "Japanese Organic Rules and Implementation", *The Organic Standard*, Issue 1, May, pp. 2-5.

Twarog, Sophia and Rene Vossenaar (2002), "Obstacles facing Developing Country Exports of Organic Products to Developed Country Markets", in Gunnar Rundgren and Willie Lockeretz (eds.), *Conference Reader* for the IFOAM Conference on Organic Guarantee Systems: International Harmonisation and Equivalence in Organic Agriculture, 17-19 February, Nuremberg, Germany), www.ifoam.org/pub/reader.pdf.

Van der Hoff, Francisco (1999), Letter to Eva Mattson at the certification body KRAV, 13 October.

Van der Hoff, Francisco (2000), "Is it Possible to Export Organic Products from Third World Countries to the EU?", comment on the report by Gunnel Axelsson Nycander, "Securing Access to the EU Market, Case Study on Uganda", 24 May.

Vaupel, Suzanne (2001a), "Chaos or Harmony? Interface of National, International, and Private Sector Standards", *The Organic Standard*, Issue 2, June, pp. 8-12.

Walaga, Charles (2001), "Uganda: Organic Agriculture Catches On", *The Organic Standard*, Issue 5, September, pp. 4-8.

Chapter 15

Japan's Regulations Affecting the Labelling of Organic Plant Products

This chapter describes in detail Japan's regulations for the labelling of food products from plants as organic, including details concerning the modalities of certification and accreditation of foreign suppliers.

Introduction

Over the last decade, consumers in Japan have come to attach great importance to the safety of their food. In response, on 1 April 2001 the Japanese government implemented a mandatory regulation on organic plant products, both raw and processed, as part of the Japan Agriculture Standards (JAS) system, a comprehensive package of measures that establishes various standards for agricultural products. The main purpose of these regulations was to provide domestic consumers with trustworthy information, by way of labelling, on both imported and domestic foods.

Japan depends greatly on imported agricultural products, especially for ingredients for processed products. This is also the case for organic foods. Offers for sales of organic produce at Foodex, the largest food and beverage trade show in Asia and the Pacific Rim, have shown a rapid increase in recent years. Exact sales figures are not available, because statistics on organic products are not yet segregated from sales of conventional products, but most sources value Japan's market at between USD 3.7 billion and USD 4.5 billion in 2000 and growing at a rate of around 15% a year (MRS/CTCS, 2001). Leading exporters to Japan are the United States, China, Canada, Thailand and Brazil.

Sales of organic foods and beverages in Japan are approaching USD 4 billion a year and growing by 15% a year. A large share of that market is expected to be supplied by imports. Many nearby Asian developing countries have expressed an interest in accessing this rapidly growing market. China, for example, hopes to make use of the country's large domestic labour force to produce organic products that are more costly to produce elsewhere. However, as many cases of fraudulent use of the JAS standard and labelling have been reported lately, requests for stringent application of the JAS system, including to organic labelling, has increased. For example, some processed foods made from organic agricultural products and bearing the Organic JAS mark, imported from China, were found to contain more than the maximum residual level of pesticides stipulated under Japan's Food Sanitation Law. This proved to be caused by the mixing of organic with non-organic foods. Measures have been taken to prevent such occurrences in future.

While Japan's production standards for organic foods follow quite closely established international standards, requirements relating to the qualifications of operators (*i.e.* farmers, processors, repackers and importers) put considerable emphasis on procedures and criteria to be used by the person in charge of "grading" and on maintaining an audit trail. Nonetheless, compared with other national organic regulations, Japan's contains some features that allow for greater flexibility in meeting its requirements.

Development of the measure

Organic foods have been rising in popularity in Japan over the last decade. However, as in other countries, the market for organic products was until recently self-regulated, which meant that there was no mandatory system for verifying producers' claims that their products were "organic" or "chemical-free". From the late 1980s through 1992, a few Japanese traders, wishing to export organic products to the United States and Europe, applied for certification with foreign certifying bodies. However, certification for Japan's internal market remained rare.

The initial response of Japan's Ministry of Agriculture, Forestry and Fisheries (MAFF) was to develop voluntary guidelines for organic labelling, which it issued in

April 1992. Over the next five years, organic certification expanded in Japan, especially among processors and traders. A few Japanese bodies were established to certify according to International Federation of Organic Agriculture Movements (IFOAM) (www.ifoam.org/) or US private-sector organic standards, but most operators sought certification from certifying bodies based in the United States. However, the voluntary guidelines did not prevent operators from putting non-organically produced products on the market and calling them organic. This created pressure to develop mandatory national standards. Both producers, who sought protection from unscrupulous competitors, and consumers, who wanted assurance that the labelled products they were buying were, in fact, produced using organic methods, supported the idea.

In 1998 MAFF decided to establish a national organic regulation within the Law concerning Standardisation and Proper Labelling of Agricultural and Forestry Products (Law 175, known as the JAS Law).[1] Two external factors influenced this decision. The first was the fact that both the EU and the United States had developed, or were in the process of developing, their own national organic regulations. Even though Japan was primarily an importer of organic produce, it exported some organic products to the EU.[2] The Japanese administration was also influenced by ongoing discussions in the Codex Alimentarius Commission, which eventually led to the publication in 1999 of international guidelines for organic products (CAC/GL 32-1999).

While developing its organic labelling regulations, the Japanese government kept citizens informed of developments and provided opportunities for the public to express their views. Japan notified the WTO's Committee on Technical Barriers to Trade ("TBT Committee") of its intention to revise the JAS Law, including its organic standards, on 30 March 1999, and set a final deadline for comments of 7 May 1999 (Japan, 1999a).[3] The revised law was passed by the Diet in July 1999 and notified to the TBT Committee on 22 October 1999, with a deadline of 15 December 1999 for comments (Japan 1999b and 1999c). During this time, MAFF provided English-language summaries of texts of the revised Law and draft regulations upon request. Five weeks after the deadline for comments, MAFF promulgated on 20 January 2000 detailed regulations based on the Law, Notification 59 for organic plant products and Notification 60 for processed foods made from organic plant products. The regulations went into effect on 1 April 2001.

In Japan, some producers expressed frustration at the short amount of time available for comments on and revisions of the proposed regulation.[4] Some Japanese farmers appear to have regarded the JAS Law standards as too closely based on European and US conditions and therefore not fully compatible with Japanese conditions. In fact, the Japanese organic standards were patterned on international guidelines and standards, such as the Codex Alimentarius's guidelines and the IFOAM Basic Standard. Many Japanese organic farmers were also worried about competition from imported organic products. A few farmers, unable to obtain certification, ceased using organic methods. Nonetheless, the total number of organic certifications in Japan has increased since the JAS law took effect (Table 15.1).

1. The Law which dates from 1950, protects consumers' rights to information about food products.

2. The EU organic regulation (EEC 2092/91) has triggered organic regulations in a number of countries; see Chapter 14.

3. The deadline was later extended to 22 May 1999.

4. Mutsumi Sakuyoshi, Vice President of the Japanese Organic Inspectors Association, personal communication with Gunnar Rundgren, April 2002.

Table 15.1. Entities certified to apply the JAS organic seal to food products

Numbers as of 18 October 2002 and 31 January 2004[1]

Based in	Farms and farmer groups		Processors or manufacturers		Repackers		Importers		Total	
	October 2002	January 2004	October 2002	January 2004	October 2002	January 2004	October 2002	January 2004	October 2002	January 2004
Japan	1 479	1 939	702	871	422	601	86	107	2 689	3 518
Foreign countries	197	316	198	327	40	60	n.a.	n.a.	435	703
Total	1 676	2 255	900	1 198	462	661	86	107	3 125	4 221

1. Column headings in the original source document for 2004 are "production process managers", "manufacturers", "subdivision vendors" and "importers".
n.a. = not available.

Sources: 2002: Based on internal MAFF sources; 2004: MAFF (2004), p. 9.

The regulations apply only to organic plant products and processed products thereof. Livestock products, cosmetics, natural medicines and alcohol were not included. The regulations also specify that the word "organic" (*yuki* in Japanese) may not be used on its own, but only in conjunction with the JAS Organic Mark (Figure 15.1). These regulations apply to the labelling of products but not to marketing claims on leaflets, advertisements or similar printed material. In addition, they set out criteria for: the registration of certification organisations; for the four categories of certified operators (farmer, processor or manufacturer, repacker or sub-divider, and importer); and for inspection methods.[5]

Figure 15.1. The official JAS organic mark

As with all organic standards, the JAS organic standards relate not to the properties of the final product itself, but to the way in which the products are produced and processed from the farm to final packaging. In that respect they adhere rather closely to the Codex Alimentarius Guidelines and the IFOAM standards. The major difference between the JAS system and other systems is the emphasis it places on the qualifications of the so-called "Grading Manager", the person responsible for "grading".[6] This person must complete a special course. In this regard, the role of the Grading Manager is similar to that of an internal auditor, as defined in the International Organization for Standardization's (ISO) 10011 series of standards.

Only certification organisations registered by MAFF, known as registered certification organisations (RCOs) or registered foreign certification organisations (RFCOs) in Japan, can certify operators. When applying for registration, an R(F)CO must

5. Notifications 808, 818, 819, 820, 821 and 830, respectively, all issued on 9 June 2000.

6. In the JAS organic system, "grading" is used as a term for the act of qualifying a product as organic.

notify the categories in which it wishes to obtain authority to certify. As of November 2002 there were 63 RCOs registered within Japan and 12 outside Japan.

There are currently three ways (Figure 15.2) for agricultural products to qualify for the JAS organic mark (MAFF 2002; 2004):

1(a) *Certification by a registered certification organisation in Japan.* An RCO based in Japan certifies the production or processing, or both, in the exporting country. Currently around ten organisations offer certification of foreign operators. Once certified by the RCO, the foreign operator can affix the JAS organic label to its products.

1(b) *Certification by a registered foreign certification organisation in the exporting country*. To register as an RFCO, the foreign organisation must be based in a country that is deemed by MAFF to have a system equivalent to that of Japan. In addition, it must pay a fee[7] to, and be registered with, MAFF. An RFCO can also certify in countries (apart from Japan) other than the country in which it maintains its primary business establishment, provided that the said foreign countries are included in "the area where certification service is carried out" at the time of application of registration.[8] There is no requirement that these other countries have a system that has been deemed to be equivalent to that of Japan's. Once certified by the RFCO, the foreign operator can affix the JAS organic label to its products.

2. *Recertification of imports.* The production or processing, or both, of organic raw material is certified by a certification organisation based in the exporting country, while the Japanese importer is certified by an RCO in Japan. The RCO assesses conformity with the JAS for organic ingredients to be used in organic processed foods. The certified Japanese processor (who is also the importer) affixes the JAS organic label. This option can only be used for raw materials that undergo further processing. It cannot be used for ready-made products, or for products that are re-packed in Japan.

3. *Use of contracted inspection services.* R(F)COs may delegate inspections to certification organisations in exporting countries through a "trust contract of providing inspection data", provided that the certification organisation conforms to the following requirements:

> The organisation is recognised or registered as a certification body by the government of the country, the local government, or an international organisation with established reliability, such as the International Organic Accreditation Service (IOAS).[9]

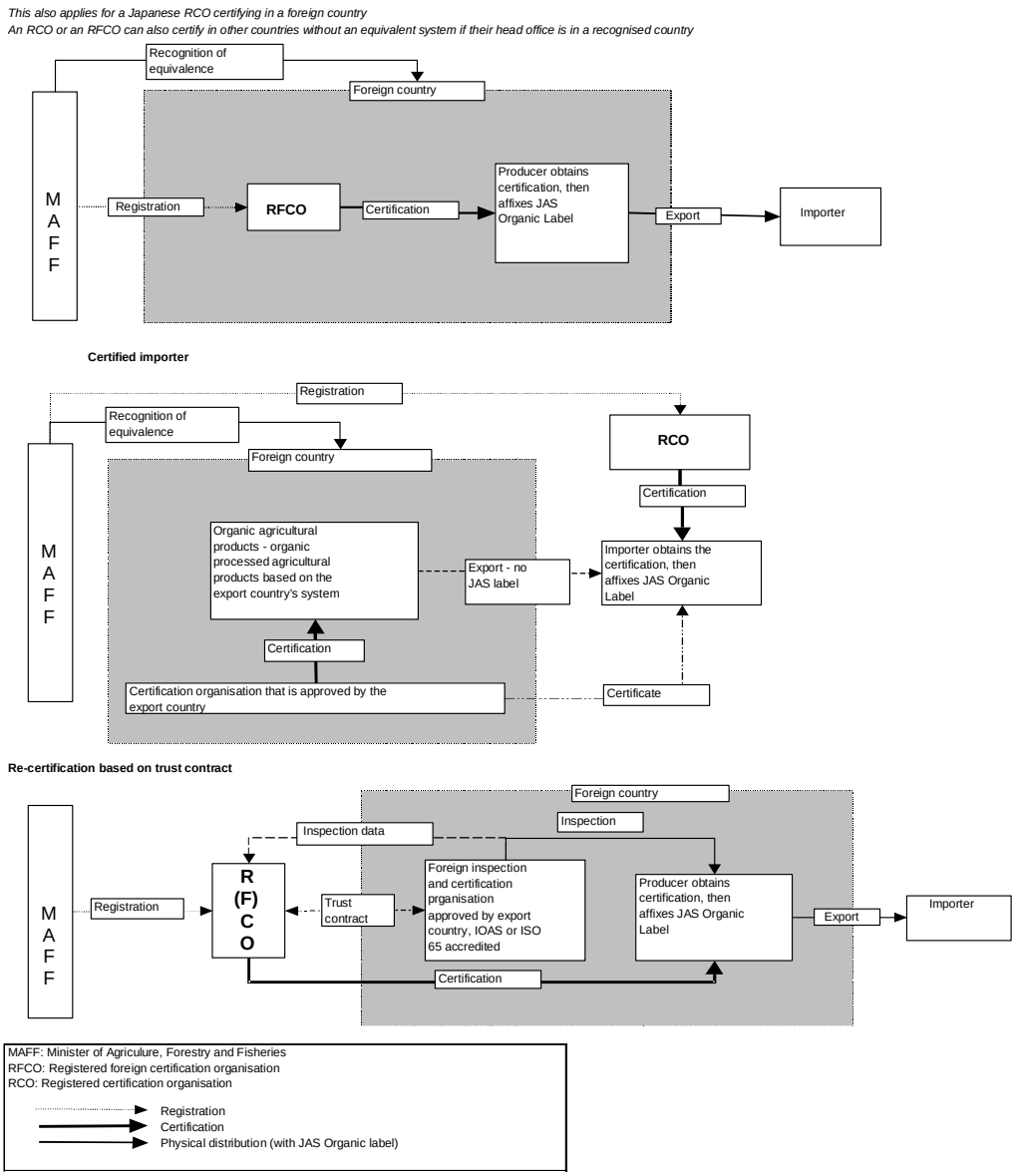
7. Registration is valid for five years and can be renewed. The fees are JPY 51 200 (USD 415) for an initial registration and JPY 37 200 (USD 302) for a renewal. In either case the applicant must cover the travel expenses for two auditors from Japan. If the applicant is engaged in the business of grading (*i.e.* certification) and is accredited by the country in which it operates, then the initial fee is JPY 60 500 (USD 490), and the fee for renewal is JPY 45 500. In either case the applicant must cover the travel expenses for two auditors from Japan. See Article 25 of the Enforcement Ordinance of the JAS Law.

8. For example, NASAA (an Australian certifying body) is registered by MAFF to certify throughout the world.

9. The latter is the entity that performs IFOAM accreditation according to IFOAM Standards and Criteria for certification.

The organisation has considerable experience as a certification body for organic foods.

Figure 15.2. Certification by registered foreign certification organisation (RFCO)



Issues raised by developing country exporters

Producers, importers, inspectors and certification organisations had just under a year (*i.e.* until 1 April 2001) to prepare for the new labelling laws. However, organic ingredients used as raw materials in processed products could enter the country under less stringent provisional measures until the end of March 2002.

Naturally, producers and exporters in other countries faced an even greater challenge in coming to grips with the new regulations, given the initial need to translate the relevant documents (assuming that they knew a regulation was about to be passed). The rules and

some of the guiding documents were eventually translated into English from October 2000 to March 2001, but some foreign exporters found the terminology in these documents unfamiliar (*e.g.* "grading"). Indeed, in at least one case MAFF had to issue a revised (unofficial) translation to correct mistakes in the previous translation.

The JAS system stresses the neutrality, fairness and reliability of grading and certification services, with a view to ensuring protection of consumers. This principle also applies to the accreditation of RFCOs and to the criteria used by MAFF when examining equivalency to the JAS system. These criteria require evidence that the foreign government's grading system is being properly implemented and that its label is reliable (*i.e.* that there are adequate means of detecting fraudulent use). Given the rapidity with which Japan recognised the organic standards of Australia, the EU and the United States, the procedures appear not to be particularly onerous, at least for developed countries with well-established organic rules. Australia received a determination of equivalency in March 2001, and currently five of its certification bodies have been registered as RFCOs (JASA, 2002). The EU reached an agreement with Japan in March 2001, and in early 2002 the first of the EU organisations (in Austria) was approved. Since then, around 15 additional EU-based certification bodies have been registered. The United States negotiated recognition of its organic products soon after the regulations went into effect. A temporary agreement was reached in 2001, and in March 2002 a final determination was made. Henceforth, plant-based agricultural products exported from these countries that have been certified as meeting their own domestic organic standards may be labelled or represented in Japan as organic subject to the further requirement that they are recertified by a registered importer.[10]

Organic producers and processors in developing countries wishing to export their products as "organic" to Japan, however, have other options. Just five governments of developing countries have implemented rules for organic agriculture within the region: China, India, Korea, Chinese Taipei and Thailand (Table 15.2). Only India and Thailand have so far applied for examination of equivalency. Until equivalency is recognised, potential exporters in these and other countries have the choice of: certification by a (Japan-based) RCO or an RFCO that was already operating in their country when it applied for registration from MAFF; or finding an IOAS-accredited certification organisation in its country with which an RCO or RFCO would be willing to enter into a trust contract.

Even though China has enacted an organic law, and has established its own certification body, its producers appear mainly to have used the first option outlined above. Chinese producers expected that the establishment of a labelling system for organic foods in Japan would give them more chances to sell organic foods with added value. They have made intensive efforts to obtain Japanese certification for their organic foods and, as a consequence, 100 producers had been certified by June 2002. However, a few Japanese organic certifiers, such as JONA (Japan Organic & Natural Foods Association) and NOAPA (Nippon Organic Agricultural Product Association), have

10. The equivalency agreements with the EU and the United States stipulate several minor conditions. Under Japan's agreement with the EU, calcium chloride may not be used in raw or processed organic food exported to Japan, even though the substance can be used in the EU. Under its agreement with the United States, alkali-extracted humic acid, lignin sulfonate and potassium bicarbonate may not be used in raw or processed organic food exported to Japan, even though these substances are allowed under the US organic standards. Alkali-extracted humic acid and lignin sulfonate are non-biodegradable plant or soil amendments; lignin sulfonate is also used as a floating agent in post-harvest handling. Potassium bicarbonate is used principally in the control of plant diseases.

investigated co-operative arrangements with Chinese certifiers, which could eventually lead to recertification based on a trust contract.

Table 15.2. Status of organic regulations in southern, south-eastern and eastern Asia, beginning of 2002[1]

Country	National regulation in place?	Stage of implementation if not yet in place
Bangladesh	—	No initiative
Bhutan	—	No initiative
Cambodia	—	No initiative
China	Yes	—
Chinese Taipei	Yes	—
Hong Kong, China	—	Completed protocol of practice
India	Yes	—
Indonesia	—	Early consultation and drafting of regulation
Japan	Yes	—
Korea	Yes	—
Laos	—	No initiative
Malaysia	—	Has finalised standards
Mongolia	—	No initiative
Nepal	—	No initiative
Pakistan	—	No initiative
Philippines	—	Early consultations
Sri Lanka	—	No initiative
Thailand	Yes?	Finalising inspection and certification system
Vietnam	—	—

1. Three countries contacted provided no information: Myanmar (Burma), North Korea and Papua New Guinea.

Source: The Organic Standard, Issue 10, February 2002, p. 7

Most of the documented allegations of implementation problems have come from the United States, the leading exporter of organic foods to Japan. One US operator has complained that it had to recertify all its facilities to the JAS standard, at a cost of over USD 20 000 in the first year (Weinberg, 2002). According to this source, it would need to qualify, train and appoint a grading manager for each plant it operated, at an additional cost of time and money. Furthermore, it was required to develop a redundant standard operating procedure and grading report for each facility so that its existing audit trail could be recognised as JAS-compliant.

Responses to developing-country concerns

Japan has supported the development of export-based organic agriculture in several developing countries by providing advice on how to establish organic regulations. For example, the person in charge of administering Japan's organic standards visited Thailand

in January 2001 to explain the Japanese system and to support the establishment of an equivalent Thai system.[11]

Concluding observations

Any mandatory labelling regulations can potentially create barriers to, and opportunities for, trade. This case study illustrates both. On the opportunity side, many domestic producers, who had previously claimed that their products were organic, are no longer be able to make such claims as a result of the new regulations. This is expected to provide opportunities for foreign suppliers to "fill the gap" left by lost domestic production. Moreover, because the drafters of Japan's standards were guided by key international texts, most particularly the Codex Alimentarius Commission's guidelines and IFOAM's Basic Standard, farmers in countries that have also followed these guidelines should face minimal problems in complying with those parts of the regulations relating to production practices. Integration into a general framework regulation simplifies the situation for exporters that are familiar with other Japanese requirements.

The primary route for exporters to break into the Japanese market — recognition of other countries' standards as equivalent — is straightforward (at least for developed countries) and does not even require reciprocal recognition.[12] In the short to medium term, however, exporters in most developing countries within the region cannot avail themselves of that option. Formal equivalency of national standards can be recognised only where such standards exist, and so far very few countries in Asia have adopted national standards. Local certification organisations (to the extent that they exist) therefore stand little chance of attaining the status of an RFCO; most producers will be forced to apply to an RCO or an RFCO for direct certification. Moreover, because only a few of the RCOs or RFCOs operating in other countries have local inspectors stationed in the exporting countries, they generally have to send inspectors from their head offices, which increases costs.[13] Other special aspects of the JAS system, with its requirement for a designated "grading manager" and its stringent procedural requirements, are also likely make compliance more difficult in developing countries, especially for small or medium-sized enterprises, with a limited number of staff.

The Japanese system does, however, allow for the possibility of "trust contracts" between an approved certification organisation and other certification organisations. This means, in effect, that the establishment of equivalence can be delegated to the private sector. Recognition of the competence of the IOAS (IFOAM) Accreditation Programme also supports this approach. It is particularly important for those developing countries that have not yet developed their own national organic standards, or whose standards may not be compatible with Japan's. Many producers and processors in developing countries, including China, have already exported organic foods to Japan through this procedure.

11. Hiroshi Tatsuguchi, Deputy Director in charge of organic food system, Standard and Labelling Division, General Food Policy Bureau, Ministry of Agriculture, Forestry and Fisheries, personal communication with Gunnar Rundgren, April 2002.

12. For example, the equivalency is recognised in only one direction in two cases: Japan recognised the equivalency of the certification systems of the United States and the EU without delay. The examination of equivalency for the Japanese system, currently taking place in the United States and Europe, has by contrast made little progress despite Japan's frequent requests.

13. Mutsumi Sakuyoshi, Vice President of the Japanese Organic Inspectors Association, personal communication with Gunnar Rundgren, April 2002.

References

Commins, Ken and Ong Kung Wai (2002), "Status of National Organic Regulations", *The Organic Standard*, No. 11, March 2002, pp. 3-4, www.grolink.se/studies/Status of national organic regulations.pdf.

Japan, Government of (1999a), "Committee on Technical Barriers to Trade — Notification — Japan — Agricultural and Forestry Products", Document Symbol No. G/TBT/Notif.99/141, 30 March, World Trade Organisation, Geneva.

Japan, Government of (1999b), "Committee on Technical Barriers to Trade — Notification — Japan — Organic Plant Products", Document Symbol No. G/TBT/Notif.99/539, 22 October, World Trade Organisation, Geneva.

Japan, Government of (1999c), "Committee on Technical Barriers to Trade — Notification — Japan — Processed Foods Made from Organic Plant Products", Document Symbol No. G/TBT/Notif.99/540, 22 October, World Trade Organisation, Geneva.

JASA: Japanese Agricultural Standard Association (2002), *List of Registered Certification Organisations* [in Japanese] www.jasnet.or.jp.

MAFF (2000), "Q&A on Inspection and Certification System of Organic Foods", www.maff.go.jp/soshiki/syokuhin/hinshitu/e_label/file/Specific%20JAS/Organic/Q&A(Organic).pdf.

MAFF: Ministry of Agriculture, Forestry and Fisheries (2002), "The Law Concerning Standardization and Proper Labeling of Agricultural and Forestry Products", as amended in 2002" (the JAS Law), www.maff.go.jp/soshiki/syokuhin/hinshitu/organic/eng_yuki_175.pdf.

MAFF (2004) "How to Export Organic Food to Japan, www.maff.go.jp/soshiki/syokuhin/hinshitu/organic/eng_yuki_how.pdf

MRS/CTCS: Market Research Centre and the Canadian Trade Commissioner Service (2001), *The Organic Food Market in Japan*, Department of Foreign Affairs and International Trade, Ottawa, Canada, http://atn-riae.agr.ca/asia/e3208.htm.

Sakuyoshi, Mutsumi (2001), "Japanese Organic Rules and Implementation", *The Organic Standard*, No. 1, May, pp. 2-5.

Sakuyoshi, Mutsumi (2002), "A Year On from JAS Law: Where Are We Now?", *The Organic Standard*, No. 10, February, p. 15, www.organicstandard.com/test_issue.htm.

The Organic Standard (2002), "USDA and Japan Reach Agreement", No. 11, March.

Weinberg, Sheldon (2002), "Experiences with the Japan Agricultural Standard", *The Organic Standard*, No. 11, March, pp. 11-12.

Zejiang, Zhou, Xiao Xingji and Yang Yonggang (2002), "The Development of the Organic Industry in China: A Brief Introduction", *The Organic Standard*, No. 10, February, pp. 3-6, www.organicstandard.com/test_issue.htm

Chapter 16

Regulating "Organic" Food Labels in the United States

This chapter describes in detail the recent legally binding standards for defining and labelling a product as "organic" adopted by the United States, which replace the various standards imposed by individual states, including methods of certification and accreditation in foreign countries.

Introduction

In December 2000, the US Department of Agriculture (USDA), after some ten years of deliberation, published its National Organic Program (NOP) Final Rule, which establishes legally binding national standards for which agricultural products can be defined and labelled as "organic." Once these standards took effect in October 2002, only agricultural products meeting the USDA standards could be sold, labelled or represented as "organic" in the United States.

Many developing countries, notably in Africa, Latin America and South Asia (Chile, Colombia, India and Kenya, for example) have been trying to generate new business by launching "organic" foodstuffs and other products in their traditional export markets. Organically certified wines from Chile, organically grown coffee from Colombia, organically grown tea from India and Sri Lanka, and organically grown vegetables such as green beans from Kenya, for example, are now widely available in Western countries. The exporters have frequently been assisted by environmental non-governmental organisations (NGOs) and similar organisations that have tried to help these countries take advantage of their often simpler and less intensive farming practices and production methods.

The USDA's organic labelling rules affect all producers and distributors of organically produced foods attempting to place their products onto the US market, wherever they are located. As the United States is the largest international market for such foods, its effects will be far-reaching. Exporters will benefit from the regularisation of organic standards in a market previously characterised by a panoply of procedures and criteria. However, distant and least-developed countries may find the certification requirements costly or difficult to observe, in part because of their, as yet, limited ability to access information and translate complex regulations.

Development of the environmental measure

Sales of organic products in the United States developed significantly during the 1980s and 1990s, prompted by consumers' concerns about health and environmental issues (Box 16.1). As organically labelled products increased in popularity, however, major food producers and distributors became concerned that inconsistent and fraudulent use of organic labels could mislead consumers and compete unfairly with products that did not claim to be "organic". Consumers have generally accepted organic products as being more costly to produce and have therefore been willing to pay a considerable premium for them, ranging from 20% to 200% above the price of otherwise similar but non-organic products.

The current national US standards have their origins in the late 1980s, when a small group of organic farmers asked members of the US Congress to establish legal protection for their "organic" labels and to combat fraudulent use of such labels. During the 1970s, organic farmers in different parts of the United States had started to develop agreed standards for organic farming, and several had begun to certify organic farms according to these standards (Vaupel, 2001). A few states had also enacted laws to regulate organic farming. The California Organic Foods Act of 1979 was one of the earliest; by the early 1990s there were 11 state bodies certifying organic agriculture and 33 private certifying bodies. Some state programmes passed laws regulating production and handling, but did not require certification.

Box 16.1. Organic agricultural production in the United States

There are about 12 000 organic producers in the United States today, the majority of which are small-scale operators. A study by the USDA's Economic Research Service on the status of US organic production in 1997 revealed that certified organic cropland more than doubled during the 1990s and that several organic livestock sectors — eggs and dairy in particular — grew at an even faster rate (Green, 2000). Certified organic crops were being grown on almost 1.35 million acres (545 200 hectares) in 49 out of the 50 states.

The United States produces a wide variety of organic commodities, including grain, soybeans, wheat, rice, fruits, vegetables, meat, eggs, dairy products and fibres like cotton and wool. Organic processed products include pasta, prepared sauces, juices, frozen meals, ice cream, cereals, baked goods, soup, chocolate, cookies, wine, beer, cooking oil, snack foods, and fibre products including clothing and personal care products. Organic feed, including pasture, silage, grain and oilseeds, is of increasing importance as the organic livestock sector expands. Industry sources indicate organic price premiums can vary from a few percentage points to over 100%, depending on the commodity and the supply/demand situation.

Although the majority of US organic output is consumed domestically at this time, the export market is expected to grow in importance. The major markets for US organic products are the European Union, Japan and Canada, and the leading export categories at this time are grains, beans and food ingredients. The strongest growth in overseas demand is for fresh and dried fruits, frozen vegetables, nuts, wine, juice, snacks and prepared foods.

After several major rewrites, the US Congress enacted in 1990 the Organic Foods Production Act (OFPA) as part of the omnibus Farm Bill.[1] The main objective of the Act is to ensure that US consumers have uniform and consistent criteria for determining the organic credentials of the foods they purchase. OFPA directed the Secretary of Agriculture to develop national standards for organically grown products and to implement them by October 1993 (a deadline that was not met). To assist the Secretary in that task, OFPA also provided for the appointment of an independent, 15-member advisory body: the National Organic Standards Board (NOSB).

The NOSB, appointed in 1992, worked closely with the private organic farming community to develop standards that could be accepted by growers, retailers, certification bodies and environmental groups (Vaupel, 2001). In 1994 it submitted its recommendations to the Secretary of Agriculture, but it took the USDA until April 1997 to issue proposed regulations. The draft regulations, comprising over 1 000 pages, soon attracted criticism from the organic food producers and processors. Most controversial was the question raised by the USDA of whether the use of sewage sludge (as a soil amendment), genetically engineered crops in organic production, and irradiation as a means of preserving organic foods might be allowed in agricultural products labelled as organic.[2] Between the time that the draft regulations were published and March 2000, when new ones were re-proposed, the USDA had received over 300 000 public comments, more by far than it had ever received on any other single regulatory proposal (Vaupel, 2001; AFSIC, 2001).

In the meantime, the US organic community, working through the Organic Trade Association, decided to write its own standards based on the NOSB recommendations,

1. The Farm Bill is reviewed and amended by the US Congress every five years.

2. The USDA had not proposed that they be allowed, but raised the question whether they could be.

while continuing to try to influence the rewriting of the USDA's standards. The final, private standards were adopted on 20 October 1999 and were called, simply, the American Organic Standards. In drafting these standards, the authors considered (in addition to various US industry and state-level standards) various international standards and guidelines, including those of the International Federation of Organic Agriculture Movements (IFOAM), the Codex Alimentarius Committee on Food Labelling, the European Union and the Canadian Organic Advisory Board. In addition, the International Organization for Standardization's "ISO Guide 65" was used as a benchmark in developing the accreditation programme.

On 13 March 2000, the USDA published its revised proposed rule in the *Federal Register*. The revised proposal incorporated public comments received as a result of the earlier 1997 proposal, and allowed an 18-month phase-in period once the final regulation was published. A week later the US government also notified the proposed rule to the WTO Committee on Technical Barriers to Trade (United States, 2000). Following public comment, the USDA did not materially change the standards from what had been proposed in March. On 20 December 2000 the USDA announced them as final. The full text of the final rule, as published in the *Federal Register* on the following day (AMS, 2000), comes to 137 densely written pages or almost 150 000 words. The regulations were activated on 21 April 2001 and those who grow or market organic products had to comply with them by 21 October 2002.

In essence, the USDA's organic standards offer a national definition for the term "organic". They detail the methods, practices and substances (*e.g.* types of pesticides) that can be used in producing and handling organic crops and livestock, as well as processed products, and (in contrast with the original draft rules) they specifically prohibit the use of genetic engineering methods, ionising radiation and sewage sludge for fertilisation. They also establish criteria for the use of the words or phrases "100 percent organic", "organic" and "made with organic (specified ingredients)" on a marketed product. Only raw or processed agricultural products that meet the requirements for "100 percent organic" or "organic" can bear the "USDA Organic" seal (Figure 16.1). Processed products must identify each organically produced ingredient and be able to provide the name and address of the agency certifying that it meets the USDA's criteria for organic food production.

Figure 16.1. The USDA Organic seal

A study comparing the organic standards of four OECD member countries (Australia, the EU, Japan and the United States), those of the non-governmental International Federation of Organic Agriculture Movements (IFOAM), and the inter-governmental Codex Alimentarius Commission guidelines, shows the US standards for methods, practices and substances to be broadly equivalent with those of other countries and international organisations (May and Monk, 2001). The US standards may be slightly

stricter in some areas and somewhat less so in others. On the one hand, they are less strict for the use of animal manure: basically, under the US rules, manure used on an organic farm for fertiliser can come from a non-organic or intensive ("factory") farm; this is not permitted under the Codex Alimentarius guidelines or those of the European Union. On the other hand, the US rules prohibit the use of agricultural ingredients grown using municipal sewage sludge as a soil amendment; the EU rules do not.

The NOP Final Rule (Section 205.500) provides three options for accrediting certifying bodies in foreign countries: *i)* direct accreditation of the certifying bodies by the USDA; *ii)* accreditation of a foreign certifying body by a government whose standards meet the requirements of the NOP Final Rule (as determined by the USDA); or *iii)* accreditation of a foreign certifying body by a government that has negotiated an equivalency agreement with the United States. The USDA's regulations and procedures for certification, and its accreditation criteria, however, reflect a wish to avoid potential conflicts of interest and to harmonise definitions throughout the production and processing chain. In particular, the regulations:

- Prohibit certified farmers from holding leadership roles in the certifying bodies that many of them had established. This was done to avoid conflict of interest problems.
- Exclude the possibility of recognising certifying bodies accredited only by a private or non-governmental accreditation body, such as IFOAM.

USDA-accredited certifying agents may certify, at the request of an organic producer or handler, additional standards needed to fulfil specific contract requirements. For example, a certifying agent can certify that an organic product has been produced without the use of Chilean nitrate, a substance the use of which is currently allowed, with restrictions, by the NOP final rule. It may also adopt its own requirements for truthful labelling claims, such as "pasture-raised", "grass-fed, "free-range", "humanely raised", "farm-worker protected", or "bio-dynamic". This flexibility is meant to allow a certifying agent to test the market for these additional requirements and gauge consumer reaction. Over time, given an appropriate amount of public support, these additional standards may find their way into the national organic standards through a recommendation by the NOSB, and after appropriate rulemaking. Organic products grown or handled under these additional standards may carry, at the discretion of the handler, either the certifying agent's seal or the USDA seal, assuming all other requirements are met. However, neither accredited certifying agents nor their clients may claim or assert that products produced under the additional requirements, or the products certified to specific contract requirements, are "more organic" than products which only meet the USDA organic standards.[3]

In order to help defray the costs of initial organic certification, the USDA has provided financial assistance to farmers in 15 US states.[4] Payments are limited to 70% of an individual producer's certification costs, up to a maximum of USD 500. No such assistance has been offered to foreign suppliers.

3. Individual states and individual farms can establish more stringent standards, but not certifying bodies.

4. The states selected were Connecticut, Delaware, Maine, Massachusetts, Maryland, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia, Utah, Nevada, and Wyoming.

Trade issues and developing country responses

Most organic producers in developing countries should be able to demonstrate that their methods fall within the definition of "organic" permitted under the USDA standard. However, if the experiences of developing countries with the European Union's organic rules provide any indication of what is to be expected (see Chapter 14), the challenges they will face for obtaining USDA organic certification may in some cases be non-trivial. The regulations effectively mean that foreign certification bodies will have to be accredited or approved by the USDA if their government does not have an equivalency agreement with the United States. Yet, apart from a few countries in Latin America and Asia, few developing countries have established local certification bodies (*The Organic Standard*, 2004). Developing such bodies can be expensive, and many countries lack access to the necessary technical and regulatory information, management skills and finance (Rundgren, 2000).

Certification by a body accredited by a non-governmental organisation, such as IFOAM, is of no help to an organic producer seeking to export produce to the United States. That may have special significance for small-scale farmers who otherwise might be able to avail themselves of IFOAM's Internal Control System for smallholder group certification (IFOAM, 1998, pp. 23-25). For example, § 205.403 (a) requires "initial on-site inspection *of each production unit, facility, and site* that produces or handles organic products and that is included in an operation for which certification is requested" (emphasis added). However, the on-site inspection is then conducted annually only for each certified *operation*, which presumably could be interpreted as the smallholder group.

Organic farmers and producers in developing countries are often SMEs, which have been set up or assisted by charities and NGOs committed to assisting environmentally friendly development. They have limited resources and are normally dependent on their relatively profitable exports; there is as yet little demand for certified organic products in their domestic markets. For this reason, many developing country exporters of organic products enter the US market under the brand name of a US importer, producer or distributor that can undertake the responsibility for obtaining the USDA organic certification and seal. While this means that they escape the difficulties of obtaining certification themselves, they are thereby made more dependent on their US associates.

Responses to developing-country concerns

In the first round of accreditation of organic certifying bodies, the NOP offered to absorb all labour charges for accreditation services (applicants were assessed only the NOP's travel costs). This offer was available to foreign as well as domestic applicants for accreditation. Originally the offer was to run out on 21 October 2001, but the deadline was subsequently extended to 20 December 2001. After that date, applicants for initial accreditation and renewal of accreditation (which must be done every five years) have been assessed fees. These fees for service are based on the time required by USDA employees to perform such tasks as: reviewing the applications and accompanying documents and information; travelling to the certifying body's site; conducting on-site evaluations; reviewing the certifying body's annual reports and updated documents and information; and preparing reports and any other documents required to perform the accreditation service. Applicants must also pay for any travel costs, per diem and incidental expenses incurred by the USDA employee(s) when performing an on-site evaluation.

As of 11 July 2002, the USDA had received applications for direct accreditation from 49 private foreign certifying agents, of which 15 based in developing countries. Of the latter, three received accreditation (one each from Brazil, Costa Rica and Peru).

For exporters in many developing countries, an agreement on equivalency, negotiated between their government authority and the United States, would be less expensive than having to pay for annual accreditation inspections of local certification bodies, or relying on a vertical arrangement with a US buyer. The NOP, working in conjunction with the USDA's Foreign Agriculture Service and the Office of the US Trade Representative, establishes a process through which equivalency or other trade agreements can be negotiated with governments of foreign countries to which US organic products are *exported*. However, as of the end of September 2005, India has been the only developing country to formally request an equivalency determination from the USDA (www.ams.usda.gov/nop/NOP/TradeIssues/importedorganic.html).

The NOSB's Accreditation Committee has responded to concerns about smallholder group certification by promulgating recommendations regarding "Criteria for Certification of Grower Groups".[5] Based on criteria jointly developed by the US-based Organic Inspectors Association and IFOAM, these recommendations, which note that "[p]rimary crops produced by grower groups include coffee, cocoa, tea, spices and tropical fruits", suggests that they have been designed with developing country exporters in mind.

Concluding observations

The USDA's NOP regulations, because they determine access to one of the largest markets for organic agricultural products in the world, could have considerable external implications for the food and agricultural industries of developing countries.

In developing its regulations, the US government provided considerable scope for public comment and paid heed to international guidelines and standards for organic farming, labelling and certification. It has even made copies of the final regulation available in at least two other languages, Japanese and Spanish (www.ams.usda.gov/nop/). Regularisation of the meaning of "organic" across the whole of the US market means that exporters no longer have to face the multiplicity of definitions and criteria previously defined by individual states. Still, the NOP adds to the bewildering array of national rules and regulations that developing countries must become familiar with if they hope to export successfully to the major markets.

The fact that 15 organic certifying agents based in developing countries had applied for accreditation within fifteen months of the USDA's regulations going into effect suggests that a significant number of foreign producers expect to be able to meet the requirements of the NOP Final Rule. The strong possibility that criteria will be established for certification of smallholder grower groups also increases the number of potential exporters of organically produced agricultural goods to the United States. Most of the developing countries with certifying agencies that have been accredited to the USDA are based in geographically proximate Central America, or in South America or Asia. Some may have benefited from the initial grace period during which the USDA did not charge for the labour costs incurred in processing accreditation applications.

5. www.ams.usda.gov/nosb/October02Summary/October2002MeetingSummaryMinutes%20.pdf.

References

AFSIC: Alternative Farming Systems Information Center (2001), "Organic Food Production", US Department of Agriculture, Washington, DC, www.nalusda.gov/afsic/ofp/ofp.htm, accessed 31 October 2001.

AMS: US Department of Agriculture, Agricultural Marketing Service (2000), "7 CFR Part 205: National Organic Program; Final Rule", *Federal Register* , Vol. 65, No. 246, 21 December, pp. 80547-80684, www.access.gpo.gov/su_docs/fedreg/a001221c.html.

Codex Alimentarius Commission (1999), Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods, Document No. CAC/GL 32-1999, United Nations Food and Agriculture Organization and the World Health Organization, Rome, www.codexalimentarius.net/download/standards/360/CXG_032e.pdf.

Green, Catherine (2000), "U.S. Organic Agriculture Gaining Ground", *Agricultural Outlook* (US Economic Research Service), April, pp. 9-14, www.ers.usda.gov/publications/agoutlook/apr2000/ao270d.pdf.

IFOAM: International Federation of Organic Agriculture Movements (1998), *IFOAM Accreditation Criteria for Programmes Certifying Organic Agriculture and Processing*, IFOAM, Tholey-Theley, Germany.

Kortbech-Olesen, Rudy (2000), "Export Opportunities of Organic Food from Developing Countries", paper presented to the *World Organics 2000* conference, London, 9-10 May, www.ifoam.org/orgagri/worldorganics_2000_conference.html, accessed 31 October 2001.

May, Rod and Andrew Monk (2001), "Organic and Biodynamic Produce: Comparing Australian and Overseas Standards", Discussion Paper, RIRDC Publication No. 01/05, Rural Industries Research and Development Corporation, Barton ACT, Australia, www.rirdc.gov.au/reports/ORG/01-05.pdf.

Riddle, James A. and Joyce E. Ford (2000), *International Organic Inspection Manual*, Independent Organic Inspectors Association, Broadus, Montana.

Rundgren, Gunnar (2000), "The Challenge for Developing Countries to Establish an Organic Guarantee System", Grolink, Stockholm, www.grolink.se/studies/challeng.htm.

The Organic Standard (2004), "The Organic Certification Directory 2004", *The Organic Standard*, Issue 40, August.

United States, Government of (2000), "Committee on Technical Barriers to Trade — Notification — United States — Organic food", Document No. G/TBT/Notif.00/148, 22 March, World Trade Organisation, Geneva.

Vaupel, Suzanne (2001), "History of Organic Legislation in the US: the Process and Politics behind Organic Regulations in the United States", *The Organic Standard*, Issue 5, September, pp. 9-12.

Private Industry and NGO Initiatives

Chapter 17

Eco-labels for Cut Flowers

Concern about environmental and labour conditions in developing-country flower-export sectors led environment and human rights groups to seek to establish a private eco-labelling scheme for cut flowers. While some countries have responded positively, Colombia, a major producer of cut flowers, did not, and has established its own flower-exporting association. The dialogue remains open.

Introduction

World trade in cut flowers is worth USD 6 billion a year. The Netherlands, which accounts for almost 60% of world trade, is by far the leading exporter. Behind it, however, follow a number of developing countries, including Colombia (with 10% of the global market), Ecuador, India, Israel, Kenya, Tanzania, Thailand and Zimbabwe.

Cut flowers are Colombia's third most important agricultural export crop, after coffee and bananas. The industry supports some 75 000 jobs directly, and another 50 000 in related industries. In 2000 cut flowers generated USD 580 million in export earnings for the country. In value terms, 84% of these exports went to the United States, and 10% to the EU, a share that has been declining since the mid-1990s, when it was frequently 15% or more.

In the early 1990s, several European non-profit organisations, including environmental and human-rights groups, began campaigning against what they saw as unacceptable labour and environmental conditions in the African and Latin American flower-export industries. As part of this campaign, several labelling programmes were created in European countries, most of them intended to raise environmental and social standards in developing countries. However, developing countries had significant concerns about possible trade effects and complained about loss of access to OECD markets. Colombia initiated a debate about private eco-labelling schemes in the context of the Technical Barriers to Trade (TBT) Agreement. The lower prestige of Colombian flowers affected sales to Europe, at least initially. However, foreign pressure, coupled with the work of Colombian activists, spurred Colombian flower producers to adopt their own environmental programme and to implement other changes in the industry.

Development of the measure

The environmental and social impacts of flower production can be considerable. They include groundwater contamination resulting from excessive application of agrochemicals and health effects stemming from inadequate protection of workers who handle dangerous chemicals. Some countries have also used pesticides that are banned for safety or health reasons in OECD countries.[1] Conditions in the cut-flower industries of Latin American countries began to attract attention in OECD countries during the late 1980s, particularly following the release in 1988 of the award-winning documentary, *Amor, Mujeres y Flores* (Love, Women and Flowers), which focuses on the conditions of women working in Colombia's flower industry. One allegation made in the film was that female workers were being exposed to pesticides without respiratory protection and appropriate protective clothing.

In 1991, concerned about worker conditions in developing countries where flowers for the cut-flower market were being grown, a group of German human rights and church organisations, including FIAN (Food-First Action and Information Network), *Brot für die Welt* (Bread for the World) and *Terre des Hommes*, formed the Flower Campaign "improve working conditions for workers in the flower industry and to stimulate sustainable production of cut flowers" (www.bothends.org/strategic/folderbloemen). Among other activities, the Campaign created a newsletter, *Blumen-Zeitung* (Flower

1. Many developing countries have long had laws in place to control or regulate the use of pesticides and to protect the workers who apply them, but enforcement often is lax.

News), which drew attention to environmental problems and social conflicts in flower-exporting countries. In order to support foreign flower workers in their attempts to improve wages, worker safety and general working conditions, the Campaign began urging German importers to deal only with "clean" flower growers and exporters (Wijk, 1994).

In 1994 FIAN joined together with the German Flower Wholesale and Import Trade Association (BGI) to discuss appropriate social and environmental criteria for flower growing. The BGI subsequently sat down with representatives of Expoflores, the Ecuadorian Flower Growers' and Exporters' Association, to develop a mutually acceptable eco-labelling scheme. The scheme demands compliance with over 60 social and environmental criteria relating to pesticide and fertiliser use, health and safety measures, and general working conditions (Greiner, 1998a, 1998b). Some 35 producers in Ecuador signed up to participate in the scheme, and the first flowers under this label were then exported from Ecuador to Germany. Certification and monitoring is conducted by a German consultant company, Agra Control GmbH. The certification costs of DEM 3 000 to DEM 10 000, depending on the size of the enterprise, are covered by the producers.

The BGI also approached the larger of Colombia's flower-exporting associations, Asocolflores,[2] with a proposal to establish a separate programme called the "Colombia Flower Declaration". The idea was that cut flower companies wanting to export to Germany would sign the declaration in order to be placed on a "white list". In signing, companies would declare that they would comply strictly with all Colombian laws and norms concerning labour regulations, agrochemical use and handling, and environmental and natural resources preservation (Wijk, 1994). The companies would also consent to having their compliance checked by a commission comprised of both Colombian and German experts. Despite the risk of losing access to the European market, Asocolflores decided not to subscribe to the programme, echoing the Colombian Government's position that doing so would be "an act against national sovereignty". BGI then approached Asocolflores and encouraged it to participate in the Flower Campaign's established "Flower Label Programme". Asocolflores again declined.[3]

At around the same time, in the Netherlands, the *Stichting Milieukeur* (Environmental Choice Foundation) began developing environmental criteria for labelling agricultural products, including flowers. The criteria for the *Milieukeur* (MPS) label were determined solely by domestic interests and are meant to assure consumers that the products are considerably less damaging to the environment than those produced using conventional methods. Only limited and selective use of chemicals and artificial fertilisers is permitted for cultivation of MPS-labelled flowers. After initial difficulties, growers in Zimbabwe, Kenya, Tanzania and Israel were eventually able to obtain the label.

Since opening the scheme to developing countries, the *Stichting Milieukeur* has perceived a need to include social and energy-efficiency criteria. Its energy component takes into account the energy used in transporting flowers from the developing countries to the Netherlands, which is compared with the energy used to grow flowers in heated glasshouses in the Netherlands; the energy consumed per flower is about comparable.

2. Ascoflores represents mainly the larger exporters; Fedeflores represents mostly small- and medium-scale Colombian-owned growers.

3. A group of Colombian flower growers began investigating the possibility of developing their own labelling scheme, which would have been called Ecoflor; they discontinued dialogue with the Flower Campaign once Asocolflores made them the basis for the "Florverde" programme.

Foreign producers generally consider these energy-efficiency criteria unfair, as they negate any climatic advantage they would otherwise enjoy (Verbruggen *et al.*, 1997).[4]

Trade issues and developing-country responses

Several developing countries have responded positively to the European eco-labelling schemes. Already, around 50 flower farms in Ecuador, Kenya, Tanzania and Zimbabwe now participate in the Flower Label Programme (FLP) and meet its environmental and social standards. Several others (among them Sri Lanka, Tanzania, Uganda and Zambia) have signalled interest.

Asocolflores, backed by the Colombian government, has so far resisted all overtures to participate in these schemes. Instead, in 1995 it decided to develop its own campaign, in part to counter the negative reputation created by the developed country campaigns (Colombia, 1998). The programme, called Florverde (Green Flower), is not, strictly speaking, a labelling programme but a systematic and comprehensive programme for developing an effective environmental management system.

The Florverde programme aims primarily at reducing the use of agrochemicals, water and energy; improving waste management; and improving human resource management. It encourages the proper training of workers, environmental research projects, agreements on clean production and application of the Environmental Conduct and Social Welfare Code. Currently, more than 150 companies participate in the programme. They cover about 2 700 hectares (over half of the cultivated area) and have almost 39 000 employees.

The Florverde programme is voluntary and based on the principle of self-management. No external auditors are involved, though an auditor from the Environmental Office of Asocolflores verifies each company's data. The audited companies are then classified, and a benchmark is set in order to motivate competition for improvement. The Florverde programme comprises the following five instruments (Colombia, 1998; Asocolflores, 1999):

- *An environmental management system.* This system entails i) an initial review or diagnosis; ii) elaboration of a plan of action; and iii) a follow-up of the commitments undertaken therein. When a company adopts an environmental management system it has to examine its own production processes and identify obsolete practices and technologies that may contribute to higher costs.
- *A registration system.* This system collects, stores and disseminates performance indicators relating to soils, water, phytosanitary inputs, energy, wastes and human resource management. The participating companies are classified into categories A, B or C, according to their performance indicators. Category A groups the top 20% of the best-performing companies and establishes the benchmark for the following three years. During this period, the companies submit their own progress reports and receive progress reports from others, so that each can compare its performance with others. After three years, a new benchmark is established.

4. Two other programmes were launched in the Netherlands in 1993, one by Flower Auction Holland and the other by Flower Auction Aalsmeer. However, these labelling programmes have gained only minor importance in the flower market since their introduction, and no developing countries participate in them. According to Verbruggen *et al.* (1997) they aim primarily at protecting domestic flower growers.

- *Case studies*. These describe specific best-practice cases in which a company has successfully implemented desirable practices with environmental and economic benefits. The exchange of case studies and experiences fosters and speeds up the adoption of environmentally friendly and economically viable technologies.
- *A Best Practices Handbook*. This handbook provides environmental and social guidelines for flower growers and contains information on legal specifications and best practices and a checklist for each topic. It is updated periodically, based on discussions held by specialised working teams.
- *Regional committees*. These are set up for discussing regional environmental matters and for sharing experiences so as to identify the most eco-efficient solutions.

Florverde has reported some positive results from the programme. They report, for example, that the use of pesticides (measured in terms of active ingredients) has declined to 115 kg/ha; the Flower Campaign, citing other sources, refutes this number, however (Brassel and Rangel, 2001). So far, the programme remains off limits to international scrutiny.

The critical light shone on the Colombian flower industry by overseas NGOs took a toll, however. While Colombia's global flower exports were on an upward trend between 1992 and 1996, exports to Germany declined markedly. Among the possible causes Colombia gives for this outcome was "the proliferation of unjustified environmental labels and campaigns" aimed at Colombian flowers. In an attempt to spark an international debate on the issue, in March 1998, the Colombian government submitted a paper to the WTO Committee on Trade and Environment (CTE) and the Committee on Technical Barriers to Trade (Colombia, 1998) setting out its concerns relating to the various European eco-labelling schemes for flowers. Colombia asserted that eco-labelling initiatives had negatively affected its exports because, in Colombia's view, the criteria for participating in the labelling schemes were not adequately transparent. Colombia gave several examples from the Flower Campaign's FLP:

- "Only active pesticide ingredients registered in countries with stringent registration laws may be used. Registration procedures in force in the country where the company is located will be given due consideration at the time of evaluation." The Colombian document asks: "What is meant by stringent registration laws? How objective is that criterion?"
- "Products with toxicological classification (1a) Extremely Toxic and (1b) Highly Toxic, according to the WHO toxicological classification, should only be used in duly justified cases of extreme necessity." The Colombian document asks: "What is meant by extreme necessity? How is it defined? That would surely depend on each cultivation and its specific circumstances."
- "Only biodegradable products may be used for post-harvest treatments." The Colombian document asserts: "No alternative biodegradable products for this type of treatment are as yet commercially available to producers who need to export their products over great distances."
- The scheme was being applied in a discriminatory manner. For example, the first eco-labelling scheme developed by German importers was aimed solely at Colombia.

- The labelling scheme proposed by the BGI in particular was coercive and not voluntary. Anyone who did not accept the scheme was subject to negative pressure from the Flower Campaign.
- Compliance with the criteria would have been very costly. Colombia estimated that it would cost a grower a minimum of USD 2 500 to defray the expenses arising from the annual verification visit, plus USD 1 for each label affixed to a box of exported flowers. In other words, if 20 000 boxes of flowers are sold per year, that would imply USD 20 000 in addition to the USD 2 500 in verification expenses.
- To be able to export to different countries in Europe, the producers would have had to meet different criteria for different labelling programmes. There are no international standards for eco-labels applied to flowers, and those that exist are not harmonised.
- A foreign committee would have been responsible for verifying compliance with Colombian environmental regulations. The Colombian government considered such an arrangement "inadmissible", as that task fell within its exclusive competence.

Colombia was particularly concerned about the risk that private organisations "with no qualification as international certifiers and without being subject to any kind of international standards", would be in a position to issue environmental product labels. To drive this point home, Colombia concluded with a reminder to other WTO members of the relevance of the TBT Agreement's Code of Good Practice in this matter:

> … it is of capital importance for the Code of Good Practice for the Preparation, Adoption and Application of Standards of the Agreement on Technical Barriers to Trade to be applied to voluntary eco-labels. … It is clear that if a private, recognised institution approves a document containing rules, guidelines or specifications on products or the related production processes and methods, intended for generalised and repeated albeit optional use, it is subject to the provisions of the Code.

Responses to developing-country concerns

Responses to Colombia's concerns have been mixed. Unable to reach a deal with Asocolflores, the BGI agreed to help create an office of the Colombia Flower Council in Germany in order to promote local consumption of Colombian flowers.

Meanwhile, the Flower Campaign's interest in Colombia increased. It began collaborating with an organisation of female Colombian flower workers, Cactus (Colombia, 1998). It also entered into a dialogue with flower importers, florists, human rights organisations and trade unions in an effort both to improve the transparency of its FLP and its acceptability to various stakeholders, including foreign growers. The new structure and labelling criteria, based on an International Code of Conduct for the Production of Cut Flowers (ICC),[5] were announced in May 1999, coinciding with the unveiling of a new label, "flowers from humane and environmentally careful production" (Brassel and Rangel, 2001). Since then, one flower exporter in Colombia that is a member of Asocolflores (Inversiones Morcote S.A.) has agreed to join the FLP, even though

5. The ICC is based on the Universal Declaration of Human Rights, relevant International Labour Organisation (ILO) conventions and "basic environmental standards", as well as on the information gathered in the course of the Campaign's work with partners in both Germany and the exporting countries.

Asocolflores itself has chosen to stay out of the programme. (The other 60 FLP-certified farms are in Ecuador, Kenya, Tanzania, Zimbabwe and Portugal.)

Although the Flower Campaign's FLP does not directly involve intervention by government regulators, it has been able to obtain a small amount of project assistance from Germany's GTZ (*Gesellschaft für Technische Zusammenarbeit* or Agency for Technical Co-operation). The BMZ created a public-private partnership, which was carried out in co-operation with the GTZ. In the context of this partnership, the FLP received both technical support (*e.g.* in Zimbabwe and Kenya) and financial support to help establish the labelling programme in Germany.

Concluding observations

This case study demonstrates that private eco-labelling schemes, because they are voluntary, can be used effectively to bring about changes in production methods. However, private schemes should not assume that all foreign producers, much less their governments, will be willing to participate in them. By maintaining transparency and encouraging dialogue, however, common ground can often be found.

References

Ammons, E. Amber (1997), "Colombia's flower exports", Trade and Environment Database (TED), Case No. 108, www.american.edu/projects/mandala/TED/flower.htm.

Asocolflores (2004), "Florverde", www.asocolflores.org/noticias/news.php?action=detail&id_publicacion=62.

Brassel, Frank and Cruz Emilia Rangel (2001), *International Social Standards for the International Flower Industry*, FIAN, Herne, Germany.

Castellanos, Julissa (1997), "Rose trade and the environment", Trade and Environment Database (TED) Case Study No. 431, www.american.edu/projects/mandala/TED/rose.htm.

Colombia, Government of (1998), "Environmental Labels and Market Access: Case Study on the Colombian Flower-Growing Industry", Document Nos. WT/CTE/W/76 and G/TBT/W/60, 9 March, World Trade Organisation, Geneva.

Greiner, Andreas (1998a), "Signalfarbe auf dem Blumenmarkt [Signal lights from the flower market]", *Akzente aus der Arbeit der GTZ*, No. 1/98, *Gesellschaft für Technische Zusammenarbeit*, Eschborn, Germany, www.gtz.de/dokumente/AKZ/deu/AKZ_98_1/akz1_98.pdf.

Greiner, Andreas (1998b), "Vouching for environmental and social standards. Ecuador's producers join Flower Label Programme, Gate 2/98, *Gesellschaft für Technische Zusammenarbeit*, Eschborn, Germany.

Havalaar, Max (2004), Fair Trade Conditions, http://fairtrade.net/.

Rodriguez, Marta and Jorge Silva (1988), "Love, Women and Flowers" (film).

Verbruggen, H., S. Jongma and F. van der Woerd (1997), "Eco-Labelling and the Developing Countries: The Dutch Horticultural Sector", in S. Zarilli, V. Jha and R. Vossenaar (eds.), *Eco-Labelling and International Trade*, MacMillan, London, pp. 143-159.

Wijk, Joeren van (1994), "Floriculture in Colombia", Biotechnology and Development Monitor, No. 20, pp. 4-5, www.biotech-monitor.nl/2003.htm.

Chapter 18

Mangrove Protection Initiatives and Farmed Shrimp

This chapter shows how the sometimes destructive effects of shrimp farming on mangrove forests led some environmental groups to try to block expansion of the industry. In response, the shrimp aquaculture industry developed a voluntary programme to certify responsible aquaculture practices. As well, various intergovernmental organisations have joined forces to improve the environmental performance of shrimp farming.

Introduction

Shrimps, or prawns, are harvested both from wild stocks and from ponds and other enclosures where the marine crustaceans are cultured. The farming of shrimp is has often proved to be more profitable than other coastal agriculture alternatives such as cattle grazing or rice farming. Thanks in part to encouragement by multilateral and bilateral lending agencies — particularly the World Bank, the Asian Development Bank, the Inter-American Development Bank and, in Latin America, the United States' Agency for International Development (USAID) — shrimp aquaculture has been one of the fastest-growing segments of the seafood industry since the late 1980s. The total annual production of farmed shrimp today exceeds 1 million tonnes. Most comes from shrimp farms located in the coastal zones of Asia and Latin America, though recently a few large farms have also been established in eastern Africa and the Middle East. The bulk of shrimp production comes from small family farms which are a major source of employment in India, Vietnam, Thailand, Bangladesh, and Indonesia. Once a subsistence activity largely serving local communities, shrimp farming has become a predominantly export-oriented industry, mainly serving consumers in developed countries. Japan, Europe and the United States are the biggest importers of shrimps; about one-quarter of the EU's shrimp consumption is estimated to be supplied from prawn farms in developing countries (Gregow, 2000).

The environmental impact of shrimp farming has been a subject of much controversy. One of the most publicised problems is the conversion of mangrove forests to ponds. Mangroves rank among the most productive ecosystems in the world. They play a vital role in protecting coastal areas from the erosive forces of winds and waves and serve as nurseries for many marine species. Thousands of subsistence fishers in the developing world depend on them, as do people who have traditionally practised low-intensity (polyculture) forms of shrimp farming.

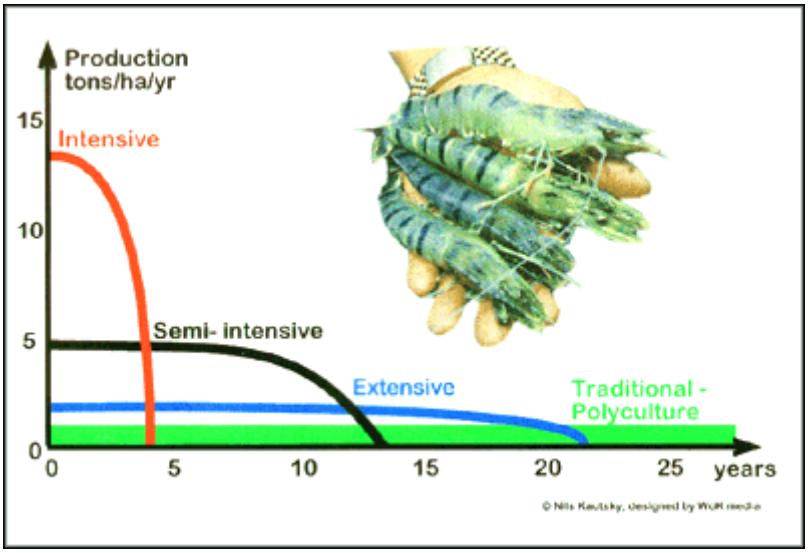
The impression given by much of the literature of non-governmental organisations (NGOs) is that the clearing of mangrove forests for shrimp aquaculture has been one of the leading causes of mangrove forest destruction in the world. To many environmental groups, the "rapid and unregulated expansion" of shrimp aquaculture in developing countries is emblematic of what they see as the careless regard for the environment that too often accompanies global, export-oriented development. As recently as September 2000, Greenpeace International described shrimp farming as:

> … an unsustainable industry, migrating from place to place, leaving behind a trail of degraded landscapes stripped of biodiversity, and destitute people. Not only coastal wetlands, *particularly mangroves*, and the coastal communities that depend on them, but also farming areas have been destroyed, particularly in India and Bangladesh, where small farmers who once harvested rice, millet and other crops near the sea in small plots of land, have been dislodged by force, or by salinisation from the encroaching shrimp ponds. On the whole, shrimp farming brings few benefits to local communities. Employment levels per hectare of land farmed for shrimp are relatively low, while at the local level shrimp farming creates unemployment and underemployment by displacing other local economic activities. (www.greenpeace.org/politics/wto/shrimp.html) [emphasis added]

The industry, naturally, refutes these claims. While admitting that somewhere between 55% and 60% of the 31 million hectares once covered by mangrove forests have already been destroyed, they argue that less than 5% of that loss can be attributed to

shrimp farming.[1] Though mangrove-dominated ecosystems are suitable sites for extensive aquaculture, the industry has come to realise that they are generally not as profitable for semi-intensive and intensive operations as sites located inland of the high-tide mark; indeed, virtually all of the growth in shrimp aquaculture over the last decade has come from farms built away from saline areas. Poorly managed semi-intensive and intensive farms create their own set of problems, however, and many have had to be abandoned within a few years. Figure 18.1 depicts an environmentalist's subjective impression of the sustainability of different forms of shrimp culture based on past performance.

Figure 18.1. One view of the sustainability of different forms of shrimp culture



Source: Nils Kautsky, as reproduced in *Quarto* (1998).

Despite early discord and misunderstandings between environmental NGOs, producers and governments of importing and exporting countries, a much higher degree of international consensus is beginning to emerge. Environmental NGOs — which can be credited with creating greater awareness of the conflicts between industrial-scale shrimp farming and mangroves — are now working with intergovernmental bodies to promote a code of conduct for shrimp aquaculture. For its part, the industry itself is on the verge of introducing its own "Responsible Aquaculture Programme", complete with a system of certifiable standards for sustainable aquaculture farming. What is perhaps unusual about the history of this issue is that those opposed to the early practices of the shrimp aquaculture industry sought change through means other than government-imposed import prohibitions or other trade-related measures, preferring instead to put pressure on lending institutions while working with shrimp-producing countries and policy makers to encourage more sustainable use of coastal zones.

Development of the environmental measures

In 1992 a small group of like-minded NGOs and scientists concerned about the degradation of mangrove forest ecosystems worldwide, and that wanted to reverse that

1. Global Aquaculture Alliance, www.gaalliance.org/issu2.html, November 2001.

degradation, founded a new organisation, the Mangrove Action Project (MAP). MAP's central aim is to promote the rights of local coastal peoples, including fishers and farmers, in the sustainable management of coastal areas. MAP has defined its role as providing essential services to grassroots associations and other proponents of mangrove conservation, including: *i)* co-ordinating an international NGO network and information clearinghouse on mangrove forests; *ii)* promoting greater public awareness of mangrove forest issues and of the basic needs and struggles of third-world coastal fishing and farming communities; and *iii)* developing technical and financial support for NGO projects. MAP supports a bottom-up approach and works with local stakeholders to find viable, long-term, equitable solutions to their problems.

MAP frequently called for voluntary consumer boycotts of all farm-raised shrimp, with little success.[2] One important vehicle for spreading their message has been the organisation of opponents of shrimp farming in certain communities. In October 1996, for example, MAP, along with 20 other local and international NGOs from the Americas, Europe and Asia, organised a forum in Choluteca, Honduras, on "Aquaculture and its Impacts". At the conclusion of the forum, the participants issued "The Choluteca Declaration", a document setting out 18 specific demands relating to shrimp aquaculture and mangrove forests (www.dec.ctu.edu.vn/cdrom/cd6/projects/shrimp_tribunal/pov3.html). Among other demands, the Declaration called for application of "the precautionary principle to every step in the development of shrimp aquaculture", and exhorted funding agencies like the World Bank to stop financing aquaculture development. Its final demand was for "a global moratorium on any further expansion of shrimp aquaculture in coastal areas until the criteria[3] for sustainable shrimp aquaculture are put into practice."[4]

Earlier in that same year, over 200 representatives of governments and NGOs around the world met at the United Nations in New York in an NGO-organised, self-proclaimed Shrimp "Tribunal". The purpose of the Tribunal was to assess how well governments in major shrimp-producing countries were living up to their commitments to implement sustainable development practices. Seven governments stepped forward to make statements and respond to NGO questions about the environmental, social and economic impacts of shrimp production, and to describe actions taken by them to address those impacts and assure the sustainability of shrimp production.

By 1998 the Tribunal announced that it had achieved its initial goals:

> Governments, international agencies, industry, and increasingly the public recognise that there are serious problems with industrial shrimp production. … The Tribunal has found that in many instances needed laws and policies are already in place, but are not actually being implemented. We have seen and are encouraged to note that there has been a start to dialogues between environmental and community groups and industry on more sustainable practices.[5]

2. Several other NGOs have also urged voluntary consumer boycotts; see Miller (1999).

3. One difficulty has been in obtaining international consensus on what those criteria might be. Attempts to use existing international frameworks have focused on relevant multilateral environmental agreements , particularly the 1971 Convention on Wetlands (the Ramsar Convention), the Biodiversity Convention, and the FAO Code of Conduct for Responsible Fisheries, adopted in 1995.

4. Lately MAP has begun to address other serious problems affecting mangrove forests, such as logging, oil, charcoal and tourism industries.

5. Mangrove Action Project, P.O. Box 1854, Port Angeles, WA 98362-0279, USA, e-mail: mangroveap@olympus.net.

Nonetheless, NGO campaigns against unsustainable shrimp farming continued, through umbrella organisations such as the Shrimp Sentinel Online (an electronic elaboration of the Shrimp Tribunal) and the Industrial Shrimp Action Network, as well as MAP and a long list of international and local environmental organisations. Notably, these coalitions of international and local NGOs were instrumental in getting moratoriums on new shrimp farms declared or recommended in several exporting countries. The following is a brief overview of initiatives in Honduras and Tanzania (by way of example), focusing on the period of most intense activity, 1995-98.

Honduras[6]

In September 1994 a ship owned by Greenpeace arrived in the Gulf of Fonseca, the body of water around which most of Honduras's shrimp farming operations are located. The purpose of the ship's visit was to focus attention on the interrelation between land and ocean ecosystems, of which the Fonseca Gulf provided an excellent example, given its plentiful mangrove swamps. Greenpeace met with various NGOs from Honduras, El Salvador and Nicaragua to discuss the economic and political roots of mangrove destruction. Volunteers from Greenpeace and the Honduran environmental organisation, CODDEFFAGOLF (Committee for the Defence and Sustainable Development of the Flora and Fauna of the Fonseca Gulf), also took part in a protest in the shrimp-farming areas, where they displayed banners with messages calling for a halt to the exploitation of mangroves.

In August 1996, after strong urging from CODDEFFAGOLF, the Honduran government decreed a one-year moratorium on new licences for shrimp farms. In spite of the moratorium, some 60 new shrimp farms were established over the following year. On 22 July 1997, around 3 000 fishers and other sympathisers of CODDEFFAGOLF marched on the nation's capital, Tegucigalpa. Several days of sit-ins and high-level meetings with federal officials followed, and in the end the government promised to increase enforcement and to extend the moratorium through June 1998. A new decree (No. 105-97) was issued, thereby widening the moratorium to include a ban on expansion of existing shrimp farms in the Gulf of Fonseca. The decree also called for environmental impact studies to identify what measures would be necessary to conserve mangrove forests and coastal wetlands, assure the sustainability of the shrimp industry, and reduce the negative impacts of giant shrimp farms on local communities. According to CODDEFFAGOLF, during the six months following passage of the decree, no studies were undertaken, and shrimp farming continued to expand uncontrollably. Yet satellite imagery of the Gulf of Fonseca region shows that mangrove areas have increased in the last ten years.

Tanzania

In early 1997 an Irish-owned company, African Fishing Company (AFC), submitted a formal environmental impact assessment (EIA) to the Tanzanian government on its proposal to establish almost 20 000 hectares of shrimp farms in the Rufiji Delta, the largest continuous block of mangrove forest in East Africa (53 000 hectares). In June the government directed the country's National Environmental Management Council (NEMC) to undertake its own EIA, which was completed in August. The NEMC urged the Tanzanian government to reject the project because of its environmental impacts, and

6. This account is based mainly on Smith (1998).

recommended that "a moratorium be declared on all commercial mariculture in Tanzania until the government establishes proper guidelines for the development of commercial aquaculture in the country and that aquaculture should not be conducted in ecologically sensitive areas like mangroves". Nonetheless, the Tanzanian government approved the AFC project in November 1997.

From an early stage, a group calling itself the Journalists' Environmental Association of Tanzania (JET), along with several other environmental organisations, had expressed strong opposition to the project. To attract attention to their campaign, JET enlisted the help of the Swedish Society for Nature Conservation and environmental organisations from Kenya, India and the United States (including MAP). In February 1998 these organisations convened a workshop on mangroves and aquaculture in Mombasa, Kenya, under the auspices of the East Africa Wild Life Society (EAWLS). The "Mombasa Declaration on Mangrove Conservation & Industrial Shrimp Aquaculture", issued at the end of the workshop, called upon the governments of eastern Africa to encourage sustainable natural or traditional shrimp aquaculture, and appealed specifically to Tanzania to reconsider its decision to approve the proposed large-scale industrial shrimp farm in the Rufiji Delta.

In April 1998, a group of more than 2 000 residents of the Rufiji Delta, aided by the Lawyers Environmental Action Team (LEAT), filed an application with the Tanzanian High Court for permission to sue the government over its approval of the AFC project. Although they encountered initial setbacks, the LEAT lawyers eventually won an injunction to stop the proposed shrimp farm. Among other resources tapped to help them prepare their case, the lawyers enlisted the assistance of the Environmental Law Alliance Worldwide (E-LAW), an online network of environmental lawyers and scientists based in the United States, who volunteer their time to serve low-income communities around the world (E-LAW, 2001).

Trade issues and exporters' responses

The effects of the various mangrove-protection campaigns and initiatives on the export of shrimp from aquaculture farms in developing countries have never been measured, in part because farms in many of the countries targeted by the campaigns were already suffering from other problems, particularly shrimp diseases. However, it is clear that the campaigns had important impacts in other ways.

First, the campaigns seem to have influenced the process of financing shrimp farms. During the 1980s, multilateral lending institutions had provided loans to several developing countries for shrimp aquaculture projects as part of a drive to encourage non-traditional exports (to repay external debt) and more generally to enter onto an export-led development path. Although the World Bank's International Finance Corporation (IFC) continued to provide funds to private investors for the expansion of shrimp farming throughout the 1990s, they required compliance with defined environmental standards.[7] Second, the campaigns forced national policy makers, regulators and producers to become much more sensitive to mangrove ecosystems and

7. As shrimp volume continues to increase and profits diminish, consolidation and integration are occurring in the shrimp farming business. This is a typical evolution, and one that can be observed throughout the agricultural and fisheries sectors. It is leading to the involvement of larger companies, especially in those segments of the business that offer economies of scale, such as genetic improvement, feed manufacturing, and processing.

their role in protecting the natural resources on which some of the poorest members of their societies depend.

The resentment of some developing country governments to what they saw as outside interference in their chosen development path impelled them to seek assistance from sympathetic intergovernmental organisations of which they were members (see below). The industry itself, or at least a major element of it, decided, however, to pursue a route that would distinguish those producers that practised "responsible shrimp farming" from those that did not, in the hope that the former group would thereby be spared further NGO campaigns and recompensed for their more responsible behaviour through higher prices.

The institution established by the industry to carry out this mission, the Global Aquaculture Alliance (GAA), was founded in 1997 by a score of aquaculture industry leaders "to facilitate co-operation among varied elements of the industry, to resolve problems, and [to] maintain public confidence in aquaculture products". Activities of the GAA are overseen by a 12-person board, which includes active aquaculture professionals from both exporting and importing countries. Its direct membership of 1 500 consists of founding, governing, sustaining, and individual members. It also includes a much larger indirect membership through affiliated national producer associations from Brazil, Honduras, Ecuador, Colombia, Guatemala, Australia, Thailand and India. Members range from small family operations to multinational corporations. It also represents the entire value chain of hatcheries, farms, feed companies, processors, importers, retailers and food service companies.

Since its creation, the GAA's core activity has been to develop a "Responsible Aquaculture Programme" (RAP), based on a set of guiding principles intended to improve the efficiency and long-term sustainability of the aquaculture industry and, ultimately, to provide certified products to those consumers who want assurances that they can buy farm-raised seafood in good conscience. The GAA's approach started from the premise that, given the diversity of designs and management practices around the world, it is impractical to expect all shrimp farms to achieve programme standards at the same time. The programme therefore allows producers to progress through four levels of achievement. At completion, participants are to receive certification of their shrimp farming process as part of the "Best Aquaculture Practices" programme.

One of the first GAA activities was sponsorship of a meeting of international mangrove experts in Bangkok to develop a report and recommendations relative to the mangrove issue. The report concluded that shrimp farming had destroyed less than 5% of the world's mangrove resource, but recommended a series of practices to eliminate further destruction. Those recommendations became the first of a series that GAA published as the "Codes of Practice for Responsible Shrimp Farming", which was completed in 1999. With respect to mangroves, the second guiding principle admonishes companies and individuals engaged in aquaculture to "utilise only those sites for aquaculture facilities whose characteristics are compatible with long-term sustainable operation with acceptable ecological effects, particularly *avoiding unnecessary destruction of mangroves* and other environmentally significant flora and fauna" (emphasis added). Individual codes of practice have also been developed for particular aspects of shrimp aquaculture; the one for mangroves starts by recommending that no new shrimp farms be developed within mangrove ecosystems (Box 18.1).

According to the GAA, "The Codes of Practice were created as flexible guidelines for the formulation of site-specific systems of responsible shrimp production. Implementation methods will vary based on individual farm methods, goals and local

conditions." Nonetheless, in the first step towards certification — taking the Best Practice Pledge — participants agree to make their best effort to apply them. The second and third steps involve a self-assessment audit and the preparation of an environmental management plan. Certification itself begins with an initial inspection of the management plan by a certifying company, accredited by the Aquaculture Certification Council (ACC), an independent certifying organisation. The ACC Certification Committee then reviews the recommendation and, if it is in order, issues a three-year certificate with a unique number.

Box 18.1. The GAA's recommended management practices relating to mangroves

It shall be the objective of all adherents to this Code not to harm mangrove ecosystems, and whenever possible, to preserve and even enhance the biodiversity of these ecosystems. The following practices will ensure the protection of mangrove ecosystems:

1. New shrimp farms should not be developed within mangrove ecosystems.

2. Realising that some mangrove must be removed for canals when new shrimp farms are sited behind mangroves, a reforestation commitment of no net loss of mangroves shall be initiated.

3. Farms already in operation will continue ongoing environmental assessments to recognise and mitigate any possible negative impacts on mangrove ecosystems.

4. All non-organic and solid waste materials should be disposed of in an environmentally responsible manner, and wastewater and sediments shall be discharged in manners not detrimental to mangroves.

5. The shrimp aquaculture industry pledges to work in concert with governments to develop sound regulations to enhance the conservation of mangroves, including regulations regarding restoration of mangrove areas when old farms located in former mangroves are decommissioned.

6. The shrimp aquaculture industry will promote measures to ensure the continued livelihood of local communities that depend upon mangrove resources.

Source: Global Aquaculture Alliance, www.gaalliance.org/code1.html, accessed 12 November 2001.

Originally, the GAA had envisaged a consumer-oriented programme, which would have required preserving the identity of the certified product throughout the distribution channel. To confirm this "chain of custody", an annual audit of each processor would have been required to assure that documented control systems were in place to separately track certified and uncertified products through the processing plant. However, because of new consumer fears over food safety that arose early in 2002 (specifically, the discovery of banned antibiotics in the shrimp of some exporting countries), which raised the spectre of certifiers being held liable for ensuring the safety of the product, the GAA retreated from its original idea. Food safety and some traceability components were retained, but the revised programme is now aimed at major buyers, *e.g.* seafood companies, rather than final consumers. This eliminates the need for chain-of-custody certification and reduces costs.

In developing its private certification and accreditation programme, which has been operated since 2002 by the Aquaculture Certification Council (ACC), Inc.

(www.aquaculturecertification.org), the GAA's Technical Committee studied many international and national models, both public and private — particularly for organic agriculture, forest products and marine fish — and consulted numerous stakeholders and independent experts. As of September 2005, five hatcheries, 15 shrimp farms, and four shrimp processing plants had been certified to the GAA standard. Certification itself is carried out by any of more than 65 ACC-accredited certifiers, most of whom are individuals based in developing countries.

In the meantime, developing-country governments have started to develop similar programmes, in parallel or in co-operation with the GAA. Thailand's Department of Fisheries (DOF), for example, has developed a Code of Conduct for shrimp farming very similar to that of the GAA. Testing of the Code was carried out at two demonstration sites along the Rayong River, where techniques compatible with its standards were already being practised. Among the activities in which these farms engage are the raising of mangrove seedlings, which are later transplanted to supplement and increase the natural growth of mangroves along the canals. Other shrimp farmers in the area are taught about the mangroves' benefits as natural filtration systems, storm buffers and habitats for diverse ecosystems. The government's aim is to designate shrimp produced according to the standards set by the Code of Conduct as "quality shrimp". This designation is meant to guarantee that the shrimp are a quality product that is safe to consume, and that they are grown in an environmentally responsible manner. The "quality shrimp" stamp of approval also entitles producers to market their products at a premium price (Heerin, 2002).

Responses to developing-countries' concerns

International responses

NGOs also attempted to exert their influence through intergovernmental organisations (IGOs), notably the Food and Agricultural Organisation's (FAO) Fisheries Department and the World Bank. Commercial shrimp farmers were unfamiliar with these bodies, but soon learned the importance of participating to assure that both sides of each issue are heard. Both of these IGOs responded in ways that were sympathetic to the desire of their member countries to continue exporting shrimp, but that also recognised the environmental problems that shrimp aquaculture was creating.

The FAO set the tone of the recent international initiatives by organising a multi-stakeholder Technical Consultation on Policies for Sustainable Shrimp Culture, in Bangkok in December 1997. In addition to delegates from 11 of the world's leading shrimp-farming nations, the list of participants included representatives from the GAA, Greenpeace International and the World-Wide Fund for Nature (WWF). To quote from the abstract from the final report (FAO, 1998):

> The Technical Consultation … produced a consensus that sustainable shrimp culture is practised and is a desirable and achievable goal, which should be pursued. There is ample reason for considering shrimp culture, when practised in a sustainable fashion, as an acceptable means of achieving such varied national goals as food production, employment and generation of foreign exchange. Achievement of sustainable shrimp culture is dependent on effective government policy and regulatory actions, as well as on the co-operation of industry in utilising sound technology in its planning, development and operations. Noting that appropriate government responsibilities regarding aquaculture development are outlined in the Code of Conduct for

Responsible Fisheries (CCRF), adopted by the FAO Conference in 1995, the Consultation recommended a range of desirable principles to be followed in the establishment of legal, institutional and consultative frameworks and government policies for sustainable shrimp culture.

The consultation also recommended a number of specific areas for research and, in particular, it recommended that the FAO convene several other follow-up consultations. Since then, the FAO has sponsored a wide range of activities, most of which support efforts to implement the CCRF in relation to shrimp culture activities. In 1998, for example, experts were invited to develop criteria and indicators to assess progress towards implementing the code. Among the criteria are several that relate to the status of mangrove protection programmes and the impact of all users on mangroves.

Since 1999, the FAO has combined forces with the World Bank,[8] the Network of Aquaculture Centres in Asia-Pacific (another intergovernmental organisation), and the WWF, in the interest of co-ordinating a joint programme "to analyse and share experiences on the better management of shrimp aquaculture in coastal areas". To date, the Shrimp Aquaculture Consortium has produced a large number of case studies on different aspects of shrimp aquaculture, a draft set of objectives for shrimp aquaculture management, and considerable information on applicable laws (and their enforcement) in countries that culture shrimp. The case studies are credited with documenting some of the positive social benefits to local communities from shrimp aquaculture (which, in the case of Mexico's study, "may have changed the ways NGOs look at the shrimp aquaculture industry", according to the Consortium) and highlighting inadequacies in several countries' regulatory frameworks. The inventory of national laws has facilitated peer reviews and the development of suggestions for good regulatory practice (Howarth *et al.*, 2001).

Support of a more scientific nature is being provided by the International Tropical Timber Organization (ITTO). One of the activities it has helped finance is the International Society for Mangrove Ecosystems (ISME), an international NGO located at the University of Ryukyus in Okinawa, Japan. Since its founding in 1990, the ISME has established four regional centres, in Brazil, Fiji, Ghana and India. In December 1997 ISME began work on establishing a Global Mangrove Database and Information System (GLOMIS), which addresses the need for assembling (often local) knowledge on the structure and dynamics of different types of mangrove ecosystems and on their socio-economic value (Vannucci, 1998; see also www.glomis.com).

National initiatives

National governments have generally provided support for more sustainable shrimp production through the IGOs of which they are members. Several national aid agencies of OECD member countries are official partners of the World Bank's Fisheries and Aquaculture Network, for example. A few member countries have, in addition, supported smaller-scale activities. In 1999, Germany's GTZ (*Gesellschaft für technische Zusammenarbeit*) provided financial support to Naturland, one of the world's major certifying organisations for organically grown produce, to set up a pilot project in Ecuador to produce shrimp according to organic principles. (Ecuador, along with Thailand, is a leading supplier of shrimp to Germany.) This project, the first of its kind,

8. The World Bank operates a Fisheries and Aquaculture Network that involves the same organisations, plus a number of research institutes, government fisheries agencies and aid agencies.

involves three farms. After a long period of preparation, Naturland finally issued its standards on organic shrimp production at the end of 1999; in 2000 it certified the first shipment of organic shrimps from these farms (www.naturland.de/englisch/frame_defs/framedef.html). Since then, shrimp farms in Brazil, Indonesia, Peru, Thailand and Vietnam have also received organic certification, not all by Naturland.

Concluding observations

Thanks in large part to NGO campaigns to increase awareness of the damage being caused to mangrove forests by poorly planned and executed shrimp aquaculture operations, some positive changes in the shrimp farming industry are starting to occur. Significantly, the campaigns appear to have been instrumental in convincing several multilateral lending agencies to sharply reduce their funding for shrimp farms that involve the destruction of mangrove forests. They have helped galvanise local groups that have been adversely affected by shrimp aquaculture; in several cases, pressure from local groups led to moratoriums being declared on the expansion of new farms, though the moratoriums have often been overturned or ignored. Perhaps most importantly, they have spurred a major part of the industry to develop its own Responsible Aquaculture Programme, based on quantitative standards and third-party certification. It is significant that the GAA, which developed the RAP, as well as several environmental NGOs active on this issue, have from the start participated in virtually all of the intergovernmental events and activities relating to shrimp aquaculture that have taken place over the last four years.

In contrast to the way that turtle protection in harvest shrimp fisheries has been addressed, the approach of NGOs and governments to the shrimp-mangrove issue has largely followed the route of participative action at the global level, and development-oriented action at the national level. The result is a gradual but steady appreciation of the problem among all stakeholders and comprehensive action towards protection of mangroves. In particular, governments of importing countries have not attempted to apply any trade restrictions on farmed shrimp, and NGOs have not called for them. At the same time, research is starting to be directed at issues relating to shrimp aquaculture and mangrove ecosystems. These initiatives, along with technical and financial assistance on developing sustainable alternatives to farming shrimp on land formerly occupied by mangrove forests, may yet help protect mangrove forests from excessive destruction while allowing exports from sustainably managed aquaculture to prosper.

References

Barnhizer, David (2001), "Trade, Environment and Human Rights: The Paradigm Case of Industrial Aquaculture and the Exploitation of Traditional Communities", Port Angeles, Washington, www.earthisland.org/map/trd-hmn.htm.

Csavas, I. (1990), "Aquaculture Development and Environmental Issues on the Developing Countries of Asia", *FAO Conference on Environmental Issues on Third-World Aquaculture Development*, 17-22 September, Bellagio, Italy.

E-LAW (2001), "2001 E-LAW Annual Meeting", Environmental Law Alliance Worldwide, Eugene, Oregon, www.elaw.org/yachats/.

FAO: Food and Agricultural Organisation of the United Nations (1998), *Report of the Bangkok FAO Technical Consultation on Policies for Sustainable Shrimp Culture*, Bangkok, Thailand, 8-11 December 1997, FAO Fisheries Report No. 572, FAO, Rome, www.fao.org/fi/faocons/shrimp/bangk.asp.

Gregow, Karin (2000), "Tour around Sweden against Tropical Shrimp", *The Peregrine* (Newsletter of The Swedish Society for Nature Conservation), No. 1, p. 10, www.snf.se/pdf/nyh-peregrine-100.pdf.

Heerin, Susan V. (2002), "Leading by Example — New Directions for Sustainable Shrimp Farming in Thailand", *Global Aquaculture Advocate*, April, www.gaalliance.org/ceissu5.html.

Howarth, William, Romualdo E. Hernandez and Annick Van Houtte (2001), *Legislation Governing Shrimp Aquaculture: Legal Issues, National Experiences and Options*, FAO Legal Papers Online #18, June, Food and Agriculture Organization of the United Nations, Rome, www.fao.org/Legal/default.htm.

Miller, Paul J. (1999), "Investigation of the Shrimp Industry in Thailand for the Swedish Market: Is It Possible to Determine the Origin of the Shrimp and Can Wild Caught Shrimp be Distinguished from Cultivated Shrimp?", Final Report for the Swedish Society for Nature Conservation, 31 March, Stockholm, www.snf.se/pdf/rap-jatterakor-thailand.pdf.

Quarto, Alfredo (1998), "The Rise and Fall of the Blue Revolution", *SWARA* (The Magazine of the East African Wildlife Society), October-December, pp. 16-21, www.earthisland.org/map/blrvl.htm.

Quarto, Alfredo, Kate Cissna and Joanna Tylor (1996), "Choosing the Road to Sustainability: The Impacts of Shrimp Aquaculture and the Models for Change", *International Live Aquatics' 96 Conference*, Seattle, Washington, www.earthisland.org/map/rdstb.htm.

Rönnbäck, Patrik (2002), *Environmentally Sustainable Shrimp Aquaculture*, Study prepared for the Swedish Society for Nature Conservation, Stockholm, www.snf.se/pdf/rap-inter-rakodlingar2.pdf.

Smith, Deborah A. (1998), "The Honduran Shrimp Farming Industry: Social and Environmental Impacts", *Shrimp Sentinel Online*, New York University School of Law, New York.

UNEP: United Nations Environment Programme (1999), "Trade Liberalisation and the Environment: Lessons learned from Bangladesh, Chile, India, Philippines, Romania and Uganda: A synthesis Report", UNEP.

Vannucci, Marta (1998), "Global Mangrove Database and Information System (GLOMIS)", *ITTO Newsletter*, Vol. 8, No. 2.

Chapter 19

Private Certification of a Fishery as Sustainable

This chapter describes the development of a voluntary, third-party certification scheme based on standards for sustainable fishing practices. First proposed by an environmental group and a large corporation, the scheme has gradually gained supporters through its efforts to inform the various stakeholders and convince the fishing industry of the value of certification, which requires abiding by a set of principles and criteria and gives the right to use the scheme's logo.

Introduction

In its 1996 edition of *The State of the World Fisheries and Aquaculture* (SOFIA), the Food and Agriculture Organization of the United Nations (FAO) reported that of the top 200 most important commercial fish species, 35% were in the senescent phase (*i.e.* characterised by declining landings), 25% were in the mature phase (*i.e.* characterised by a high level of exploitation), and 40% were still being developed. To many observers, these figures suggested that 60% of the world's fish stocks were in urgent need of more effective management. More recent figures from the FAO suggest that the situation has not changed markedly.[1]

It was against this background that in 1996 the World Wide Fund for Nature (WWF) and Unilever, one of the world's largest buyers of frozen fish, launched a joint initiative that eventually led to the creation of a voluntary, third-party certification scheme based on standards for sustainable fishing practices. A new independent body, the Marine Stewardship Council (MSC), was created in order to accredit certifiers, and a new logo was developed for use on certified products. For the idea to work, informed consumers would have to be willing to pay a premium for labelled fish or fish products that they could trust had come from a sustainable source. It would also require convincing fishers that it was in their interest to participate in the scheme.

The initiative was applauded by numerous individuals, businesses and non-governmental organisations across the globe. Nonetheless, many governments and groups representing the fish-harvesting segment of the industry were initially highly sceptical of, and in a few cases actively hostile towards, the MSC. The very notion that a single set of standards could be developed and applied to the diverse conditions under which fish were harvested around the world, and even within the same fisheries, was ridiculed, even though these standards had drawn heavily on an agreed set of international norms, the FAO Code of Conduct for Responsible Fisheries (CCRF). Developing countries were particularly concerned that their small-scale, "artisanal", fisheries would either fail to meet the criteria for certification or not be able to afford to undergo the process. Questions were also raised about whether a centralised, private entity — especially one established by two organisations considered by some producers to be intrinsically antithetical to the interests of fishermen (the one a large buyer, the other known to oppose commercial whaling) — could be trusted to apply its standards objectively.

Over the years since it was conceived, the MSC has gradually gained new supporters in the seafood industry, and has made earnest efforts to address the particular concerns of developing-country exporters. However, applying its certification methodology in the "data-poor" fisheries that are characteristic of many developing countries presents a formidable challenge. As even the WWF itself has openly admitted, unless this and other hurdles can be overcome, the MSC's reputation in developing states will be undermined (WWF, 2001).

1. The latest FAO (2000) report estimates that 25% of the world's fisheries are under-exploited, 47% are fully fished, 15% are over-exploited, and 10% are depleted or slowly recovering.

Development of the measure

The origins of the MSC date to February 1996, when the WWF and Unilever Plc/Nv formed a conservation partnership with the purpose of creating market incentives to encourage sustainable fisheries. The two organisations had different motivations but the same goal. Unilever, which markets seafood under several brand names,[2] realised that the commercial future of its companies would be jeopardised if efforts were not stepped up to reverse the threat posed by over-fishing. The WWF, a leading international conservation organisation, was concerned about the eco-system effects of over-fishing and the environmental problems that could arise if something was not done to reverse the trends.

The MSC spent its first two years developing the standards against which certification would be judged.[3] In September 1996 it invited a group of more than 20 experts to a three-day meeting in Bagshot, England, for the purpose of drafting a set of guidelines for defining "sustainable" fisheries. Among those attending were some of the world's leading authorities in fisheries economics, fish-stock assessment, marine ecosystem analysis and conservation, as well as experts in related social and legal disciplines. In developing what came to be called the MSC's Principles and Criteria, the experts considered a broad range of formal and informal international standards and documents, including the FAO CXRF (FAO, 1995), the United Nations Agreement on Straddling Fish Stocks, and the Principles for the Conservation of Wild Living Resources (Mangel *et al.*, 1996).

Once this initial "Draft Principles and Criteria for Sustainable Fisheries" was drawn up, the MSC organised eight regional consultative workshops in the Americas, Europe, Australasia and Africa at which the principles and criteria were presented and debated. These workshops brought together those considered by the MSC to be its future stakeholders: fishers, regulators, fish processors, fish retailers, consumer organisations, NGOs and other interested parties. The MSC's aim in holding these consultations was to obtain constructive feedback on its draft principles and criteria, while ensuring that the standard remained internationally relevant. In December 1997, the MSC convened a final workshop, outside of Washington, DC, which once again gathered international experts on various aspects of fisheries. It was at this meeting that the first public draft of the principles and criteria was agreed and presented to the MSC Board.[4]

Certification of a fishery, which is carried out by an independent certifier, involves several steps. The process starts when a fishery — or, to use the MSC terminology, a "client" — decides that it wishes to be considered for certification. The client for an MSC Fishery Certification can be one or more groups of fishery stakeholders. Examples of clients from recent and current certifications include a fishing industry association, a local government authority and a government fishery management agency (Peacey, 2000). It then chooses a certifier to carry out a pre-assessment according to the MSC principles and criteria. These principles relate to: *i)* the condition of the fish stock; *ii)* the impact of the fishery on the marine ecosystem; and *iii)* the robustness of the fishery management

2. Including Findus®, Birds Eye® and Iglo®.

3. Although the MSC was informally established in 1996, it did not become a separate legal entity until 1997.

4. During this period, Unilever and the WWF took steps to put the MSC on a separate legal and financial footing. By 1999 the MSC had become independent of its two founders, with its own Board of Trustees, and was being funded by a wide range of charitable foundations, private companies, individuals, and even one government agency (the Swedish International Development Agency).

system. The MSC's role is to accredit the certifier to ensure its competence to carry out the required procedures and to administer the standards and the use of the logo.

The assessment process leading to certification of a fishery is carried out in two stages: pre-assessment and full assessment (Humphreys, 2002). Pre-assessment involves an initial scoping study to identify the major issues in, and potential barriers to, certification of the fishery. It is based on qualitative information gathered through interviews with experts, stakeholders and others, and results in an evaluation of the likely outcome if the client proceeds with the remaining steps towards certification. The next stage, full assessment, involves a comprehensive peer-reviewed scientific appraisal of the fishery against the MSC Principles and Criteria for Sustainable Fisheries. For each of these stages, the MSC has set specific requirements for the conduct of the assessment and the qualifications of the assessment team members. In assessing the fishery against the MSC standards, the certifier develops criteria, indicators and scoring guidelines specifically for the fishery. This is a necessary step because the same standards cannot be applied to fisheries as fundamentally different as salmon and lobster.[5] Before evaluation, these criteria, indicators and guidelines are made available for public review and comment.

If the certifier is satisfied that the fishery achieves a satisfactory score on its performance indicators (the minimum score for each principle is 80%), the certifying team issues an assessment report, which is then validated by peer reviewers. After the peer review, opportunity is again provided for public input into the report before the certifier declares intention to certify or not. Certified fisheries are awarded a Fisheries Management Certificate, which is valid for up to five years. Products from the fishery are eligible to display the MSC logo and to advertise the MSC Claim: "This product comes from a fishery which has been certified to the Marine Stewardship Council's environmental standard for a well-managed and sustainable fishery". Between renewals, the fishery must undergo a monitoring inspection by the certifier at least once a year.

Although participants in a certified fishery may display the MSC logo on fish sold directly to consumers, in practice this is only the case for lobsters and other marine products normally sold in a fresh state. As most fish are further processed and packaged, this introduces the possibility of labelling. Participants in downstream supply chains may display the MSC logo on products sourced from certified fisheries only if they successfully undertake regular "chain of custody" audits. This ensures that the product originated from a certified fishery and has not been co-mingled with non-certified product, *i.e.* that there is traceability from the fishery to the final consumer. Currently, over 280 product lines sold in various forms (fresh, smoked and canned) in 24 countries display the MSC logo (Figure 19.1).

5. The scoring system is not generic, as sometimes implied, though certifiers do build on previous scoring guidelines in developing guidelines for new fishery assessments.

Figure 19.1. The Marine Stewardship Council Logo[6]

Source: Marine Stewardship Council (www.msc.org).

Although the MSC has no control over the costs of certification, which normally must be borne by the client, it has provided rough estimates based on limited experience to date. According to Peacey (2000), depending on the size and complexity of the fishery, the costs for pre-assessments may range from a few thousand USD to over USD 20 000. The next step, full fishery certification, ranges from about USD 10 000 for a small, simple fishery to more than USD 100 000 for a large, complex fishery.[7] The cost for the annual audit is expected to be small compared with the cost of initial certification.

The cost of a chain of custody assessment, which is normally commissioned and paid for by companies wanting to use the MSC logo, will vary depending on the size and complexity of the supply chain. Peacey (2000) estimates the cost at anywhere from under USD 1 000 to over USD 5 000. Companies wanting to use the MSC logo must also enter into a licence agreement with MSC International (the trading arm of the MSC). The fee for on-product use of the logo has been set at 0.1% of product value, *i.e.* USD 1 000 per million USD of product, with a minimum fee of USD 2 000.[8]

One of the first fisheries the MSC chose to try out its principles and criteria was the Thames Blackwater herring fishery,[9] located less than 100 kilometres east of the MSC's London headquarters. An assessment was undertaken in September 1997, and in March 2000 it earned the right to use the MSC logo. Certification of the much larger, export-oriented West Australian rock-lobster fishery was awarded at the same time. Neither of these fisheries contributed to Unilever's fish-brand portfolio. The third fishery to receive full certification, Alaska's wild salmon fishery, did produce a product that Unilever could sell. In November 2000, Unilever launched its first product carrying the MSC logo: Filegro Wild Salmon, which it marketed in Switzerland under the Iglo® brand name.

6. The help of the MSC in supplying the logo is gratefully acknowledged.

7. Some observers have estimated that the costs can run to much more than USD 100 000 for large, complex fisheries.

8. The MSC originally contemplated that these revenues would eventually sustain the organisation.

9. Thames herring is distinguished from other herring species, such as North Sea herring, by having one less vertebra.

Issues raised by developing-country exporters

Fish and fishery products rank among the most widely traded goods derived from natural resources. According to the FAO (2000), about 37% of global fisheries production enters international trade, and about half comes from developing countries. In 1997, when the MSC was officially established, the net foreign exchange earnings of developing countries from exports of fish and fish products stood at around USD 16 billion annually, which, according to the FAO, was larger than their combined net export earnings from coffee, tea, rice and rubber.

Given the importance of fish trade to developing countries, it is perhaps not surprising that the MSC, and its concept of fisheries certification, was initially regarded with suspicion by leaders in the fishing industry throughout much of the developing world. Already by the end of 1996, the FAO, in a report prepared for its Committee for Fisheries (FAO, 1996), observed that industry associations such as the International Fishmeal & Oil Manufacturers Association (IFOMA) and the International Coalition of Fisheries Associations (ICFA) had expressed "very serious reservations" about the MSC and similar initiatives. Likewise, the Latin American Fisheries Development Organisation rejected the MSC initiative in a resolution adopted at its Ministerial Meeting in Havana, on 6 November 1996.[10] Among the most vocal and consistent sceptics of the MSC, at least initially, was the International Collective in Support of Fishworkers (ICSF), an India-based organisation mainly representing fishworkers in developing countries.

In 1997, the ICSF expressed several concerns about the MSC's certification process and its potential implications for artisanal and small-scale fisheries in developing countries. Over 90% of fishworkers in developing countries are employed in the artisanal or small-scale segments of the industry. The ICSF's first concern was the practicability of applying universal standards which, in the ICSF's view, had been developed without due consultation with fishworker organisations[11] and which did not take into consideration the diversity of fisheries in the developing countries. "It would", wrote the ICSF's Executive Director, Sebastian Mathew (2000), "be almost impossible to show, as required by the MSC Principles and Criteria, that a developing-country fishery is subject to an effective management system." The FAO (2000) suggests several reasons why this could be so: the preponderance of small-scale and artisanal fisheries, where management is more complex because of the large number of participants and their lack of alternative remunerative employment opportunities; the multi-species characteristics of tropical fisheries; the lack of financial resources needed to retire significant amounts of excess fishing capacity; and the limited technical and managerial capacities of government agencies, many of which face reductions in their budgetary allocations.

Complaints were also made about the cost of certification and of the chain of custody audit. As mentioned, these costs vary widely, depending on the size and complexity of the fishery, and the amount and quality of biological and economic information already available. At the time that its certification scheme was first mooted, the MSC was

10. The initiative, on the other hand, was seen in a positive light by countries such as Australia and New Zealand, which had made major efforts to improve their fisheries management regimes and therefore believed that they stood a good chance of obtaining a label for one or more of their national fisheries.

11. Mathew (2000) claims that none of the consultations took place in the regions, such as south Asia, that contain the largest number of fishworkers and account for the largest production of food fish in the world. Moreover, the list of signatories and supporters of the MSC mainly includes wholesalers, retailers, environmental groups and consultancy companies; it includes no fishworker organisations from any developing country.

naturally unable to provide more than very rough estimates of what those costs would entail. As estimates of those costs began to take more concrete form, it was clear that fishing communities in many, if not most, developing countries would find the process so elaborate and expensive that on their own they would lack the means to fund the certification process and provide the necessary documentation. Lack of financial means to be certified could make it more difficult for a fishery to defend its claim that it is indeed well-managed and that it maintains the integrity of the ecosystem.

Even though the scheme is purely voluntary, critics have worried that the MSC label might have a negative effect on the market access of non-participants. The fear is that, should eco-labelled fish grow to command a major share of the market, especially in Europe and the United States, developing-country exporters who could not, or chose not to, certify would find themselves competing for shares in an ever-shrinking non-certified market. Exporters in the Americas were particularly sensitive on this point, as their only other previous experience with eco-labelling of fish — the private and then US government-sanctioned labelling of tuna as "dolphin-safe" — had been a contentious one.

Related to this has been the concern that the MSC approach could potentially limit the autonomy of small-scale fishers, who would feel compelled to seek MSC certification because of the market power of the large buyers (Mathew, 2000). Unilever's commitment to buy all fish from sustainable sources by 2005 (announced when it joined forces with the WWF in 1996), and its subsequent commercial relationships with certified fisheries, only seemed to confirm the critics' fears. However, this fear to some extent reflected a misunderstanding of Unilever's relationship with the MSC: in fact, Unilever's product line was and still is based mainly on white-fleshed fish sourced from cold-water fisheries, which are fished largely by developed country fleets. Moreover, of the certified fish that Unilever buys, only part is MSC-certified; the company also buys fish certified under other eco-labelling schemes.[12]

Finally, especially during the early days of the scheme, many fish producers wondered about the benefits of undergoing MSC certification while there was still no clear signal from the market that the price consumers would be willing to pay for eco-labelled fish could more than compensate producers for the costs of certification. Since then, the MSC has reported that both the Thames herring fishery and the New Zealand Hoki fishery (another MSC-certified fishery) have experienced increases prices for their fish (Oloruntuyi, 2002).[13] Whether other certified fish or fish products can yield such a large differential at the retail level is a question that continues to be hotly debated. Indeed, it may be retailers, who are looking for ways to demonstrate a sense of corporate responsibility to shareholders and critics, more than final consumers, who are driving the demand for eco-labelled products. Purchasing and identifying with eco-labelled seafood products presents an opportunity to do just that.

In addition to these market access concerns, some experts have questioned whether the certification of sustainable fisheries would even achieve its desired environmental aim. In its 2000 edition of *SOFIA*, for example, the FAO suggested that, rather than

12. The MSC remains the only operating, third-party eco-labelling scheme for marine fish that is global in scope. A few other eco-labelling schemes have emerged, generally related to a specific aspect of the fishery and limited in geographical scope. Many are based on first-party assessments (*i.e.* self declared).

13. In the Thames fishery, the MSC reports a 50% producer price increase following certification.

"greening" trade, eco-labelling schemes for fish products might simply shift problems elsewhere:

> There is no guarantee that the widespread adoption of eco-labelling programmes for marine fisheries would result in the better management of global fisheries *in toto*. At present, only a small fraction of global fish consumers (most of them living in Europe and North America) are likely to be responsive to eco-labels. Most of the future growth in global fish demand, however, will be in Asia, Latin America and Africa. The private sector is likely to react by directing to eco-sensitive markets only those products that can be certified at a low cost, while other products will be directed to markets that are not eco-sensitive. It cannot be guaranteed therefore, that when a particular fishery fulfils the certification criteria, excess fishing capacity will not be redirected to other uncertified fisheries. This could increase the pressure on some fish stocks in favour of those for which certification is profitably applied. Such negative spillover effects are not unique to eco-labelling schemes and can arise from any fisheries management approach that does not encompass specific measures to avoid the undesirable transfer of excess fishing capacity.[14]

Responses to concerns raised by developing countries

From its inception, the MSC has found itself having to engage in constant dialogue with its critics. In responding to what it regarded as legitimate concerns, it has put considerable effort into trying to make its principles and criteria relevant to fisheries in developing countries. As early as 1998, for example, it had engaged a consultant to help it devise "a strategy for the South"; in September 1999 it hired a fishery scientist to work full time on expanding the MSC's outreach in developing countries.

That strategy, above all, required adapting the Principles and Criteria to facilitate certification of community fisheries.[15] In 2000 the WWF (actively supported by the MSC) started working on a community-based certification methodology; the first public draft of the methodology was issued in June 2001. The approach, which aims to maximise the use of local knowledge in the certification process, depends on partnerships with fishers and other stakeholders to assess the state of a fishery. To overcome the barrier of the cost of undergoing a pre-assessment, the WWF set up a Small Grants Fund for Community Fishers. Grant requests may be up to USD 15 000, and proposals from developing countries are given precedence. Applicants must be able to show a willingness to engage in WWF's Community Fisheries Programme Monitoring and Evaluation regime, which entails tracking a few indicators over time, such as the health of the stock or the income of fishers.

14. The MSC regards this suggestion as speculative and difficult to justify at this early stage of the MSC programme. They feel that, judging from the level of interest shown in the programme from other stakeholders, it is quite likely that non-market benefits would be an additional driving force for fisheries to undergo certification in the future. This would have significant potential for application in regions of the world that may not be as "eco-sensitive" as OECD countries.

15. The MSC stresses that this strategy is expected to benefit fisheries in developed, as well as developing, countries. Traditional knowledge plays a large role in community fisheries in all parts of the world, and is widely recognised as a potential source of valuable information. The essence of the guidelines that the MSC are trying to develop is to provide a framework for assessing fisheries, regardless of their location, that may not be as rich in historical data as other fisheries, but which can be assessed by other acceptable means.

Several fisheries have been chosen to test the methodology. Part of the MSC process requires determining the health of the stock for the fishery in question. This step, known as biological assessment, has raised some knotty issues for community-based fisheries.

One of the first to participate in this experiment was a small, community-based lobster fishery near Prainha do Canto Verde (PCV), in northern Brazil, a community with a venerable history of promoting sustainable fishing.[16] The pre-assessment phase got underway in 1999, and in 2001 the certifier reported on its initial findings. "Through no fault of its own," the certifier concluded, "the PCV fishery at this time would not meet the MSC requirements, as the stock is in serious decline, with what appears to be little or no effort being made to reverse the situation" (Chafee, 2001, p. 36). Essentially, the stock that the community fished could not be evaluated in isolation from the larger ecosystem (which was threatened by illegal fishing), and it could exert only partial control over the management of the fishery.

Box 19.1. Applying the MSC certification: an example from Mexico

In May 2001 a fishery certification process got under way in Mexico for two lobster fisheries — the Baja California spiny-lobster (*Panulirus interruptus*; also known as red rock lobster or California lobster) fishery and the *banco chinchorro* lobster (*Panulirus argus*, or common Caribbean spiny lobster) fishery — when the Baja California Regional Federation of the Fishing Co-operative Societies (*Federación Regional de Sociedades Co-operativas de la Industria Pesquera Baja California F.C.L.*), which fishes in Baja California, and three co-operatives fishing at Banco Chinchorro, applied to the MSC for certification of their respective lobster fisheries.

Both of these fisheries are small by world standards. The Baja California spiny lobster fishery produces less than 2 000 tonnes annually from an area of approximately 2 400 square kilometres, and the *banco chinchorro* lobster fishery produces less than 50 tonnes from an area of 1 444 km^2. Moreover, both of these fishing grounds are contained within officially designated biosphere reserves: the Vizcaíno Biosphere Reserve and the Banco Chinchorro Biosphere Reserve (RBBCH), respectively. The RBBCH was decreed a natural protected area on 19 July 1996 and is classified by Mexico's National Biodiversity Commission as a priority region; the WWF includes it among its global list of 200 priority areas, and the Nature Conservancy considers it one of the two priority areas of the Mesoamerican barrier reef system.

The certification body contracted to assess this fishery is Scientific Certification Systems, Inc. (SCS), an MSC-accredited independent certifier. Informative meetings about the MSC programme were held with all co-operatives in July and August 2000, by *Comunidad y Biodiversidad*, a local NGO working to support biodiversity conservation and fishery improvements in Baja California. A MSC pre-assessment was completed in early 2001.

Results of the pre-assessment were positive, and the fishery began a full assessment process late in 2001. After a temporary halt to the process in 2002, the fishery finally received full MSC certification in April 2004. The fishing co-operatives perceive MSC certification as an opportunity to differentiate their product in the marketplace, and have committed some of their own funds to support the cost of full assessment. Already, new market arrangements are being established with a tour company operating in the region, as well as more distant importers.

16. According to the WWF. See www.panda.org/about_wwf/what_we_do/marine/what_we_do/sustainable_fisheries/market/certification/field2.cfm.

Similar problems have frustrated efforts to certify the blue crab fishery in the Philippines' Sulu Sea. According to the fisheries biologist hired to conduct an assessment of the blue crab stock, the deep bodies of water that surround this fishery are presumed to isolate this population of crabs from other areas. This means that good management by the community could ensure the health of the stock and certification could be possible even without a full biological assessment of the stock. Unfortunately for the blue crab fishers, the only way to absolutely determine if this is a distinct population is to undertake genetic testing, "which," the WWF notes on its Web site, "at this point is inadvisable due to the high costs involved".[17]

Lack of the data needed to assess the health of the targeted fish stocks has proved a sticking point in both of the above fisheries, as well as in several others. In order to improve the chances for developing country clients to overcome the hurdles to certification, the MSC has responded in three ways. First, it is trying to identify indicators of sustainability that are as rigorous as those used to assess larger, more industrial fisheries, but that require fewer bio-economic data or other quantitative data that are less expensive to obtain.[18] The project aims at developing guidelines that would facilitate the integration of traditional knowledge and management systems as measurable parameters within the context of the MSC's standard. Some preliminary studies have already been undertaken (see, *e.g.* WWF Australia, 2000), and in 2003 the MSC's Technical Advisory Board began work to develop guidelines for the assessment of small-scale and data-deficient fisheries (MSC, 2004). In its current phase of work, qualitative assessment and rapid appraisal methods will be tested in selected test-case fisheries. The results of this work are expected to be incorporated into future guidance documents for certification bodies involved in the assessment of data-deficient fisheries (www.isealalliance.org/initiatives/index.htm).

Second, the MSC is pursuing new avenues of funding to cover the costs of certification, both for individual projects and more generally. As an example of the former, the Netherlands Organization for International Development Co-operation contributed to the costs of undertaking a pre-assessment study of a hand-line and long-line mixed fishery in Eritrea. This marked the first time that a government agency from an OECD country has provided assistance to a fishery in a developing country to help it secure MSC certification. In addition, the MSC, in co-operation with the Resources Legacy Fund, established a new Sustainable Fisheries Fund (SFF) to help provide support for fisheries that wish to be assessed for possible certification, thanks to a generous grant from the David and Lucile Packard Foundation. As described by Humphreys (2002):

> When a fishery moves through the assessment process, opportunities may emerge or deficiencies may become apparent that can not be immediately resolved. For example, a fishery may lack information on the size, status and health of the target population. The SFF may provide some limited and targeted support to help fill such

17. WWF, "Biological Assessment of the Blue Crab Fishery, Sulu Sea", www.panda.org/about_wwf/what_we_do/marine/what_we_do/sustainable_fisheries/market/certification/field3.cfm, accessed 16 June 2002.

18. It must be stressed, however, that the demand for data in assessments that apply the MSC standard is meant to be appropriate to the size, scale and nature of the fishery. The general concept is that, the more intensive and sensitive a fishery, the higher the risks to the continuing existence of the fishery, and the more there needs to be a proven system backed by data. Such information is required not only to assess the current state of the fishery, but also to enable certifiers to verify that efforts are made to reduce risks to the fishery.

> gaps, fund limited data collection and leverage larger projects. The new fund will not, [however], be in a position to support large-scale research projects or other programmes that might typically receive funding from development agencies.

Third, the MSC is working to facilitate the certification process at global level, and has initiated a programme to enhance the auditing and certification infrastructure in various fishing regions, particularly those that do not currently possess organisations capable of undertaking these tasks. Only a few of the five companies that it has accredited to certify fisheries have offices located in developing countries. As part of that programme, the MSC has for several years been carrying out annual workshops, which focus on training and the upgrading of fishery certification skills. More generally, the MSC is working to encourage companies already in the certification business to branch into fisheries. One outcome it hopes to achieve through these efforts is greater competition among certifiers and thus lower costs of certification.

As of September 2005, 12 fisheries were certified to use the MSC logo, and another 20, including Chilean hake and Patagonian scallops, were undergoing a full assessment (www.msc.org). The MSC estimates that around 40 other fisheries are in the initial stages of exploring MSC certification, of which several are small-scale fisheries from developing countries.

At its June 2005 meeting, the MSC's Technical Advisory Board discussed a broad range of assessment and certification issues in the current MSC programme. As a result of this discussion, the Board requested that MSC staff begin preparing draft revisions to the current Fishery Certification Methodology (FCM), which outlines the procedural requirements for conducting fishery assessments and post-certification audits against the MSC's Principles and Criteria for Sustainable Fishing. The Board generally concluded that the FCM should more explicitly and logically address these topics to consistently guide independent, third party certification bodies and ensure a stronger underpinning of MSC's continuous improvement model. A new draft FCM (Version 6) is expected to be ready for external review and comment by January 2006.

Concluding observations

It would probably not be an exaggeration to say that the MSC has been one of the most controversial private labelling schemes with global aspirations to appear in recent years. The very idea of certifying an industry activity carried out under diverse conditions, often in remote (and difficult to monitor) locations, was regarded even by many of its supporters as ambitious. Its sceptics have been many, and have included governments from both the North and the South, several intergovernmental organisations, and even rival environmental NGOs. But, backed by not insignificant financial resources, the MSC (and its founders) has persevered and, over time, gained new supporters. Indeed, many of its former critics are now taking a "wait and see" attitude towards this scheme. Importantly, it has taken the concerns of developing country exporters seriously, and has worked hard to address the most problematic issues related to certification: data and costs.

Parallels can be found with attempts to certify products from other primary industries in developing countries. As with organically produced food, many developing countries feel that some of the best-managed marine fisheries in the world can be found within their own territories (or, strictly speaking, their exclusive economic zones). Yet, in general, these countries, particularly the poorest ones, face greater difficulties in achieving

effective fisheries management and, therefore, in participating in eco-labelling programmes, than industrialised countries (FAO, 2000). Lack of scientific data required by the MSC certification process has presented an especially daunting challenge, requiring in several cases new research to fill information gaps. Such studies require time and money, which, WWF funding notwithstanding, limits the pace and number of fisheries that can run the gauntlet of certification and win the right to use the MSC logo. In this regard, the increasing interest in the scheme shown by development co-operation agencies is significant.

At the beginning of 2005 — eight years after the scheme was established — only one fishery from a developing country had been certified to the MSC standard, though two more were on the way to completing the necessary assessments. Perhaps the more important contributions that the MSC has made to developing country fisheries to date, however, is the focus it has placed on the problem of over-fishing, the impetus it has given to carrying out research to help fisheries improve their management, and the awareness of these issues that it has created among fishing communities. Currently, the market for certified fisheries is a niche one and is likely to remain that way for several more years. However, as that market expands, the MSC will have to redouble its efforts to make its standard relevant to all marine fisheries, including those in developing countries (and not just small well-managed ones), while ensuring that the certification process does not become unduly burdensome for exporters and thus unwittingly a barrier to trade.

To date, the MSC has faced no effective labelling competition in the marketplace. But given that its mandate is limited (it does not deal with aquaculture fisheries), and that "sustainability" may be a message that is too diffuse to be easily understood by all but the most informed consumers, its dominance may not last. There is, for example, a growing consensus worldwide on the need to prevent illegal, unregulated and unreported fishing. As these efforts generate labelling and certification schemes designed to mark and track legally obtained products, it is possible that the MSC's efforts will be overtaken by other labels, particularly if the need for those labels is evident, the meaning easily understood by consumers, and the enterprise underwritten or mandated by participating governments.

References

Belliveau, Michael (1998), "The Mantle of 'Going Green' ", *Fish Stakes* (International Collective in Support of Fish Workers), www.icsf.net/jsp/publication/fishstakes/art4.pdf.

Belliveau, Michael (2001), "The Arrogance of Experts", *Samudra* 30, December, pp. 39-40.

Braathen, Jonette N. (1998), "Eco-labelling in the Fisheries Sector", *El Anzuelo*, Vol. 2, pp. 4-5, www.ieep.org.uk/PDFfiles/PUBLICATIONS/El%20Anzuelo/ElAnz2_GB.pdf.

Braathen, Jonette N. (1999), "Label Gabble: Fisheries' Organizations in Developing Nations Have a Stake in the Formulation of Ecolabels for Fish and Fishery Products", *Samudra* 22, April, http://icsf.net/jsp/samudra/english/issue_22/art06.htm.

Chaffee, Chet (2001), "Lobbying for Lobsters", *Samudra* 29, August, pp. 30-36. http://icsf.net/jsp/samudra/english/issue_29/art7.pdf.

Cooper, Laura (1997), "Don't Be Harsh on the MSC", *Fish Stakes* (International Collective in Support of Fish Workers), www.icsf.net/jsp/publication/fishstakes/art9.pdf.

Donath, Holger, Cathy R. Wessells, Robert J. Johnston and Frank Asche (2000), "Consumer Preferences for Ecolabeled Seafood in the United States and Norway: A Comparison", *IIFET 2000 Proceedings*, www.orst.edu/dept/IIFET/2000/papers/donath.pdf.

FAO: Food and Agricultural Organization of the United Nations(1995), *Code of Conduct for Responsible Fisheries*, Rome, www.fao.org/fi/agreem/codecond/codecon.asp.

FAO (1996a), "Initiatives of Non-governmental Organizations regarding Sustainable Resource Use and Environmental Protection in Fisheries", Document No. COFI/97/Inf.12, December, www.fao.org/docrep/meeting/w3954e.htm.

FAO (1996b), The State of the World Fisheries and Aquaculture, Rome.

FAO (1998), "Technical Consultation on the Feasibility of Developing Non-discriminatory Technical Guidelines for Eco-labelling of Products from Marine Capture Fisheries", Document No. FI:EMF/98/Inf.5, September, www.fao.org/fi/faocons/ecolab/INF5-E.asp.

FAO (2000), The State of the World Fisheries and Aquaculture, Rome.

Humphreys, Jim (2002), "Funding Support", *Samudra*, No. 32, July 2002, pp. 23-25, www.icsf.net/jsp/samudra/english/issue_32/art4.pdf

Le Sann, Alain (1998), "Whose Labels? Whose Benefit?", *Fish Stakes* (International Collective in Support of Fish Workers), www.icsf.net/jsp/publication/fishstakes/art3.pdf.

Mangel, M., L.M. Talbot, G.K. Meffe, M.T. Agardy, D.L. Alverson, J. Barlow, D.B. Botkin, G. Budowski, T. Clark, J. Cooke, R.H. Crozier, P.K. Dayton, D.L. Elder, C.W. Fowler, S. Funtowicz, J. Giske, R.J. Hofman, S.J. Holt, S.R. Kellert, L. A. Kimball, D. Ludwig, K. Magnusson, B.C. Malayang, C. Mann, E.A. Norse, S.P. Northride, W.F. Perrin, C. Perrings, R.M. Peterman, G.B. Rabb, H.A. Regier, J.E. Reynolds, K.Sherman, M.P. Sissenwine, T.D. Smith, A. Starfield, R.J. Taylor, M.F. Tillman, C.A. Toft, J.R. Twiss, Jr., J. Wilen and T.P. Young (1996), "Principles for the conservation of wild living resources", *Ecological Applications* 6, pp. 338-362.

McGovern, Dan (2002), "FAO Calls for International Eco-labeling Standards", *WorldCatch*, 21 February, www.earthisland.org/map/ltfrn_95.htm#stories.

Mathew, Sebastian (1998), "When Sandals Meet Suits", Reprint of a letter dated 7 August 1997 from Sebastian Mathew, Executive Secretary, ICSF to Michael Sutton, Director, Endangered Seas campaign, WWF International, in S. Mathew (ed.), *Fish Stakes*, International Collective in Support of Fishworkers, Chennai, India, www.icsf.net/jsp/english/pubPages/fishstakes/fishstakes.jsp

Mathew, Sebastian (1999), "A Fish by Any Other Name", *Samudra* 22, April, http://icsf.net/jsp/samudra/english/issue_22/comment.htm.

Mathew, Sebastian (2000), "Sustainable Development and Social Well-being: Which Approach for Fish Trade?" *Bridges*, Year 4 No. 3, April, pp. 11, 12 and 14, www.ictsd.org/English/BRIDGES4-3.pdf.

MSC: Marine Stewardship Council (2004), *Marine Stewardship Council Annual Report — 2003/04*, Marine Stewardship Council, London, http://eng.msc.org/assets/docs/MSC_Annual_Report_1-18.pdf

Neis, Barbara L. (1996), "Cut adrift", *Fish Stakes* (International Collective in Support of Fish Workers).

Oloruntuyi, Oluyemisi (2002), "Marketing Sustainability: Challenges and Prospects of Certification for the Small-Scale Fisheries Sector", paper presented to an UNCTAD workshop on artisanal fisheries, Gambia (10-12 April, 2002).

O'Riordan, Brian (1998), "Sticky Labels", *Samudra* 21, December, http://icsf.net/jsp/samudra/english/issue_21/index.htm - art7.

O'Riordan, Brian (1998), "Who's Being Seduced?", *Fish Stakes* (International Collective in Support of Fish Workers), www.icsf.net/jsp/publication/samudra/pdf/english/issue_18/art02.pdf.

Peacey, Jonathan (2000), "The Marine Stewardship Council Fisheries Certification Program: Progress and Challenges", paper presented to the IIFET 2000 Workshop, Corvallis, Oregon, www.orst.edu/Dept/IIFET/2000/papers/peacey.pdf.

Sutton, Michael and Caroline Whitfield (1998), "A Powerful Arrow in the Quiver", *Fish Stakes* (International Collective in Support of Fish Workers), www.icsf.net/jsp/publication/fishstakes/art6.pdf.

WWF Australia (2000), "Using the MSC in Traditional, Community-based Fisheries and Identifying Candidate Fisheries in the South Pacific", Report of the Community

Fisheries Workshop, Sydney, Australia, 4-5 July, www.panda.org/about_wwf/what_we_do/marine/what_we_do/sustainable_fisheries/market/community_fisheries/index.cfm.

WWF: World Wide Fund for Nature (2001), "Community-based Fisheries Certification: A Proposed Methodology", June, WWF, Washington, DC.

Chapter 20

The International Fruit Container Organisation (IFCO) Returnable Packaging Initiative

This chapter discusses a private-sector initiative in Germany to require the use of recyclable packaging for shipments of fresh fruits and vegetables, following Germany's adoption of regulations requiring the disposal of packaging materials. No efforts were made to consult other countries, and the adoption of the system by developing-country exporters of fruits, on whom the requirements place a particularly heavy burden, relied mainly on commercial contacts.

Introduction

The International Fruit Container Organisation (IFCO) was initially established in Germany in the early 1990s. The driving force behind its creation was the launching of that country's Packaging Directive, with its obligations to recover and recycle used packaging. To reduce the amount of packaging waste requiring disposal at their outlets, and therefore their financial responsibility to the German waste recovery system, a group of the larger German distributors of fresh produce conceived the IFCO system. The system provides returnable plastic containers which are cleaned after each trip and sent back to the produce suppliers for reuse.

Manufacturers of other, non-returnable forms of transport packaging have attempted to resist the trend to returnable plastics, but have had limited success, especially in trade with Germany and certain other EU member countries. The German Packaging Directive, in particular, effectively delegates the choice of transport packaging method to the retailing groups that are IFCO's customers. These retailers have an interest in returning the containers to their suppliers, because they are otherwise required, under the terms of the Directive, to meet the costs of recycling or disposing of the containers.

In spite of resistance from fresh produce exporters and their packaging suppliers in developing countries, which advocate the environmental merits of local packaging made from renewable resources such as wood and fibre, the IFCO returnable crate system has made great progress worldwide in the ten years since its inception.

Development of the IFCO system

In accordance with the German directive for the avoidance of packaging waste (the Töpfer Directive) published on 20 June 1991, a group of major German retail chains took the initiative to create a European returnable transport packaging system. The development was led by Schoeller International, a German plastics company with considerable experience in the manufacture and use of returnable plastic containers, especially in the agricultural sector, in close co-operation with European producers and distributors of fruits and vegetables. The initiative was actively supported and sponsored by other members of the German plastics industry as well, who saw it as a significant sales opportunity. By stressing Germany's preference for returnable or reusable transport packaging, they hoped that overseas suppliers could be persuaded to abandon their locally produced packaging made from traditional materials such as wood and textile fibres.

To market and manage the international pool of foldable fruit and vegetable crates, a new company, the International Fruit Container Organisation GmbH, was established. Circulation of the crates is managed centrally by the IFCO, initially from its base in Munich but nowadays from Amsterdam. IFCO Systems rents out the crates and charges the users both a rental fee per cycle and a refundable deposit per crate. Crates from the nearest production or depot site are delivered to the producers or packers of fruit and vegetables and collected when empty from the retail outlet. After each trip, the crates are cleaned and inspected prior to their next use. The movement of IFCO crates is inventoried (with the aid of the importers and wholesalers of fresh produce) to ensure that charges for their use are correctly applied. Only IFCO-made or certified crates are accepted at the organisation's recovery, cleaning and re-issuing centres.

As the IFCO system is a private-sector initiative approved by European waste management authorities, its organisers were under no obligation to consult other bodies or

to ensure transparency during its design and implementation. There are at present no international standards applying to the way in which fresh produce is transported, except in terms of dimensional standards[1] and sanitary requirements. IFCO Systems was therefore under no obligation to promote equivalence or mutual recognition and has instead argued that it represents the model to which other countries should subscribe. Other countries were not consulted, but were instead advised that the IFCO system was preferred in Europe and should therefore be adopted by all countries and companies wishing to export to that region.

The idea behind the IFCO system is to reduce the volume of packaging waste in the receiving country by employing crates strong enough to be cleaned and returned to the producing areas for re-use. Although these crates, which are made of moulded polypropylene, are larger and heavier than one-way produce containers, they can withstand many journeys (on average at least 15 roundtrips), and their constituent plastic can be ground up and recycled into new crates at the end of their useful lives. The crates can also be collapsed to one-fifth of their original size for easier storage and transport. IFCO claims that, with its system, 1 kg of polypropylene can replace up to 70 kg of corrugated board or 200 kg of wood. Thus, although the crates are made from plastic, their net environmental impact is claimed to be less than that of one-way containers. The overall environmental benefit from using the crates is reduced by the distance travelled, however, as energy is expended in transporting them in two directions.

Starting in May 1993, IFCO's sponsors began to circulate materials through a wide range of media channels, including the Internet, promoting the scheme to fresh produce packers throughout the world. Suppliers in developing countries such as Chile and Kenya were encouraged to participate in trials of the system, using imported plastic crates from Germany. The sponsors argued that in view of probable moves by European countries to require the use of returnable or reusable packaging, it was in the exporters' interest to co-operate. Indeed, at the beginning of the initiative, traders in fruits and vegetables informed their suppliers that they "would only buy, as far as possible, goods delivered in IFCO crates". They also duly notified the system to the European Commission. However, a group comprising national and European associations of paperboard packing manufacturers and of producers of fruit and vegetables complained to the Commission's Directorate for Competition about the practice (FEFCO, 1998).

In June 1993, the Commission published a press release clarifying the situation. The letter by which the traders had informed their providers of the existence of the IFCO system differed from the notification, insofar as it gave the impression that the traders would only accept IFCO crates. In fact, the notification only said that the traders had committed themselves to promoting IFCO crates by using the minimum quantity of crates considered necessary to guarantee the launching of the system. Therefore, the Commission announced that it had requested the traders to write a new letter to their suppliers clarifying this point and confirming that they would honour their previous contractual arrangements (CEC, 1996).

After this slight brush with the competition authorities, the IFCO system soon began operating in a number of industrialised countries, including Austria, Switzerland, and the United Kingdom. The crates were injection-moulded at plants in Germany and in other

1. The crates were designed to be compatible with European pallet standards and to fit within the ISO standard freight container. Those for fresh produce come in eight modular sizes, each designed for packing the main types of fruit and vegetables in the customary quantities.

European fruit-producing countries. More than 10 million IFCO crates were produced during the organisation's first two years of operation. The crates were supplied to packers and producers of fruits and vegetables in most European countries and in developing countries such as Argentina, Brazil, Chile, Kenya, Morocco, South Africa and Zimbabwe. By 1995, usage was running at approximately 6 million trips per month and the crate was accepted by more than 1 000 international producers and distributors of fruit and vegetables.

The current IFCO Systems Web site (www.ifcosystems.com) demonstrates the commercial success which the company has enjoyed in recent years. Currently it serves 9 000 customers in 17 countries on four continents, and has 70 million crates in circulation. It operates container manufacturing, recovery and cleaning, and storage facilities in most industrialised countries, and maintains offices in Argentina, Brazil, Chile, Uruguay, South Africa and Turkey.

Trade issues and developing country responses

It is evident that the IFCO system affects all exporters of fresh produce to the European countries in which it is established. It affects in particular the European and Mediterranean countries that export fresh produce to Germany and other northern European countries where strict regulations apply to waste packaging. However, many other countries, including those in the developing regions of Africa, Asia and Latin America, also export fruits and vegetables to Europe on a large scale. Although use of returnable crates is not as yet mandatory in any country, a number of the major European food retailing groups insist on receiving their fresh produce deliveries in them and make their orders conditional on the supplier's participation in the IFCO system.

While the relative environmental merits of returnable and reusable transport packs, by comparison with one-way packs, are still the subject of intense analysis and debate in many countries, considerable pressure has been brought to bear on exporters of fresh produce to adopt the IFCO returnable crate system. European importers of produce are aware that their ultimate customers, the supermarket chains, do not want the responsibility of disposing of their packaging and are offering an alternative that the producer has to pay for, by buying or renting returnable crates from IFCO. The importers are then in a position to persuade suppliers, especially those in developing countries who are not informed on environmental issues, that they must participate in such a scheme to protect the environment of the receiving country.

In practice, the main restraining influence on the introduction of returnable crates in developing countries has been the expense, delays and logistical difficulties of establishing a reliable return cycle for the empty crates. Whatever the costs and logistics of returning the empty IFCO crates, exporters that are distant from their markets, and especially those from developing countries, are always at a disadvantage relative to local fresh produce suppliers. In the case of the IFCO system, the developing-country exporter faces the further drawbacks of the transport costs and administrative difficulties of receiving cleaned, empty crates by road and sea transport over long distances.

There are as yet few facilities in the developing world equipped with the heavy moulding machines needed to manufacture IFCO crates. The export of fresh produce therefore now frequently requires the substitution of an imported European industrial product for traditional, low-cost transport packages which use traditional local materials and create local employment.

Responses to developing-countries' concerns

Apart from the activities of IFCO itself in promoting uptake of its service in developing countries, there appears to have been no specific assistance provided by governments to help developing country exporters adapt to reusable containers.

Concluding observations

The IFCO initiative offers an example of a private sector organisation that has succeeded in using its own country's environmental legislation as a lever to achieve its international commercial objectives. Understandably, transport packaging manufacturers in the developing world, in particular, consider it to be an example of an environmental measure being used to benefit first-world industry rather than the environment. In the view of some, a high-technology, capital-intensive product (injection-moulded polypropylene) is being favoured over third-world products using simple materials and local labour.

If returnable plastic crates gain further acceptance, so that most developing-country exporters of fresh produce are in effect obliged to use them, there are no inherent reasons why the containers could not be produced in some of the exporting countries, rather than purchased or rented from customer-sponsored organisations such as IFCO. Such a development would naturally require that producers of returnable crates in exporting countries be able to match the specifications and performance standards of those manufactured in the receiving markets. In this situation, the export of returnable or reusable transport packs could in due course represent a new sales opportunity for packaging manufacturers in developing countries.

Further expansion of returnable plastic crate use is now expected as a result of a recent emergency measure adopted by the Commission of the European Communities which requires the treatment and marking of all new and used coniferous (*e.g.* pine, spruce, fir) non-manufactured wood packing material originating in Canada, China, Japan or the United States and departing on or after 1 October 2001. (Hardwoods are exempt from the measure.) The official justification for the measure is to prevent the pinewood nematode — a microscopic eelworm that has caused extensive mortality in pines in Japan and China — from entering the EU from other parts of the world through non-treated packaging. This European move will further discourage the use of wooden crates for exports of fresh produce, including from some developing countries that do not have the means to treat and label their locally available woods.

References

CEC: Commission of the European Communities (1996), "Competition policy and environment: contribution de la Commission européenne", OCDE/GD(96)22, OECD, Paris, www.oecd.org/dataoecd/34/19/1920007.pdf.

FEFCO: Fédération Européenne des Fabricants de Carton Ondulé (1998), "The Production Committee", *FEFCO News*, October, No. 11, p. 3, restricted to members; general information at www.fefco.org/index.php?id=48.

Saphire, David (1994), Delivering the Goods: Benefits of Reusable Shipping Containers, Inform Inc., New York, www.p2pays.org/ref/03/02141.pdf.

Chapter 21

Developing an International Standard for "Green" Tourism

This chapter provides an example of the strengths and weakness of a private eco-labelling scheme applied to an industry that is not always well-versed in environmental practice. The costs, and uncertain benefits, of such a scheme raise significant issues for developing-country suppliers.

Introduction

Tourism has grown to become one of the world's largest industries. Together with associated travel, it is credited with generating, directly and indirectly, almost 12% of gross domestic product (GDP) and nearly 200 million jobs worldwide (WTTC/IHRA, 1999). The impacts of tourism can be extremely varied, however. On the one hand, it can play an important and positive role in the socio-economic and political development of destination countries, creating new employment opportunities in the process (UNCSD-NGO Steering Committee, 1999). It can also help people gain a broader appreciation for other cultures and ways of life. On the other hand, travel and tourism have at times been accused of damaging fragile (often coastal) environments and disrupting indigenous cultures while providing few skilled jobs for local residents. Recognising sensitive and responsible behaviour through a certified, but voluntary, eco-labelling scheme is seen by some segments of the industry as a sensible way to encourage more sustainable development in tourism.

There are currently in the world over 100 certification schemes and eco-labels relating to tourism. Green Globe was one of the first international schemes and predates the emergence of ISO 14001 It is a private international standard for environmental management systems that forms the basis for several eco-tourism standards. Initially launched by the World Travel and Tourism Council (WTTC) to increase environmental awareness, Green Globe has evolved over the last decade to become an independently verified tourism certification programme. It is a voluntary initiative that claims to have some 800 members in more than 100 countries. Unlike most other tourism standards, which largely focus on hotels and other forms of tourist accommodation, Green Globe attempts to cover all sectors of the mass tourism industry, from golf courses to nature reserves.

As the oldest and largest certification programme, Green Globe has been the subject of much critical scrutiny, particularly in recent years. It has also undergone a number of transformations, most notably from environmental awareness to certification, and from being process-based to combining process and performance standards. In the process it has attempted to address the problem of high costs as a barrier to entry for small suppliers by introducing a graded fee structure. However, doubts remain as to the depth of commitment of Green Globe members, as only a fraction have achieved certification. And its regular re-branding may present problems of perception both for Green Globe and for its members.

Development of the measure

The 1992 United Nations Conference on Environment and Development (UNCED) — the Earth Summit — identified travel and tourism as sectors of the world economy that could make a positive contribution to achieving sustainable development. The Summit produced Agenda 21, a comprehensive plan of action adopted by 182 governments to provide a global blueprint for achieving sustainable development. Yet, prior to 1997, the issue of sustainable tourism had been discussed by the Commission on Sustainable Development only in the context of small island developing states. Unlike most other issues for which an Agenda 21 action plan (or "chapter") was drawn up at the Earth Summit, that for travel and tourism came later and was spearheaded not by governments but by a coalition of industry, intergovernmental (IGOs) and non-governmental organisations (NGOs).

The lead organisation in this effort was the WTTC, an international organisation composed of chief executive officers from all sectors of the tourism industry: accommodation, catering services, cruise ships, entertainment, recreation, transportation and travel-related services. The WTTC's objective is to promote the tourism industry at government level around the world and to reduce barriers to growth of the industry.

In 1994 the WTTC launched a programme to encourage practical approaches to sustainable tourism. The programme, called "Green Globe", was billed as the WTTC's response to the 1992 Earth Summit. Based on principles set out in Agenda 21 for travel and tourism, it included an environmental code, with policy guidance, environmental management systems, employee information, consumer tips and other supporting information. Membership was open to any company that could afford the annual fee. This fee ranged from USD 200 to USD 7 500, depending on the company's turnover. In exchange, members were provided with information and guidance on a range of topics, such as how to draft an environmental policy, how to manage waste and how to conserve water. Annual awards were given to members who had made notable environmental improvements. Members were also entitled to use the Green Globe logo, though initially the logo connoted little more than the company's declared commitment to making environmental improvement and to undertaking regular self-assessments; no particular standards or criteria were yet associated with the logo.

In 1996 the World Tourism Organization and the Earth Council, an environmental NGO, joined with the WTTC to launch an action plan entitled Agenda 21 for the Travel & Tourism Industry: Towards Environmentally Sustainable Development. Travel and tourism thus became the first industry sector to have initiated its own action plan based on Agenda 21. The report was subsequently circulated for comment to governments, industry and environmental organisations, and was the subject of a series of regional seminars held to increase awareness of its conclusions and to adapt the programme for local implementation. These regional seminars took place in London and Jakarta in 1997, and in Victoria Falls and Dominica in 1998.

Towards the conclusion of this process, the WTTC began to develop its first "GREEN GLOBE 21 Standard", inspired both by the Agenda 21 principles and the evolving ISO 14001 standard, thereby moving the industry from codes of good practice to an approach based on developing an environmental management system for each corporate unit.[1] Although no formal consultation process was used to decide the criteria for the standard, the WTTC assumed that, since much consultation had already taken place prior to and following the production of Agenda 21 for the Travel and Tourism Industry, and that 186 governments had signed that document, these criteria could be considered "agreed to" by a wide range of stakeholders. In addition, the output of regional seminars on the action plan inspired by Agenda 21 were being fed into the ongoing development of Green Globe.[2] Because it was a private, voluntary initiative, the Green Globe standard did not have to be notified to the World Trade Organisation.

1. Environmental management covered: energy efficiency, conservation and management; management of freshwater resources; ecosystem conservation and management; management of social and cultural issues; land use planning and management; air quality protection and noise control; wastewater management; waste minimisation, reuse and recycling; and storage and use of hazardous substances.

2. Geoffrey Lipman (former president of the WTTC), personal communication with Dilys Roe, April 2002. Unfortunately, no documentation describes specific issues raised in these meetings or how they were addressed.

In 1997, the WTTC extended the scope of the Green Globe programme by creating "Green Globe Destinations", a framework for integrating environmental programmes throughout a whole community. Part of its motivation was to provide a means for formally recognising the leadership of local authorities and other groups working to improve the environmental performance of tourist destinations.[3] Among the first tourist destinations to participate in the programme were Vilamoura in the Algarve, Portugal; Jersey in the Channel Islands; and three destinations in the Philippines.

To certify adherence to the Green Globe standard, the WTTC developed a partnership with Société Générale de Surveillance S.A. (SGS), one of the world's leading verification, testing and certification companies. This exclusive arrangement with SGS attracted some criticism until 1999, when Green Globe became an independent for-profit company with a board of directors drawn from major tourism companies.[4] The scheme was renamed Green Globe 21 and revised to allow independent, third-party verification by a wide range of companies, not only SGS. In addition, an International Advisory Council was established that included representatives from the World Tourism Organisation and from NGOs such as the World Wildlife Fund (WWF).

Along with a new institutional structure, new fees were set at USD 350 for small and medium-sized enterprises (SMEs), USD 750 for locally based companies; USD 2 500 for companies that operate at national level, and USD 5 000 for companies that operate at international scale (Synergy, 2000). In addition, participants had to pay for the cost of an audit, which could run to around USD 1 500 for a large business. For destinations, the basic cost for the first phase is estimated to have been of the order of USD 50 000, plus the costs of implementing an environmental management system, which vary according to the specific nature and amount of work required (Synergy, 2000). These fees were merely indicative, however. According to Margot Sallows, former Manager of Environmental Services at Green Globe, the organisation used World Bank classifications of developed, less developed and developing countries to set its fees at, respectively, 100%, 75% and 60% of the full fee (Font and Buckley, 2000).

Issues raised by developing countries

To date there has been no independent research to evaluate the impacts of tourism certification schemes on developing country suppliers.[5] Nevertheless, the proliferation of tourism standards, awards, eco-labels and certification schemes during the late 1990s, coupled with increasing debate about the role and merits of "sustainable tourism" and "eco-tourism" (stimulated further by the United Nations designation of 2002 as the "International Year of Ecotourism"), has prompted several critical reviews of tourism certification schemes in recent years (*e.g.* Synergy, 2000; Honey and Rome, 2001). But these studies have tended towards a comparative analysis of the relative merits of different standards and schemes rather than an evaluation of what the various schemes have actually achieved on the ground in terms of environmental or sustainability improvements and their impacts on different stakeholders.

3. Margot Sallows (former Green Globe Destinations Programme manager), personal communication with Dilys Roe, April 2002.

4. Margot Sallows, personal communication Dilys Roe, April 2002. Sallows points out that, where auditing is carried out by local offices of big companies, the price may also be lower than when conducted from headquarters.

5. This gap was highlighted in a report on standards in agriculture, forestry and tourism prepared by the International Institute for Environment and Development (IIED) for the European Partners for Environment (EPE).

Tourism is a transient business and long-term relationships between buyers (*e.g.* tour operators) and suppliers (*e.g.* hotels) are rare. Certification therefore has limited impact on this relationship.[6] In any case, most standards are not applied by tourism buyers as such. Likewise, Green Globe is not in the business of buying from certified suppliers. Rather, it acts as a marketing channel and provider of advice. Green Globe promotes its standard by arguing that its can cut suppliers' costs (mainly through environmental improvements), improve their brand image, broaden their market appeal, and help them anticipate and quickly respond to evolving regulations. The cost to the supplier is the financial cost of becoming a Green Globe member and undergoing benchmarking or certification. Still, as the only international scheme and the one with, arguably, the most industry and consumer recognition, Green Globe has been under close scrutiny from the outset.

In 2000 the UK national organisation of the World Wildlife Fund network (WWF-UK) commissioned an analysis of Green Globe 21 and other tourism certification systems (Synergy, 2000). The report concluded that, of all the certification schemes examined, Green Globe had been the most responsive to the expressed concerns and interests of stakeholders. In the August 2000 press release that accompanied the report, however, WWF-UK criticised Green Globe's use of its logos: different logos were being awarded to companies that had merely *committed* to undertaking certification as well as those that had actually *achieved* it. The WWF-UK report noted that the similarity between the logos (one has a tick across it to indicate that the company has been certified and the other does not; see Figures 21.1a and 1b below) is such that "consumers will be unlikely to recognise or understand the difference". WWF-UK criticised the scheme for certifying companies based solely on the fact that, as with any ISO-based scheme, they had an environmental management system in place. This meant that a company that had developed a "green" policy and set up an environmental management system could be certified by Green Globe 21 yet still operate in an environmentally damaging manner.

The WWF-UK report also considered that the cost of Green Globe certification was prohibitive for the small businesses that characterise the tourism industry in developing countries. Green Globe was one of the more expensive schemes at the time of its comparative study and this limited membership significantly. For example, the *destination* programme could cost participants anywhere from USD 30 000 to USD 70 000, with no surety of corresponding benefits. The cost of certification can be a major barrier for many businesses (bearing in mind that over 90% of tourism businesses are small companies), especially where it can not be offset against guaranteed cost savings or price premiums. The WWF-UK also alleged that the cost of certification could be as high as for grading quality,[7] which, at the very least, gives a company a higher consumer profile. The Green Business Tourism Scheme, a certification programme developed in Scotland, has tried to overcome this problem by combining environmental certification with quality grading.

6. Health and safety is a different matter. The health and safety audits conducted by the big UK tour operators in response to the EU Package Holiday Directive, for example, have a profound effect on the buyer-supplier relationship. In this case the costs of the audit are borne by the buyer. As a result, there is substantially more commitment to a supplier in whom the tour operator feels a considerable investment has been made.

7. Restaurants and hotels are graded against quality criteria, *e.g.* the number and condition of toilets, by numerous private companies (*e.g.* Michelin) and in some countries by government tourist boards.

The WWF-UK report estimated that less than 1% of tourism businesses had joined certification initiatives by 2000, with significantly greater participation in some regions than in others. Several reasons have been suggested for this low uptake, including:

- Scepticism about the potential of individual tourism businesses to bring about more sustainable tourism destinations in the long term.
- Confusion about the performance requirements, costs, relative merits, and savings of different schemes associated with various programmes.
- Uncertainty about the importance of environmental or sustainability credentials to visitor purchasing choice.

Consumers have also been confused by the wide variety of schemes in existence. Many are thought to choose a tourism facility that displays some form of eco-label on the assumption that the label is linked to some more widely recognised quality grade. Those businesses that have been certified do in fact use logos in their marketing strategy to distinguish themselves from their competitors. But, to date, little serious analysis has been conducted to determine the extent to which eco-labels or other certification schemes influence consumer choice in the tourism industry.

The report by Honey and Rome (2001) reached many of the same conclusions but also discussed concerns specific to developing countries. As they observed, a number of countries where tourism facilities have traditionally been owned predominantly by either government or nationals — notably Costa Rica, Cuba, South Africa, Tanzania (and Zanzibar), Nepal — have witnessed an enormous influx of foreign capital in recent years. Foreign companies and investors have taken over much of the high-end businesses, prime urban real estate, beachfront property and private reserves. In many countries, foreign investors enjoy special advantages over their local counterparts in the form of preferential regulations, licences and taxes. While this foreign investment influx may have helped create a tourism, or eco-tourism, boom, local activists have often questioned whether foreign ownership is contributing to their countries' long-term sustainable development. "Within this context", the authors point out:

> … poorer countries tend to look with suspicion on international efforts to set environmental development standards for tourism (and other businesses). They fear that such regulations will give unfair advantage to both more-developed countries and international corporations. Rather than helping to lift standards around the globe, certification can, in practice, be used to penalise poorer countries and locally owned businesses that cannot subscribe to the standards or meet, at least in the short term, the criteria." (Honey and Rome, 2001, p. 66)

Other critics have raised questions such as whether international certification systems are really capable of incorporating sensitive socio-cultural concerns, and whether destinations in developed countries can better afford to apply more stringent requirements for an eco-label than, for example, Tanzania or Thailand.[8] Such concerns have been raised in discussions of eco-tourism certification taking place at the World Tourism Organization, at activities surrounding the International Year of Ecotourism, and in an online discussion group about eco-tourism certification organised by a not-for-profit organisation, Planeta.com.

8. Attributed to Megan Epler Wood and Elizabeth Halpenny.

Responses to developing countries' concerns

The Green Globe concept has evolved considerably since it was first introduced in 1994, generally in ways that have attempted to introduce greater accountability and flexibility, while strengthening the requirements for certification and offering more value for money. It is difficult to judge the extent to which these revisions were driven by criticisms from WWF and others, as opposed to emerging naturally as the scheme evolved and matured, or in response to market forces. Nevertheless, in 2001 Green Globe 21 underwent yet another major transformation (Box 21.1).

Box 21.1. The Green Globe 2001 upgrade

In May 2001, Green Globe updated its programme. The new millennium GREEN GLOBE 21 Path to Sustainable Tourism differed from its predecessor in several ways, including:

- Improved support for operational cost savings and market positioning.
- Internet-based promotion of GREEN GLOBE 21 members to consumers worldwide.
- Reduced fees: easy low cost, high-value access for small and medium-sized members.
- 2001 upgraded GREEN GLOBE 21 Certification Standard for Companies & Communities.
- Inclusion of Agenda 21: ISO: Triple Bottom Line economic, ecological and social elements.
- An updated guidebook and good practice indicators for 20 industry sectors and four types of communities.
- An "educational affiliate" entry point with a focus on greenhouse gas emissions.
- Global performance "Benchmarking" against Earthcheck™ indicators.
- Advanced EMS support services.
- An enhanced independent accreditation and certification service.
- A new entrepreneurship guide and training programmes for developing markets.
- Research & development at GGv — *Sustainable Tourism Laboratory* & CRC Tourism Australia.
- An International Advisory Council to ensure consistency with global evolutions.
- A new foundation to support sustainable development generally.

First, the programme (now marketed as a "millennium pathway to sustainable tourism") was revamped to incorporate performance standards. The standards aim to: reduce greenhouse gases, improve energy efficiency, protect air quality, control noise, manage wastewater, better community relations, respect cultural heritage, enhance social performance, conserve nature and wildlife, and encourage good land management. Criteria are organised into five sections: environmental policy; compliance with relevant legislation; key performance areas; environmental management system; and marketing.

Second, three separate categories of membership were established, **A**ffiliate**, B**enchmarked and **C**ertified, with the expectation that members would progress along an "ABC" pathway from one stage to another:

- In an introductory stage, companies, communities, suppliers or professionals may register as a Green Globe Affiliate to learn more about the programme and to prepare for Benchmarking and Certification.
- Alternatively, companies, communities, suppliers or professionals may register directly for benchmarking and measure their environmental performance annually. If their performance is above an established baseline, and they agree to achieve certification within a fixed time frame (usually 12 months), they are eligible to use the less prestigious of the two GG21 logos, the globe without a tick (Figure 21.1a).
- Members who apply for certification must have their performance independently assessed and audited. Audits take place regularly to ensure that performance levels are maintained or improved. Those that reach the required standards are entitled to use the second Green Globe logo, which has a distinctive tick across the globe (Figure 21.b).

Figure 21.1. The Green Globe 21 logos

Figure 21.1a	Figure 21.1b
	

Third, Green Globe 21 significantly lowered its fees. And, as a further concession to critics, the fees were graduated to reflect differences in size, scale and social development, and special discounts were offered to micro-enterprises.[9] Even greater differentiation was introduced in the fee structure for 2003 (Table 21.1).[10] In explaining its reduction in fees, the Green Globe 21 Web site at the time (www.greenglobe21.com/refs/history.htm, accessed 13 May 2002) stated that:

> "fees have been deliberately lowered in our drive to increase interest in Sustainable Tourism, support for greenhouse gas reduction and increased global involvement. Now, by drastically reducing costs and improving processes — with a major focus on the Web for promotion, service and support — we have slashed the bottom out of that price structure … Green Globe 21 can now accommodate for the smallest of guest hotels to the international chains of 5-star hotels and base its fees according to the level of work required."

Green Globe has tried to counter poor uptake by individual businesses and encourage widespread industry participation by seeking to develop its destination certification programme. While considering this idea visionary, the WWF-UK (2000) report pointed out that in 1999 this scheme had not been adequately developed or tested. It claimed, too, that it is not practical to embrace a whole destination with one environmental management system, and that, as of 2000, no destinations had completed the certification process. Since then, Green Globe has engaged in detailed research on destinations in the Middle East, Asia and Australasia and has adapted its approach.[11] As of September 2005, three "communities", of which two are in developing-countries (the Bali Tourism Development Corporation in Indonesia, and the Huatulco, Mexico resort area), had achieved full certification. Green Globe has also actively promoted its scheme and, unlike many others, has achieved a high level of recognition worldwide.

Green Globe has attempted to address the issue of proliferation of tourism standards by merging with (or, in the words of Honey and Rome (2001), "swallowing up") a number of smaller schemes, such as the Pacific Asia Travel Association's Green Leaf scheme, which have subsequently been made compatible with the Green Globe standards. Green Globe's Asia-Pacific arm also signed in 2002 a five-year partnership with Australia's well-regarded National Ecotourism Accreditation Programme (NEAP), on which the international Green Globe standard for the eco-tourism sector is largely based. Green Globe also claims to have an "open architecture" which embraces other comparable tools and standards; for example, it has enabled hotels that have gone through the benchmarking process of the International Hotels Environment Initiative (IHEI) (www.ihei.org/history.htm) to be recognised under the Green Globe benchmarking scheme.

9. Geoffrey Lipman, personal communication with Dilys Roe, April 2002.

10. The fees in US dollar terms were increased by 25% on average in July 2005, in light of the weakening of the value of the USD against other currencies.

11. Geoffrey Lipman (former President of WTTC and co-founder of Green Globe; currently a director of Green Globe 21), personal communication with Dilys Roe, April 2002.

Table 21.1. GREEN GLOBE 21 fee structure for 2003

Sector and status	Global (except Asia-Pacific)	China	Australia and New Zealand[1]
Company			
Awareness (affiliate)			
Annual fee for a single site or per activity for a multiple site	USD 75	USD 75	AUD or NZD 150
Renewal fee	50% of benchmarking category (as below)	50% of benchmarking category (as below)	50% of benchmarking category (as below)
Benchmarking and certification[2]			
Micro company (< 5 employees or < 10 rooms), annual fee	USD 225	USD 225	AUD or NZD 450
Small enterprise (5- 50 employees or < 70 rooms), annual fee	USD 450	USD 450	AUD or NZD 825
Large single site (> 50 employees or > 70 rooms), annual fee	USD 1 100	USD 1 100	AUD or NZD 1 925
Large diversified company, minimum annual fee[3]	USD 6 000	USD 6 000	AUD or NZD 10 000
Community			
Micro community[4]			
First-year fee	USD 3 000	USD 3 000	AUD or NZD 6 000
Renewal fee	USD 750	USD 750	AUD or NZD 1 500
Small community[5]			
First-year fee	USD 6 000	USD 6 000	AUD or NZD 10 000
Renewal fee	USD 1 500	USD 1 500	AUD or NZD 2 500
Large complex communities[6] *(guideline fee*[7]*)*			
First-year fee	USD 12 000	USD 12 000	AUD or NZD 20 000
Renewal fee	USD 3 000	USD 3 000	AUD or NZD 5 000
Protected areas, annual fees			
Small (limited area, budget, visitation and activity)	USD 750	USD 500	AUD or NZD 1 000
Medium (tourism focus with multiple operations; limited area)	USD 1 500	USD 1 200	AUD or NZD 3 000
Large (large area with complex activities)	USD 3 000	USD 2 500	AUD or NZD 6 000

1. Fees are paid in local currency, *i.e.* Australian dollars in Australia and New Zealand dollars in New Zealand.
2. These fees represent both Green Globe 21 Benchmarking and Green Globe 21 Certifying. They do *not* include the cost of on-site independent assessment for Green Globe 21 Certification.
3. This is a guideline fee for the purposes of negotiation with large operations, such as airlines.
4. Less than 10 000 population equivalent, except in China, where the maximum is 30 000 population equivalent.
5. Between 10 000 and 250 000 population equivalent, except in China, where the range is 30 001 to 500 000 population equivalent.
6. Greater than 250 000 population equivalent, except in China, where it is greater than 500 000 population equivalent.
7. Green Globe's preference is to divide larger areas into a series of "smaller communities".

Source: Based on tables posted at www.greenglobe21.com/Cost.aspx.

Honey and Rome (2001) are critical of this process, describing Green Globe as "the 'Pacman' of the tourism certification field, aggressively gobbling up many other tourism logo, award and certification programmes and forming partnerships with tourism

associations in Asia, the Pacific, the Caribbean, the United States and Europe". Those directly involved with Green Globe counter that these accusations are unfounded and that the partnerships and mergers that have occurred have been by mutual consent, not aggressive takeovers as Honey and Rome appear to imply.[12] The WWF-UK (2000) also notes that this development of partnerships, *e.g.* with the Caribbean Alliance for Sustainable Tourism (CAST) and The Co-operative Research Centre in Australia, has been one of Green Globe's strengths, helping it to deliver regionally relevant information. In 2005 CAST conducted a study among members participating in Green Globe 21 in order to gauge their level of satisfaction. The surveys showed that a very high share of the 30 properties responding to the survey were very or extremely satisfied with having undergone certification, with 90% stating that they had achieved reductions in both water and electric bills as a benefit of their participation in the programme (www.cha-cast.com/GreenGlobeProperties.htm).

Future developments may, however, result in yet more changes. In January 2003 the Rainforest Alliance, an environmental NGO, completed a study into the feasibility of establishing a Sustainable Tourism Stewardship Council (STSC) to act as an international accreditation agency for tourism certification schemes. The study recommended the establishment of regional networks to encourage dialogue among stakeholders and to act as a clearinghouse for information on certification. The first such regional body, the Sustainable Tourism Certification Network of the Americas, was launched in Bahía, Brazil, in September 2003, thanks to support from the Inter-American Development Bank (IDB).[13] Meanwhile, the World Tourism Organisation has recently commissioned a review of international tourism standards, including Green Globe, in connection with ongoing discussions about the possibility of including a tourism annex in the General Agreement on Trade in Services (GATS).

Concluding observations

Green Globe, in its current form, describes itself as "the ONLY independently verified worldwide certification scheme for travel and tourism". In a review of tourism certification programmes, Honey and Rome (2001) described the Green Globe scheme as "unique in that it aims to cover all sectors of the tourism industry, has managed to align with many powerful tourism organisations and is the only certification programme run as a commercial, for-profit enterprise". It is certainly true that, as yet, no government-endorsed international labelling standards exist for the tourism industry. However, that does not mean that governments have not taken a keen interest in the subject.

This case study provides yet another example of the strengths and weaknesses of a private eco-labelling scheme applied to an industry not always well-versed in environmental practice. Green Globe, because of its institutional affiliations, its size and its early start, has been able to tap into established commercial networks, while working closely with intergovernmental and non-governmental organisations. These alliances have, in turn, conferred a degree of legitimacy on the label. And, perhaps because it remains a private initiative, it has been able to respond quickly to criticisms — particularly over fees — and to change its structure and image. That responsiveness has

12. Geoffrey Lipman, personal communication with Dilys Roe, April 2002. Margot Sallows with Dilys Roe, personal communication, April 2002.

13. www.rainforest-alliance.org/programs/tourism/certification/network-of-americas.html.

not stopped sceptics from suggesting that the series of makeovers that Green Globe has gone through has hurt its credibility, creating confusion about its precise requirements, especially among those that joined the now disbanded membership programme in its early days and still carry the logo. Similarly, Green Globe's mergers and partnerships with other eco-labelling schemes have been seen in both favourable and unfavourable lights. On the one hand, they have helped reduced the number of schemes and thus encouraged a harmonisation of standards; on the other hand, they have boosted the market power of a privately held company that, at the end of the day, is sustained by the fees that it charges.

The costs, and uncertain benefits, of participation in a scheme dominated by large private interests are naturally major issues for developing country suppliers of tourism services. Small businesses make up about 97% of the total companies servicing the tourism industry and cumulatively have a significant impact on the environment. Generally, however, they are excluded from certification schemes because of the schemes' price or complexity, or simply because they are unaware of them. Green Globe has over the years tried to streamline its operations and in general design its fee structure to make it more affordable for SMEs and developing country providers of travel and tourism services.

It is unlikely that global certification mechanisms for small businesses will be successful unless implemented through a credible local hotel or tourism association. Green Globe has already followed this route through its partnerships with the Caribbean Alliance for Sustainable Tourism (itself an initiative of the Caribbean Hotels Association) and, more recently, the International Hotel and Restaurant Association (IH&RA), which operates through local associations. As suggested by the WWF-UK (2000), however, the development of guidelines to help local or national authorities to develop credible programmes, which may possibly be certified by a central accreditation network, is probably the best route for success.

References

Font, X. and R. Buckley (2000), *Tourism Ecolabelling*, CABI, Oxford.

Honey, M. and A. Rome (2001), "Protecting Paradise: Certification Programs for Sustainable Tourism and Ecotourism", Institute for Policy Studies, Washington, DC, www.ips-dc.org/ecotourism/protectingparadise/, accessed 14 May 2002.

Synergy (2000), "Tourism Certification: An Analysis of Green Globe 21 and Other Certification Programmes", a report by Synergy for WWF-UK, August, www.wwf.org.uk/News/n_0000000132.asp, accessed 14 May 2002.

UNCSD-NGO Steering Committee (1999) "Sustainable Tourism: A non-governmental Organization Perspective", Background Paper #4 to the meeting on Tourism and Sustainable Development, Commission on Sustainable Development, Seventh Session, 19-30 April, New York, www.gdrc.org/uem/eco-tour/ngo4.pdf.

WTTC/IHRA: World Travel and Tourism Organization and International Hotel and Restaurant Association (1999), "The Global Importance of Tourism", Background Paper #1 to the meeting on Tourism and Sustainable Development, Commission on Sustainable Development, Seventh Session, 19-30 April, New York, www.gdrc.org/uem/eco-tour/wttc.pdf.

WTTC/WTO/EC: World Travel and Tourism Council, World Tourism Organisation and the Earth Council (1996), *Agenda 21 for the Travel and Tourism Industry: Towards Environmental Sustainable Development*, WTTC, London.

OECD PUBLICATIONS, 2, rue André-Pascal, 75775 PARIS CEDEX 16
PRINTED IN FRANCE
(22 2005 03 1 P) ISBN 92-64-01373-3 – No. 54427 2005

OECD Trade Policy Studies

Environmental Requirements and Market Acces

Do environmental regulations block exports from developing countries? Whose responsibility is it to ensure that exports do not end up rotting in the ports of destination? Are voluntary environmental standards, like for organic foods, in fact obligatory for any developing-country exporter who wants to stay in the market? Or do such environmental requirements actually increase export opportunities while reducing environmental impacts and making products safer?

Investigating over twenty cases where exports from developing-countries faced new environmental requirements, this OECD report addresses these and other questions. These case studies, covering a diverse number of products and exporting countries, trace a number of environmental regulations, standards and labelling schemes, from conception through implementation. In so doing, they highlight the difference that sensitivity to potential trade effects can make when designing environmental regulations and standards. They also show that timely technical assistance has played a crucial role in helping exporters from developing countries adjust to new environmental requirements without suffering adverse trade effects.

The full text of this book is available on line via these links:
http://www.sourceoecd.org/environment/9264013733
http://www.sourceoecd.org/development/9264013733
http://www.sourceoecd.org/industry/9264013733
http://www.sourceoecd.org/trade/9264013733
http://www.sourceoecd.org/emergingeconomies/9264013733
http://www.sourceoecd.org/industrytrade/9264013733

Those with access to all OECD books on line should use this link:
http://www.sourceoecd.org/9264013733

SourceOECD is the OECD's online library of books, periodicals and statistical databases. For more information about this award-winning service and free trials ask your librarian, or write to us at **SourceOECD@oecd.org**.

ISBN 92-64-01373-3
22 2005 03 1 P

www.oecd.org

OECD
OECDPUBLISHING