Unclassified **COM/ENV/TD(2002)86/FINAL**

Organisation de Coopération et de Développement Economiques
Organisation for Economic Co-operation and Development

27-Nov-2003

English - Or. English

ENVIRONMENT DIRECTORATE
TRADE DIRECTORATE

COM/ENV/TD(2002)86/FINAL
Unclassified

Cancels & replaces the same document of 19 November 2002

Joint Working Party on Trade and Environment

THE DEVELOPMENT DIMENSION OF TRADE AND ENVIRONMENT: CASE STUDIES ON ENVIRONMENTAL REQUIREMENTS AND MARKET ACCESS

English - Or. English

JT00154747

Acknowledgements

These case studies were prepared through the collaborative process of the OECD. Overall editing and co-ordination was provided by Ronald Steenblik, working in the Trade Directorate under the supervision of Dale Andrew. The following authors contributed drafts of individual case studies:

Gunnel Axelsson Nycander (Consultant, Sweden)
Willy Frendrup (Consultant, Denmark)
Ulrike Grote (Center for Development Research, Bonn)
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)
Max Valverde Soto (Fundación Ambio, Costa Rica)
Ronald Steenblik (OECD Trade Directorate)
Lori Ann Thrupp (Institute for Global Communications, USA)

Many individuals and institutions provided valuable comments on these case studies, and their contributions are much appreciated. The OECD Trade Directorate would also like to express its special appreciation to Veena Jha and René Vossenaar of the UNCTAD Secretariat for their help and co-operation throughout the project.

The Secretary-General has agreed to declassify the document under his responsibility as recommended by the Joint Working Party on Trade and Environment. Questions about the document should be addressed to Ronald.Steenblik@oecd.org. This document can also be found on the OECD's Trade and Environment Website:

http://www.oecd.org/EN/documentation/0,,EN-documentation-358-nodirectorate-no-no-no-24,00.html

TABLE OF CONTENTS

GOVERNMENT REGULATIONS: MANUFACTURED PRODUCTS 13

Limits on formaldehyde in textiles 15
Limits on aromatic amines in textiles coloured with azo dyes 20
Limits on chemical residues in leather goods 30
Limits on cadmium in plastics and PVC 38
Import procedures for gasoline 44

GOVERNMENT REGULATIONS: PRODUCTS OF AGRICULTURE, FORESTRY AND FISHING ... 53

Limits on pesticide residues in snow peas 55
Limits on pesticide residues in tea 64
Phytosanitary measures affecting the import of fresh durian fruit 75
Sustainability labels for wood and wood products 86
Adapting turtle-excluder devices to local conditions 91

GOVERNMENT REGULATIONS TRANSLATING INTERNATIONALLY AGREED STANDARDS 99

Phasing out methyl bromide 101

GOVERNMENT REGULATIONS AFFECTING TRADE IN PRODUCTS OF ORGANIC AGRICULTURE 109

Standards for organic foods and beverages 111
The EU's import procedures for organic foods and beverages 115
Japan's regulations affecting the labelling of organic plant products 126
Regulating "organic" food labels in the United States 137

PRIVATE-INDUSTRY AND NGO INITIATIVES 145

Eco-labels for cut flowers 147
Mangrove protection initiatives and farmed shrimp 154
Private certification of a fishery as sustainable 165
The International Fruit Container Organisation (IFCO) Returnable Packaging Initiative 176
Developing an international standard for "Green" tourism 181

Tables

Table 1. Classification of case studies according to sector and environmental issue 6
Table 2. Case studies organised by title, importing and exporting country 7
Table 3. Maximum residue values for formaldehyde in textiles 16
Table 4. Arylamines encompassed by European laws banning azo dyes 22
Table 5. Chemical residue limits applied to leather goods imported to OECD countries 31
Table 6. Gasoline Rule specifications for reformulated gasoline 47
Table 7. Non-degradation requirements for conventional gasoline 47
Table 8. Imports of motor gasoline and gasoline blendstocks into the United States by country of origin 52
Table 9. Summary of Australia's phytosanitary measures to be implemented to manage for the eight quarantine pests associated with durian fruit from Thailand 79
Table 10. OECD countries restricting or phasing out methyl bromide before the Montreal Protocol's deadlines 107
Table 11. Chronology of major milestones in the development of organic standards 112

Table 12. Entities certified to apply the JAS organic seal to food products 128
Table 13. Status of organic regulations in southern, south-eastern and eastern Asia 132
Table 14. Current Green Globe Fees 188

Boxes

Box 1. Dye manufacturing in India 24
Box 2. The “Vinyl 2010” initiative and recent European Commission actions 39
Box 3. Production practices and pesticide use in snow peas 57
Box 4. Organic agricultural production in the United States 138
Box 5. The GAA’s recommended management practices relating to mangroves 160
Box 6. Applying the MSC certification: an example from Mexico 172
Box 7. The Green Globe 2001 Upgrade 186

THE DEVELOPMENT DIMENSION OF TRADE AND ENVIRONMENT: CASE STUDIES ON ENVIRONMENTAL REQUIREMENTS AND MARKET ACCESS

Background

1. Developing countries want to boost their income through exports. Importers, particularly industrialised countries, want to ensure that imported goods meet their own domestic requirements for health, safety and the environment. Their consumers may also want to minimise the environmental impact of producing and using those goods. In theory, these goals are compatible. In practice, however, the situation is more complicated, as there can be different ways to reconcile these objectives, some of which affect developing countries more than others.

2. It has been a long-standing contention that environmental requirements have the potential to inhibit trade in products exported from developing countries.[1] Such environmental requirements cover a broad spectrum of instruments and may include technical regulations (e.g., product-content requirements); sanitary and phytosanitary measures; and mandatory or voluntary labelling, packaging and recycling requirements. Research carried out by the United Nations Conference on Trade and Development (UNCTAD) has shown that some developing countries have suffered considerable export losses due to an inability to respond to developed country environmental standards and regulations.[2] However, the effects are by no means always negative: some exporters have profited from exploiting new markets — e.g., for organically produced food — created by product differentiation. And people living in the exporting countries have often benefited from a cleaner environment.

3. In November 2000, the OECD's Joint Working Party on Trade and Environment (JWPTE) decided to look into these issues. This document presents the results of the first phase of that project.

The case studies

4. The case studies contained within this document seek to enhance understanding of the perceived and actual trade effects on developing country exports of OECD Members' environmental regulations and other measures — notably, the extent to which such requirements may have adversely affected developing countries' exports or imposed significant burdens on them. The case studies have been selected with the intention of covering a wide range of importing and exporting countries, sectors, issues and types of environmental measures. Table 1 lists the industries and issues, classified according to sector and whether the environmental issue concerns the method used in producing or processing it, the product's characteristics or post-product issues. Generally, environmental measures aimed at ensuring a minimum

1. For example, in its communication to the WTO India noted the different standards for dyestuffs on textiles and leather products; chemical residues for textiles; pesticide residues in tea and on wool; Hazard Analysis Critical Control Point (HACCP) requirements for fish processing; packaging regulations, etc. Communication from India "The Study of the Effects of Environmental Measures on Market Access", 27 October 2000, WT/CTE/W/177.

2. UNCTAD, *1998 Least Developed Country Report* cites examples of LDCs, such as Bangladesh, Madagascar, Mozambique, Nepal and Uganda having suffered significant export loses due to environmental, health and sanitary requirements in developed-country markets.

standard or product characteristic take the form of technical regulations, such as product-content requirements or maximum residue limits. 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 leading to the award of eco-labels, or involving packaging or disposal requirements.

Table 1. 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 (2); pests (1)	packaging (1);
Fisheries	habitat destruction (1); sustainable management (1); bycatch (1)	—	—
Forestry	sustainable management (1)	—	—
Services			
Tourism	sustainable management (1)	—	—

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

5. In general, the studies were able to locate information on the key actors involved, to describe the development of the environmental measure, and the responses and concerns of the developing country exporters. Table 2 lists the case studies by title, importing and exporting country.

Preliminary findings

6. The findings presented here must be regarded as tentative and preliminary. They are intended, at this stage, to provide a general idea of the broad lessons that could be abstracted from the varied experiences of OECD Member countries in designing and implementing environmental measures that have affected developing country exporters, the difficulties (or not) encountered by those exporters, and the responses of OECD Member countries to exporters' concerns. Each of these preliminary findings provides a point of departure that can be developed in subsequent phases of the project — e.g., during the workshop with key stakeholders.[3] The following paragraphs are arranged under the same headings used to organise the case studies themselves.

3. OECD Global Forum on Trade "Workshop on Environmental Requirements and Market Access: Addressing Developing-Country Concerns" (in co-operation with the Government of India), 27-28 November 2002, New Delhi, India.

Table 2. 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	USA	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	USA	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
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 Euopean countries	Philippines
Limits on pesticide residues in snow peas	USA	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	USA	Developing country exporters in general
Sustainability labels for wood and wood products	The Netherlands	Malaysia and other exporters

Development of the environmental measure

7. The approach taken in this section of the case studies has been to describe briefly how and why the measure at issue was developed, noting its historical antecedents if pertinent. Generally, those measures that were introduced the earliest involved 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, and international norms for environmental measures were not as well-developed. Those measures that have been introduced by governments since the mid-1990s have tended to involve more 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.

8. Some of the case studies describe initiatives of non-governmental organisations (NGOs) and businesses based in OECD Member countries. The process by which their initiatives are developed and carried out usually differ in many respects from those followed by governments. For one, they are not bound by the same transparency and consultation requirements as are governments. Even so, as the studies in the last section of this document attest, NGOs and businesses usually adjust their standard-setting methods over time to allow for prior consultation with a greater range of stakeholders.

Trade issues and developing country responses

9. In most of the case studies examined, quantitative analyses have not been carried on the trade impacts of the environmental measures in question; the discussion of trade impacts is a qualitative one. Certainly, developing countries have often complained about the effects of OECD Member country environmental measures. But distinguishing those effects from other influences can be extremely difficult. In many circumstances, for example, an environmental measure began to affect a developing country's exports at the same time that general conditions in the market worsened for them — e.g., demand slumped because of Russia's financial crisis or recession in Asian economies. Trade diversion may have occurred also in some cases, but the case studies have not attempted to quantify its extent.

10. In documenting the responses of developing countries to environmental measures imposed by OECD countries it is also important, but not always easy, to differentiate between official and actual responses. Sometimes, a developing country will complain about the difficulties caused by an importer's environmental measure, even while its affected industry is busy taking steps to comply with it. This apparent contradiction may simply reflect the difference between a government's trade negotiating stance and the necessity for business to maintain export markets. But it may also reflect poor communication among stakeholders *within* the affected exporting country.

11. The responses of developing country governments and exporters to environmental measures have been varied. The case studies show that, in situations where developing countries have been aware of the environmental measure, and have earnestly tried to adapt themselves 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 experience difficulties comprehending important details about the importer's measure.* This problem is of course linked to the speed and quality of information flow, 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 law and it is appropriate to its local circumstances.

- *The measure may be difficult to apply, or the government may not be able to afford the resources needed to enforce the measure*. Enforcement requires monitoring systems, data and trained agents. Any one of these requirements can be missing.

- *In cases where 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 be applying 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 that may be lacking because the crop itself is not native to the area. Research — for example, on integrated pest management — may be required, but 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 where an importer has set a residue limit at close to the limit of detection of the substance. It is a problem that is even more likely to occur if the substance in question 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.

12. Compliance can also reveal other barriers. For example, it is becoming more and more common among developing-country farmers, when faced with a stringent pesticide residue limit, to respond by converting to organic production methods. Although in some cases integrated pest management (IPM) would suffice, the cost and knowledge of applying IPM may be out of reach of the farmer, who can more easily understand and apply organic methods. But farmers who undertake the steps to convert to organic production expect to receive higher prices for their produce than they did previously, and that requires being certified to sell under an organic label. Yet in many countries local certification bodies are not accredited to the importing countries' authorities. That leaves them with no choice but to pay the high cost of certification by a certifying body recognised by, and usually based in, the importing country.

13. As several of the case studies show, it is not uncommon for awareness of an environmental measure within the exporting country to remain meagre, and violations therefore to continue to occur, years after the measure went 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 all that 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 could be that, where chains of responsibility are diffuse and fragmented, the risk to

a particular producer of being financially harmed by an enforcement action is small enough to ignore. As shown in the case studies on cadmium in plastics and formaldehyde in textiles, 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.

14. The case studies illustrate also that the industries in developing countries are often as diverse, or more so, than their counterparts in the developed countries and therefore their responses are often 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 of substitutes and able to obtain capital, if necessary. The rest of the industry, comprising locally owned SME may be much less able to adapt. Producers may differ in other ways that affect the distributional impacts of an importing country's measure. Thus in a country that exports an agricultural product, there may be those who are already employing organic farming methods and those that are still employing conventional farming methods. A sudden change in an importer's pesticide residue law that affects their common export product may reduce the conventional producer's sales (for at least a year) while at the same time precipitate a sudden surge in demand for the organic farmer's produce, thereby creating both winners and losers in the same country.

15. That developing countries have in one way or other often successfully adapted to importers' environmental requirements, or pressures from NGOs, should not make developed countries any less attentive to their concerns, however. That — rightly or wrongly — developing-country governments may perceive OECD Member countries' environmental measures to be poorly or insensitively designed and at times commercially motivated, can add to tensions between the developed and developing world in both the trade and environmental spheres of policy. Their complaints typically include one or more of the following charges:

- *The requirement assumes that one size fits all and therefore does not take into account their special circumstances*. This problem often arises where a resource-dependent industry (such as horticulture, aquaculture, harvest fishing or forestry) is involved.

- *The requirement is at odds with established international norms*. As much as anything, this complaint relates to the difficulty for an exporter of both keeping up with changing regulations and having to deal with different regulations in different markets.

- *The requirement is a disguised form of protection for a domestic industry*. This charge has become routine for some developing-country exporters, but that does not mean that they are not on occasion right in their assessment.

- *The requirement 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.

16. A more general complaint from developing countries is that each time a new measure is adopted by a country, and the measure differs from those covering the same contaminant or product adopted by other importing countries, it only adds to the proliferation of numerous national environmental measures. That adds both to transaction and information costs for exporters, and in the extreme may require them

either to produce products tailored for different import markets or to become more dependent on a smaller number of importers.

Responses to developing countries' concerns

17. Information on how governments, or in some cases NGOs, have responded to developing countries' concerns tends not to be as easy to find as information on either the environmental requirements themselves or how developing countries have reacted to them. For that reason, any synopsis must necessarily be limited and provisional.

18. With those caveats in mind, several general observations seem to suggest themselves from an examination of the case studies. The first is that assistance and consultation provided after the effects of a measure have become apparent are less appreciated by the recipient countries, though not necessarily less effective over the long run. The second, and obvious one, is that such assistance seems to have worked best when addressed to the particular informational, technical or financial difficulties being experienced by the exporters. The following is a provisional typology of the types of responses that have been used successfully to address developing countries' concerns:

- *Openness and transparency in the development of the 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 is 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, has even in some cases led to revisions of (proposed) measures that exporting countries have found to be objectionable.

- *Information dissemination about the environmental requirement*. Importing countries have on several occasions sponsored workshops and similar gatherings to which exporters have been encouraged to attend. These 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 has also revealed difficulties with compliance particular to the developing countries that the importers' environmental regulators may not initially have been aware of.

- *Technical support and advice*. The workshops mentioned above have provided one vehicle for supplying technical advice. Technical support and advice has also taken more direct forms, such as the establishment of joint research projects or supply of monitoring equipment (see, e.g., the case study on snow peas).

GOVERNMENT REGULATIONS: MANUFACTURED PRODUCTS

LIMITS ON FORMALDEHYDE IN TEXTILES

Introduction

19. In 1973 Japan enacted the Law for the Control of Household Products Containing Harmful Substances. 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.

20. 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 the limits remains poor among small and medium-sized enterprises.

Development of the environmental measure

21. On 12 October 1973 the Japanese Parliament passed Law No. 112, the Law for the Control of Household Products Containing Harmful Substances. 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.[4] Producers and importers were then given one year to comply with the formaldehyde restrictions.

22. 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.

23. 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, though 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 — building in a significant margin of safety.

24. The law sets two standards. The level of formaldehyde allowed in products used by infants less than 24 months old (textile products, diaper, diaper covers, bibs, underwear, pyjamas, gloves, socks, middle-wear, outerwear, caps and hats, and bedding material) must not exceed the limit of detection — currently around 15 to 20 ppm. The amount of formaldehyde in textile products, underwear, pyjamas,

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

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.

25. 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 on the Law has been published on the Internet (http://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).

26. Since Japan first introduced its formaldehyde limit for textiles, several European countries, plus Korea, have also adopted, or are considering adopting, similar measures (Table 3). 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.

Table 3. 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*
Czech Republic	1995?	?	?	??
European Union (eco-label)	1999	30	75	300
Finland	1988	30	100	300
France	2000?	20	100	400
Germany (label requirement)[2]	1993	1500	1500	—
Japan	1974	none detected[3]	75	75
Korea	19??	?	?	??
The Netherlands[4]	2000	120	120	—
Norway	1999	30	100	100
Slovak Republic	1998?	?	?	??

1. Generally, textile products for infants under 2 years of age, such as swaddling clothes, diapers, under garments, 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.
Sources: Hong Kong Standards and Testing Centre, Ltd. (2000); OECD Secretariat.

27. The Netherlands' measure, notified to the WTO's Committee on Technical Barriers to Trade in October 1999, takes a slightly different approach to limiting formaldehyde in textiles than do most other countries. The regulation aims to ban the trade in clothing and non-clothing textiles which, in the 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 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.

28. In explaining its designation of a 120 ppm limit the Government of the Netherlands 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.

Trade issues and developing country responses

29. 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, those imposed by Japan, entered into force more than 25 years ago. India has complained in 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).

30. Some exporting countries, such as the Philippines, nevertheless may well 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 USA (over 75% of export sales) a large volume is exported 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 those in other subcontractor countries, and continue to rise. As a consequence, the growth in Philippine garment exports has been less than that of other Asian countries and its contribution to total export earnings has declined.

31. Surprisingly, given that Japan’s law has been in force for more than two decades, awareness of the law among Philippine manufacturers remains low. Contacted on this particular issue, the Philippine Garments and Textile Export Board, which is 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 does test for formaldehyde in bras, but they would not know if the companies that are having their products tested will 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 or not.

32. In short, it seems that formaldehyde standards are not considered as important considerations among textile exporters. Some organisations are aware of the standards, others do not know about them at all. Moreover, it seems that the Philippine textile industry has not been confronted with any negative consequences of non-compliance, which would probably have emphasised 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 the year 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.

33. According to the Japanese authorities, the main reason for those violations of the formaldehyde standard that do occur is ignorance of the law. This conclusion is substantiated by a recent report on the 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 USA 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

34. One of the recommendations of the CBI-CREM study quoted from above is to set up a Centre for Ethical Trade Promotion. Philexport (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

35. 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 almost 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 1999, 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)", translation of 4 January l990. http://www.kuluttajavirasto.fi/englanti/legislation/formaldehyd.html

Hong Kong Standards and Testing Centre, Ltd. (2000), "Formaldehyde requirements in different European countries", HKSTC, Hong Kong. http://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 2000, World Trade Organisation, Genève.

Japan, Ministry of Health, Labour and Welfare, Pharmaceutical and Food Safety Bureau, Office of Chemical Safety – Japan, H. Hirano.

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

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

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 1999, World Trade Organisation, Genève.

Philexport – Philippines, Ms. J. Ramos. Business Development/Policy Advocacy Depts. Philippine Exporters Confederation, Inc.

Philexport (1999), *Technical barriers to Philippine exports*, Philippine Exporters Confederation, Inc., Manila.

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

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

LIMITS ON AROMATIC AMINES IN TEXTILES COLOURED WITH AZO DYES

Introduction

36. Most textiles are dyed or printed. Azo-dyes — a collective term used to describe a group of synthetic dyes 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, Taiwan and Argentina (Fassold *et al.*, 1999). Unfortunately, some azo dyes, through chemical breakdown, may form chemical substances called aromatic amines (arylamines), that have been proven to be or are suspected of being carcinogenic.

37. 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, that 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.

38. 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. India, also a major manufacturer of synthetic dyes, saw two of its industries affected.

Development of the environmental measure

39. For almost a century, it has been suspected and then known that occupational exposure to arylamines such as benzidine, 2-naphthylamine, and 4-aminobiphenyl is associated with exceptionally elevated risks (up to 100-fold 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.

40. Arylamines may be present in dyed products, either because of incomplete synthesis or from chemical degradation[5] 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

5. Technically, “oxidative or reductive cleavage”.

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 with uptake through the skin.

41. Azo dyes made from diazo-benzidines and benzidine are the most problematic, especially for the occupational health of workers. For that reason, in May of 1992 the Board of ETAD[6], the Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers, decided to request that all ETAD member companies voluntarily cease the manufacture of benzedine dyes and salts. Most of ETAD's European and North American membership had in fact stopped producing the dyes many years before, and had developed replacement colorants; however, there were a few companies, especially from other continents, that were still producing the chemicals, and indeed had expanded their 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.

42. 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 were nonetheless having to compete with imported textiles that were still being made with them.

43. 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).[7] Legislation to ban these azo dyes had already been introduced into the federal Parliament in 1992.[8] Finally, on 15 July 1994, by an amendment to Germany's Consumer Goods Ordinance[9], 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.

44. 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). 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.[10] Currently, in those European countries that ban azo dyes (and in the EU's proposed Directive), proof of their presence is established when a concentration greater than 30 parts per million (i.e., the limit of detection) of the specified arylamines are found in an investigated object.

---

6 . ETAD was formed in 1974 to represent the interests of dye and pigment manufacturers on matters relating to health and environment. Its current membership includes 44 member companies, based in 11 countries and 4 continents.

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

8. 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).

9. "Zweite Verordung zur Aenderung der Bedarfsgegenständeverordung", *Bundesgesetzblatt — Teil l*, nr. 46 of 28 July 1994, pp. 1670-1671.

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

45. Within a couple of years The Netherlands followed Germany with an azo-dye ban of its own. Since then, other European countries have followed suit. Austria's ban went into effect on 1 January 1999 and Norway's on 8 April 1999.[11] France 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 finally made public in March 1999. The proposal attempts to harmonise legislation on azo dyes in order to prevent any 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 aromatic amines listed in Table 4, plus two others.

Table 4. Arylamines encompassed by European laws banning azo dyes

No.	Name	CAS no.[1]
1	4-aminobiphenyl	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	-4-o-tolylazo-o-toluidine, (4-amino-2,3-_dimethylazobenzene, o-aminoazotoluene)	97-56-3
6	2-amino-4-nitrotoluene	99-55-8
7	4-chlorobenzenamine	106-47-8
8	-2,4-diaminoanisole_(4-methoxy-m-phenylenediamine)	615-05-4
9	-4,4'-diaminodiphenylmethane_(4,4'-methylenedianiline)	101-77-9
10	3,3'-dichlorobenzidine	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, _(4,4'-methylenebis-2-methylaniline)	838-88-0
14	p-cresidine (6-methoxymethylaniline)	120-71-8
15	-2,2'-dichloro-4,4'-methylene-dianiline_(4,4'-methylene-bis-(2-chloro-aniline))	101-14-4
16	4,4'-oxydianiline (4,4-diaminodiphenylether)	101-80-4
17	4,4'-thiodianiline	139-65-1
18	o-toluidine (2-aminotoluene)	95-53-4
19	-4-methyl-m-phenylenediamine _(2,4-diaminotoluene)	95-80-7
20	2,4,5-trimethylaniline	137-17-7

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

46. The final amended Directive[12], issued on 19 July 2002, 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

11. http://odin.dep.no/odinarkiv/norsk/dep/md/1999/eng/022051-200003/index-dok000-b-f-a.html

12. http://www.dti.gov.uk/ccp/consultpdf/azodconxa.pdf

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, which could quite substantially increase the costs of testing. 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.

47. It is not known to what extent the 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.[13] 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.[14]

48. In developing its draft Directive, the European Commission did clearly consider the impacts 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 and India, based on their experiences with adapting to Germany's law. The study's main finding of the third study was that the principle problems faced by producers in developing countries in adapting to a ban related to timing, information and testing.[15]

Trade issues and developing-country responses[16]

49. The effects of the European prohibitions on azo dyes were felt perhaps most acutely in India, which over time has developed a considerable dye-making capacity (Box 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

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

14. The effectiveness and quality of the information flowing to foreign exporters is always difficult to judge. As the consultants ERM concluded in their 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 market-place contacts are the first point of call for information, there may be substantial delays in obtaining information about new restrictions in export markets."

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

16. This section concentrates on the response of India. However, it is worth noting that the European restrictions on the use of azo dyes also delivered a body blow to Pakistan's textile industry which, together with cotton, contributes more than 60% to the country's annual exports. In an effort to ensure compliance, the Government promulgated a set of National Environmental Standards (NEQS) 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.

ban in India. These have included 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 1. Dye manufacturing in India

The large-scale manufacture of synthetic dyes began in India with imported intermediate chemicals in 1950. Today, the industry comprises about 1000 firms, with only 48 operating in the organised, large-scale sector. These latter employ 35 000 workers. The total installed capacity of all dyes and dye intermediate manufacturers is 54 800 tonnes, while actual production in 199x was around 41 000 tonnes. The installed capacity for producing azo dyes is 4 900 tonnes, while actual production is less than half that (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 INR 14.7 billion (USD 370 million) worth of dyes and INR 7.55 billion (about USD 190 million) worth of dye intermediates. Exports in 1998-99 fell by about 10%. The main markets for the dyes were the USA, the UK, Germany, Korea, Taiwan and Italy. The small-scale sector accounts for about 50% of the total exports of all dyes and intermediates.

50. 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 an enormous quantity of second-hand clothing being imported 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). That led to a sudden surge in exports of second-hand clothing to developing countries, where they were not only distributed free of charge to the poorest people, but also sold in local markets by charitable organisations — and thus competing with new, locally made products.

51. Facing a potential loss in export earnings, in 1996 the Government of India went ahead and developed an eco-label for its textiles.[17] In 1990 it had already called for a three-year phase-out of the use of benzidine-based dyes in textile fabrics (ERM, 1998). The Government also asked Germany for a one-year extension of its deadline, which it 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, parts per million — presumably because their testing equipment were less sensitive. And for two important reasons it decided for the purpose of the label to ban *all* azo dyes, and not just those that could cleave to those on the European importers' lists.

52. 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, some samples therefore had to be shipped to Germany for testing, at considerable cost to the manufacturers.[18] Over the next four years,

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

18. Estimates of the testing charges range widely. ERM (1998) note that testing charges in Hong Kong in 1995 were around HKD 1500 to HKD 1800; 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

however, the Government of India invested significant sums of money (around one billion rupees) to establish a sufficient number of certifying laboratories to ensure that the exports of textiles and garments from the country would meet the European standards (Hyvärinen, 2001).

53. The second reason was that at the time that 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., would decompose into the listed arylamines. Chemists have developed around 2 000 different azo dyes, of which around 3 200 are currently in use, and anywhere from 130 to 150 (depending on which published list of dyes is consulted) may be affected by the bans (ERM, 1998). Notably, Germany's initial legislation did not name the dyestuffs that would be affected, though The Netherland's (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 of the lists singled out 70 azo dyes as problematic; this list was obtained by the Government of India and eventually formed the basis of India's national law.

54. 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.

55. Scientific evidence on the carcinogenicity of all 22 arylamines is still not complete. The literature is most compelling for the first four in Table 4, which are considered Category 1 carcinogens. The ban on the other sixteen arylamines was done presumably 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.

56. 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, and not just a desire to protect public health. Similar allegations have been made with respect to pentachlorophenol (see the case study on leather).[19]

57. The costs of making the switchover to azo substitutes was shown by Bharucha (1994) to be non-trivial. For example, 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 was found to require an investment of over USD 13 million at the firm level. Switching to non-benzidine dyes 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's Research Association (ATIRA) has estimated that the cost of azo-free substitutes is 2½ times that of azo dyes. These changes were prohibitive for small- and medium-sized textile producers, which constituted 60% of the textile industry in India.

58. 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

---

between INR 30 000 and INR 40 000 in Germany, compared with a local equivalent of INR 500 to INR 2000.

19. They claim that Western companies had developed Busan 30 as an alternative to PCP. Thereafter PCP was banned and Indian leather industry had to purchase Busan at 30 times the cost of PCP.

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 fastness and 4 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 with vegetable dyes requires around 1 kg of dried leaves — i.e. equivalent to 5-10 kg of freshly picked leaves (Hyvärinen, 2001).

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

Responses to developing countries' concerns

60. 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.

61. The Indo-German Export Promotion Project (IGEP), a joint trade-promotion programme between the Ministry of Commerce in India and the Ministry of Economic Co-operation and Development in Germany, 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, among other topics, examined European product requirements for textiles (Busert *et al.*, 2001).

62. 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, Columbia, and the Philippines and were led by specialists in textile export and in 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; and
- technical guidance on how to comply with azo and other environmental legislation (e.g. details on alternative products and processes).

63. Feedback from countries participating in these workshops was mixed. The most positive response came from Pakistan, which sent more than 200 textile producers to its workshop. Colombia's response was less enthusiastic, however; some participants expressed resentment that, in their view, the azo bans were deliberately intended to keep out 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

64. 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.

65. The cost of compliance was considered high by textile exporters, and some of them alleged that the European prohibitions on azo dyes only came into effect once 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.

66. 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 is scarce on the effectiveness of these actions.

REFERENCES

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

Ahmed, Tauseef (199?), "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. http://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.

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 2001, 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 Dehli, 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, UK.

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 1998, Basel, Switzerland. http://www.etad.com/information_6.html

Fassold E., G. Häusler, P. Hohenblum P. and S. Scharf (1999), "Azofarbstoff in Leder und Textilien [Azo-dyes in leather and textile goods]", Reports No. R-159, Deutsche Zusammenfassung, Vienna. http://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", Paper No. ATC/ECOUR99, International Trade Centre, Geneva. http://www.intracen.org/mds/sectors/textiles/ecour99.htm

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

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://iisd1.iisd.ca/tkn/research/country/pk_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 1997. http://webnet1.oecd.org/pdf/M00002000/M00002283.pdf

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 from http://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.

LIMITS ON CHEMICAL RESIDUES IN LEATHER GOODS

Introduction

67. 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, 2001*a*). 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 goods made of leather has been gradually shifting to developing countries in South America and South-east 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 looking at 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.

68. 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 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.

69. Several other case studies in the series 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, emanating from different importing countries, have in the aggregate affected exporters of leather.

Development of the environmental measures

70. 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.

71. 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 aims of these laws has been to protect consumers from exposure to dangerous chemicals through their skin (or, in the case of infants, from putting the articles in their mouths), though

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.

72. Within the European Union, general regulations of this type have been introduced pursuant to Council Directive 76/769/EEC (CEC, 1976*b*) and its amendments. Individual member countries are entitled to set up 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 5 summarises those regulations most pertinent to leather.[20] Cadmium, while not a chemical agent used in leather processing, may be present in pigments used to colour the leather.

Table 5. 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 1000 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 1000 ppm[6)]

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).
Sources: CEC (1991*a*, 1991*b*).

73. Residues in leather have also been affected by four other EU Directives. The aquatic environmental directive (CEC, 1976*a*) 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.

74. As well as these mandatory measures, some 12 eco-labelling schemes have been established that include criteria for leather or leather products (Frendrup, 2001). Ten of these include requirements relating

20 . A new EU Directive on biocides is also being prepared. Chlorophenols other than PCP may also be regulated in the future.

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).

75. 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 for "ecological purchases" of various leather products exist. Products complying with an authorised eco-labelling scheme and suppliers with an EMAS (Eco-Management and Audit Scheme) or ISO environmental management certificate are thereby given preference (Frendrup, 2001).

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

76. The main exporters of leather and leather products into the EU are countries in east and south-east Asia (particularly China, India and Pakistan) or Latin America.[21] 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.

77. 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 know-how transfer in order to ensure that their subcontractors in developing countries were complying with new environmental standards.

78. However, the adaptation process was not always smooth. When Germany in 1989 introduced its prohibition on pentachlorophenol (PCP), for example (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".[22]

79. 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:[23]

> 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.

21. 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.

22. Conversation with Willy Frendrup.

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

80. 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 are the contents of pentachlorophenol, hexavalent chromium, formaldehyde and the prohibited azo dyestuffs (Frendrup, 2001).

81. One consequence of these changes is that the general environmental performance of India's tanneries has been 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). Waste-water treatment facilities are also being set up in other tanning centres, like 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 (Anon., 2001*a*).

82. 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 each other 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).

83. In Zimbabwe, the biggest, modern tanneries (of which there are two) 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 (Anon., 2001*b*). Many of the country's small tanneries remain non-compliant.

84. As described in more detail in the case study on azo dyes in textiles, 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 in order to help the exporters identify if their products contained 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 let the necessary testing be 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

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

Information about the regulations

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

Technical assistance

87. The United Nations Industrial Organisation (UNIDO) has been one of the most active inter-governmental organisations in providing technical assistance to leather industries in developing countries, in order to both 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, which was designed to channel assistance and feedback and to co-ordinate all its field activities.

88. In 1997 UNIDO launched a project (financed by the Government of Switzerland) 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 environment-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. A key tool in applying this strategy is the environmental audit. The audits 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.

89. 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 Union (IUE) — which has issued guidelines that are updated annually (IUE, 2001) — and the Commission for Chemical Analyses, IUC, which standardises and issues methods of analysis.

Concluding observations

90. 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.

91. In the leather sector, importers' environmental regulations seem also to have sharpened already 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 numbers, they represent only a minor part of the total production volume.) The discrepancy also appears between leather industries in rapidly developing countries and those in the least-developed countries. In countries such as India, China, or Pakistan, the market is big enough for the necessary chemicals and equipment to be available, and several tanneries have the economical resources necessary to defray the surplus costs involved. By contrast, tanneries in the least developed countries have encountered difficulties in gaining access to cleaner technologies, or have been dissuaded by the high costs of procuring them.

92. The efficient transfer of information and know-how is vital for the exporters. In the case of chemical inputs, exporters need time to reconfigure their production lines and to test out the properties of alternative chemicals and other raw materials used in production. It is also necessary that the tanneries have sufficient access to independent certification bodies that could provide services at a 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

Anonymous (2001*a*), "Far East provides main market", *Leather*, April 2001, p. 53-58.

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

Ball, Philip (2002), "Green tan alley: saliva enzymes clean up leather processing", *Nature* (on-line), 2 October 2002. http://www.nature.com/nsu/021001/021001-3.html

CEC: Commission of the European Communities (1976*a*), "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 (1976*b*), "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 (1991*a*), "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 (1991*b*), "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. (azocolourants)

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, http://www.indiamarkets.com/imo/industry/leather/leatherfea1.asp

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

Frendrup, Willy (2001), 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. http://www.jrc.es/pub/english.cgi/d733229/Reference Document on Best Available Techniques for the Tanning of Hides and Skins

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. http://www.valles.com/aqeic/Safe00.doc

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 (2001*a*), *Cleaner Leather Production: The Changing Environmental Image of African Tanneries*, Vienna, Austria.

UNIDO (2001*b*), "Global Forum on Leather", Unido*Scope*, 2-8 July 2001, Vienna, Austria. http://www.unido.org/periodical.cfm?did=411599&pername=UNIDOSCOPE - 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.

LIMITS ON CADMIUM IN PLASTICS AND PVC

Introduction

93. 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 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.

94. 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 had thought the articles were 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

95. 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 began to emerge pointing towards a need to reduce the rate at which heavy metals, including cadmium, were accumulating in the environment.

96. Cadmium, like many other heavy metals, has many industrial applications.[24] 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 prostrate 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.[25] Compounds of cadmium are still used by some manufacturers of plastics —PVC, polyurethane, polystyrene and

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

25. The main route for cadmium intake (among non-smokers) is ingestion. 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 http://www.cadmium.org/introduction.html

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 and are neither significantly more expensive to use, nor reduce product quality.

97. 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 that contain cadmium above a specified limit. At the time, and indeed it is still the case, there were no internationally agreed maximum limit values (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 1000 parts per million (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.[26] This limit is *not* a zero-tolerance level, as the limit of detection for cadmium is much lower, in the neighbourhood of 5 ppm.

98. 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 2).

Box 2. 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 20101", 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.

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

99. 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 recently proposed EU Directive on azo dyes, for example, the EU conducted a study on the effects on suppliers in developing countries of a ban on azo dyes and products treated by azo dyes.[27] The Cadmium Directive was drafted and proposed before these procedures had become commonplace, so its effects on developing country exporters were not explicitly taken account in its design. However, the EU did conduct a risk assessment study before establishing its limit.

100. 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 importation and production of cadmium-containing products in the Netherlands. The study showed that about 15% to 20% of 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.

101. Priority given to enforcement of the Directive has not been uniform across all 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 the chances of getting caught in violation of the Cadmium Directive are low. In recent years, inspection has revealed that a large proportion of products found to contain cadmium in excess of the 100 ppm limit could ultimately be traced back to manufacturers in mainland China, Hong Kong or Chinese Taipei.

Trade issues and developing-country responses

102. Analyses of violations of the Cadmium Directive have shown that differential enforcement is only one of the problems, and 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.

103. 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 must be born by the importer.

104. 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.

27. http://europa.eu.int/eur-lex/en/com/pdf/2000/en_500PC0785.pdf

Otherwise, those importers that desire to operate within the law will either discontinue their contractual relation with their 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.

105. 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 five 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

106. 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-tech 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, who do not include requirements relating to cadmium content in their product specifications.

107. 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 are closely following developments in the EU. For example, the Hong Kong Trade Development Council regularly publishes articles on draft EU legislation. Information dissemination 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

108. China produces plastic goods both for its home market and foreign (mainly EU and US) export markets. It has been estimated that the shares of products exported from China and Hong Kong 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 (1000 ppm) and the more recent EU standards can sometimes lead to confusion.[28] 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

109. The production chain of the relevant products is often complicated. During the life-cycle 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 paramount criteria.

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

110. 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 costs. Given the complexity of the production chain, even a strategy of embodying product specifications does not always prove to be "water-tight". This explanation is confirmed by the official statements of those European retail companies, especially the larger ones, that have been found in violation of the Directive.

Lack of proper testing facilities

111. 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 manufacturers of those components further 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 however, several internationally well-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

112. Since 1998, representatives of enforcement organisations from a majority of 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, the 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 its second conference in May 2000. At its third conference, in January 2001, the EuroCad members proposed to investigate the possibilities 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.

113. At the EU level, the European Commission's Directorate General for Trade has been supporting the development of a 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 at assisting developing countries in identifying and complying with standards and technical regulations, and engaging 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 consider ways of addressing their concerns.

Concluding observations

114. 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, even after 10 years, many exporters are still not aware of the Directive and the possible consequences of non-compliance.

115. 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 Sustainable Trade and Innovation Centre, they are starting to take the first steps towards overcoming that information barrier.

REFERENCES

Anonymous (2001), "Results of CLEEN-conference (EUROCAD) Vienna", *Environment Daily* 1062, 18 September, p.

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 (cadmium), *Official Journal of the European Communities*, L 186 (12/7).

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

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, UK.

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

The Netherlands, Inspectorate for the Environment, 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. http://www.vinyl2010.org/Progress-Report-2002/PDF/Vinyl2010_ProgRep_2604_final.pdf

IMPORT PROCEDURES FOR GASOLINE

Introduction

116. 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.[29] 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.[30]

117. 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[31] and the Appellate Body Report[32] concluded that the Gasoline Rule was inconsistent with WTO obligations.

118. The United States responded by revising the Gasoline Rule in a manner consistent with the WTO ruling. The U.S. Government has assisted foreign refiners to understand and comply with the revised Gasoline Rule in a variety of ways, including sending technical advisors to the foreign refineries themselves. The outcome appears positive. To date, it has been relied on by Brazil and Norway and incorporated in other areas of U.S. environmental legislation.

Development of the measure

119. In 1977 the CAA set new targets for the attainment of air quality by metropolitan area. These targets related to, among other pollutants, 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 their non-attainment were emissions from automobiles, particularly those operating on petrol (gasoline). Various

29. 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.

30. 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).

31. 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").

32. 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").

options were considered to address the problem. Part of the ultimate package of measures adopted by the U.S. Congress included an approach requiring different qualities of gasoline for different areas.

120. The CAA 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.[33] The first relates to "reformulated" gasoline, which must be sold in certain designated "non-attainment areas" such as those 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.

121. 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 volatile organic compounds (VOCs) and toxic air pollutants (toxics) and no increase in emissions of nitrogen oxides (NOx).[34] For *conventional gasoline* the CAA provides that no refiner, blender or importer of gasoline could sell conventional gasoline that emits VOCs, toxics, NOx or carbon monoxide in greater amounts than it's the gasoline sold in 1990.[35]

122. Implementation of these CAA requirements was entrusted to the EPA.[36] In designing the Gasoline Rule, the EPA expressly fixed some of the specifications for gasoline, while requiring others to be maintained at or below 1990 levels (called "non-degradation" requirements). In particular, during the period 1995 through 1997 a "simple model" was adopted whereby, 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 1). It is important to note that this approach changed considerably when the "simple model" was replaced with a "complex model" as from 1 January 1998.[37] Under the conventional gasoline programme non-degradation requirements apply to all conventional gasoline requirements (Table 2).[38]

123. 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 conven-

33. Section 211(k), CAA.

34. 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.

35. Section 211(k)(8).

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

37. 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 2, 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.

38. Section 80.41, Gasoline Rule.

tional 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 1990s (statutory baselines). The rules for establishing these baselines varied depending on the nature of the entity concerned.[39] Critically, the rules that were established for domestic refiners and blenders differed from those applied to importers of gasoline.

124. Any *domestic refiner*, in general, could obtain an individual baseline — that is, the annual average level it achieved in 1990. To establish an individual baseline, a refiner had to 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[40] it produced in 1990 (Method 2). If these two methods did not yield sufficient evidence, the refiner was required also to use data on the quality of post-1990 gasoline blendstock or gasoline (Method 3).

125. *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 — that is, 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 based on an assumption that verifying individual baselines and enforcing compliance in foreign jurisdictions would have been extremely difficult.[41] 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, then 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.

126. These rules, set out in summary form in Tables 6 and 7, went into force on 1 January 1995.[42]

39. Section 80.91, Gasoline Rule.

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

41. See Appellate Body Report, pp. 25-6. At the same time, the EPA decided against using statutory baselines for domestic refineries due 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.

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

Table 6. 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.

Table 7. 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.

Trade issues and the responses of developing-country exporters

127. Prior to the Gasoline Rule entering into force, 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 relegating foreign refiners to statutory baselines, the EPA had treated imported gasoline less favourably than it had 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 U.S. market, gasoline of identical quality but produced in a U.S. refinery could be freely sold on the U.S. market, provided that it conformed to that refiner's individual baseline.

128. 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.[43] In particular, it suggested

43. 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 Compliant is Shelved", 11 *International Trade Reporter* (BNA) No. 13, at 504 (30 Mar 1994).

criteria and procedures by which foreign refiners could establish individual refinery baselines in a manner similar to that required for domestic refiners.[44] The EPA's proposal of May 1994 never entered into force, however, as the U.S. Congress enacted legislation in September 1994 denying the funding necessary for its implementation.[45]

129. 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.[46, 47] 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.[48]

130. 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.

131. 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 sited as justification for rejecting individual baselines for foreign refiners.[49] 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."[50]

---

44. 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.

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

46. Panel Report, Para 3.14.

47. 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 been increasing each year since 1995 despite the Gasoline Rule coming into effect. See attached table, provided by the EPA for the purposes of this study (Table 3).

48. Panel Report, Para 3.14.

49. Appellate Body Report, p. 28.

50. Appellate Body Report, p. 28.

Responses to developing country concerns

132. After the release of the WTO Appellate Body's report, the EPA published a notice requesting that the public identify options for domestic compliance with that determination and supply data concerning the way various alternatives will affect the environment and public health.[51] It then promulgated proposed[52] and final[53] 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 similar requirements as 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.[54]

- The foreign refiner becomes subject to all requirements that apply to domestic refiners, such as record keeping, reporting, and sampling and testing.[55]

- The foreign refiner must conduct additional sampling and testing necessary to demonstrate which gasoline produced at the foreign refinery actually is imported into the United States.[56]

- The foreign refiner must agree to allow EPA inspections and audits,[57] that enforcement actions for violations of United States laws and regulations related to the individual refinery compliance would take place in U.S. courts,[58] and must post a bond appropriate to pay any penalties for non-compliance that are assessed.[59]

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

134. The 1997 Foreign Refiners' Gasoline Regulation is accompanied by an annual survey of the quality of all imported gasoline. If this survey shows degradation of the quality of imported gasoline, standards for some imported gasoline are adjusted to compensate.[60] This survey addresses EPA concerns

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

52. 62 *Federal Register* 24776 (6 May 1997).

53. 62 *Federal Register* 4553 (28 August 1997).

54. 40 CFR § 80.94(b).

55. 40 CFR § 80.94(c)(1).

56. 40 CFR §§ (f) and (g).

57. 40 CFR § 80.94(i)(1).

58. 40 CFR §§ 80.94(i)(2) through (4).

59. 40 CFR § 80.94(k).

60. 40 CFR § 80.94(p).

that optional foreign refiner compliance may create the potential environmental problem that it could skew the quality of imported gasoline. This possibility may emerge because of the problem of adverse selection — i.e., foreign refiners with "dirty" individual refinery baselines (resulting in relatively easier compliance) have a greater incentive to choose the individual compliance option, than refiners with "clean" individual refinery baselines (resulting in relatively more difficult compliance).

135. Since the revised Foreign Refiners' Gasoline Regulation were 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 despite being a key plaintiff in the original WTO dispute.

136. 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 EPA requirements, both in Washington and in Brazil. In addition, an EPA team visited each Petrobras refinery to review the refinery baseline information and suggest additional information and analysis 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.[61]

Concluding observations

137. This case study examining United States' import procedures for gasoline 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.[62]

---

61. 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. These are the following: The gasoline sulphur regulations, which go into effect beginning in 2004 (65 *Federal Register* 6698 (10 February 2000); codified at 40 CFR Part 80, subpart H); the gasoline toxics regulations, that limit the benzene content of gasoline, which go 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).

62. See above paras 15 and 16.

138. It also provides an example where positive outcomes for both the country setting the environmental standards and exporting countries has been achieved. Notably, the United States' revised Gasoline Rule, which allows foreign refiners to establish individual baselines on the basis of similar requirements to domestic refiners, has subsequently been relied on by Brazil and Norway and has been reciprocated in other U.S. environmental legislation.

139. The study also highlights 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 themselves.

Table 8. Imports of motor gasoline and gasoline blendstocks into the United States by country of origin

(thousands of barrels per year)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total Imports into the US	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 Countries with 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 People's Rep	791	1 262	2 141	162	324	0	0	222	0	2 357	3 748
Columbia	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* for each year, Table 21.

GOVERNMENT REGULATIONS: PRODUCTS OF AGRICULTURE, FORESTRY AND FISHING

LIMITS ON PESTICIDE RESIDUES IN SNOW PEAS

Introduction

140. 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.

141. The United States is the leading importer of Guatemalan snow peas. For many years, the U.S. 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.

142. In the early 1990s, pesticide residues in shipments to the United States were frequently found to be in violation of the U.S. Environmental Protection Agency's 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 U.S. requirements

Development of the environmental measure

143. 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 Environmental Protection Agency (EPA), the Animal and Plant Health Inspection Service (APHIS) and the Food Safety and Inspection Service (both of the U.S. Department of Agriculture), the Food and Drug Administration (FDA), and the U.S. 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 U.S. 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 U.S. registered pesticides since worker protection and environmental effects studies do not apply.

144. The U.S. 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.[63] 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 shipments no longer exists. The sampling frequency is increased for crops that previously violated standards.

145. Before violative residues were detected at significant rates, U.S. agencies rarely were 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 3), several U.S. agencies (including the USDA, FDA, USAID and EPA) decided to send several staff members down to Guatemala to assess how pesticides were being used to grow Guatemalan snow peas, which led to the establishment of a multi-year pilot programme on pesticide management in Central America. The U.S. 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.

146. In the planning and initial stages of NTAE programs, 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.[64] Although environmental impact assessments (EIAs) were required by law at the outset for USAID's export-promotion programs, these assessments were usually conducted after the programs were firmly established with approved financing.[65] Decision-makers who were concerned with NTAEs tended to perceive EIAs and other environmental regulations as bureaucratic burdens.[66] Although some EIAs identified likely problems and suggested measures to avoid them, their recommendations were rarely implemented in the first years of the NTAE programs.

63. U.S. Department of Agriculture marketing regulations; Fredda Valenti, export/residue analyst, FDA, personal communication, April 1994.

64. 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). *Source:* interviews with Proyecto para la Exportación Agrícola officers and a U.S. Agency for International Development officer, l993/94.

65. U.S. Agency for International Development, Latin America and Caribbean Bureau, Environment Office, "Environmental Impact Evaluations for Non-traditional Export Promotion Programs," for Central America, Ecuador, & Caribbean countries, unpublished.

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

Box 3. Production practices and pesticide use in snow peas

The initial establishment of a snow pea farm requires considerable capital investment. And operating costs, particularly for labour, can be high. Guatemalan producers must comply with the demands and requirements of local buyers, U.S. 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.[67]

Heavy use of pesticides cannot be seen merely as a consequence of high pest incidence: growers use them also in responding 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.

Patterns of pesticide use in snow peas were revealed in 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. 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 was 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 amounted to accounted for 22.5% of total production costs and, for snow peas, pesticide costs alone were exceeding USD 2 200 per hectare (CICP, 1988). A study carried out a few years later in the Guatemalan highlands indicated that pesticide inputs represented about 30% to 35% of the costs of material inputs used in growing snow peas (Fisher *et al.*, 1994). And 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).

67. See, e.g., 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.

Trade issues and developing country responses

147. In the early 1990s, pesticide regulations existed as written documents throughout most of Latin America. However, they are not adequately implemented for NTAEs and other crops.[68] Few government agencies had the resources or the political will needed to enforce the laws. Furthermore, most countries were providing contradictory policy incentives that favoured the use of pesticides — for example, subsidies and credit policies that encouraged the use of agrochemicals in export crops (Rapetto, 1985; Thrupp, 1990).

148. When pesticides are applied excessively or too near the 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 the residues have been eliminated or are below the established tolerance level. This triggers financial losses to exporters and producers alike.

149. 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 10 Latin American countries experienced approximately 14 000 pesticide-related detentions in the decade to 1994.[69] 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.

150. 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.[70] Most of these detentions (1 755) occurred in 1993 alone, due almost entirely to the presence of chlorothalonil, a pesticide used in snow peas that is unregistered for this crop and for which the United States had established no import tolerance.[71] Following repeated violations, the Guatemalan government, in arrangement with the United States 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.

151. 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 program 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.

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

69. World Resources Institute analysis of US. Food and Drug Administration unpublished detention data, Washington, D.C., 1983-1994.

70. ibid.

71. ibid.

152. The country-wide automatic detention program due to 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

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

154. 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.[72]

155. 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 solarization, 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.

156. In late 1993, an assessment was undertaken by an interdisciplinary team[73] to identify the impacts 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 following pesticide residue precautions. However, a few of the key recommended practices (particularly use of sticky

72. 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 (Institute of Agricultural Science and Technolog), 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.

73. Team members came from 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.

plastic-bag insect traps, solarization, 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 reason given by farmers for deciding not to adopt certain techniques were a lack of knowledge of the methods, insufficient time, and high expense. Another possible problem was that the project technicians generally did not use participatory approaches for technology transfer. In sum, these findings suggested that the IPM program made some progress in reducing pesticide use and costs, but that much more work was needed to transform production practices (Fisher *et al.*, 1994).

157. Besides this IPM program, another initiative in Guatemala was the creation of the Integral Program 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 U.S. 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. The international pesticide trade association (GIFAP) carried out a three-year program in Guatemala on general pesticide safety and management training, with educational materials and training courses for technical people at all levels. Other organisations, such as the Peace Corps, in tandem with the Panamerican Agricultural School (El Zamorano), and USEPA, undertook efforts to reduce pesticide hazards, though these are not focused only on NTAEs.

158. 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.

159. Another effort by USAID, which began in 1994 with the development of the Integrated Pest Management Collaborative Research Program (IPM CRSP) in Guatemala, still 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 an APHIS detention of snow peas 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 USDA also assisted small producers to gain market access through establishment of regional pre-clearance centres.

Concluding observations

160. Non-traditional agricultural exports have developed into an important source of economic development for Latin America. However, many of these programs have been "production-driven" rather than "market driven", which 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 U.S. pesticide-residue tolerance requirements, as well with the 1995/1996 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.

161. U.S. 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, around 80% to 85% of U.S. consumption of snow peas continues to come from Guatemala.

162. 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 (1988), "Environmental Assessment of the Highland Agricultural Development Project," Project Amendment, Phase 2, Consortium for International Crop Protection, College Park, Maryland.

FDA: U.S. Food and Drug Administration (1984), *Requirements of Laws and Regulations Enforced by the U.S. Food and Drug Administration* U.S. 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," un-published 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, USA.

Merwin, Ian and Marvin Pritts (1993), "Are modern fruit production systems sustainable?", *HortTechnology*, April-June, Vol.3, No.2, pp. 130-.

Mucia, Marcelo (1994), "Sostenabilidad social: La experiencia de los productores de Patzún, Chimaltenango," in *Sostenibilidad de la Producción Agrícola No-Tradicional de Exportacion 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.

Powers, Nicholas and Richard Heifner (1993), *Federal Grade Standards for Fresh Produce: Linkages to Pesticide Use*, Economic Research Service bulletin number 675, U.S. 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.

LIMITS ON PESTICIDE RESIDUES IN TEA

Introduction

163. 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 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 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).

164. 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

165. Indian complaints have focussed 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, 2000*a*). 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[74] (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.

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

The MRL for ethion

166. 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. That Directive established a provisional MRL for ethion of 2 milligrammes in each kilogramme of dried tea leaves. Member States were given until 1 January 1998 to adopt this limit, but were allowed to adopt it earlier, as Germany did.

167. 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 not in the original]

168. 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 U.S. 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.[75] In short, Germany and the EU adopted an MRL that was lower than but roughly of the same order of magnitude as what was being applied by other countries.

The MRL for tetradifon

169. Tetradifon (1,2,4-trichloro-5-(4-chlorophenyl)-sulfonyl benzene) is an organosulfur 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 to humans[76] and other non-target species than is ethion. 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).

170. 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.[77] For the following nine years the German residue limit for tetradifon in

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

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

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

any food stood at 0.050 milligrammes per kilogramme (mg/kg). Then, on 9 July 1992, the German Federal Health Office (BGA) lowered the limit to 0.010 mg/kg.

171. 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.[78] 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 available — from *domestic* field trials — on which to make an adequate evaluation of its risks.

172. Whether the BGA ever considered MRLs established by other bodies is unclear. One problem was that neither the Codex Alimentarius nor the EU have 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).[79] In 1985 Sweden (not then a member State of the EU) adopted a "Maximum acceptable concentration" for fruits and vegetables of 2 mg/kg.

173. 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 — i.e., including tea. These MRLs have remained unchanged since then, with one minor exception.[80]

The behaviour of consumer groups and importers

174. 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. But, more importantly, the change attracted the attention of some important Germany-based consumer groups, which in turn ensured 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

78 . 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., USEPA, 1998 p. 78).

79 . On 6 August 2001 the U.S. Environmental Portection Agency 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 canceled in 1990 due to non-payment of maintenance fees (USEPA, 2001).

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

particularly toxic, and the fact that the limit had since been raised[81], the main point picked up and repeated in press reports was that residues were *24 times the legal limit* applicable at the time the tea was being sold.

175. *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[82], 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).

176. 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.

177. 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 the 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 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 healthy 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 in all cases constituted a threat to consumers' health — rather than in some cases being simply an infringement of a zero-tolerance policy for a substance that was 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 claims 85-98%[83]) of the pesticide residues in tea remain in the leaves after brewing, and are therefore discarded.

178. 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 load of the workers and their health thus plays no role" in the company's purchasing policy, accused the magazine

81 . *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).

82 . 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).

83 . http://www.tee-import.de/info/teekrit.htm

(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).

179. Articles continue to appear in the written and electronic press linking over-use 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 response

180. 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 — notably 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.

181. 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, who in turn increased the pressure on their suppliers to quickly 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 one million people on its plantations, typically in whole-family groups.

182. Cognizant of the lack of established international MRL standards for most pesticides used on tea, the 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.[84] Persistence eventually paid off, and a national protocol has recently been developed.

[85] Ironically, the Government had already in 1992 decided to ban 12 pesticides for use in tea production, including tetradifon[86] and DDT[87], and to restrict the use of several others[88] deemed less hazardous (Jha

84 . "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 (http://www.poptel.org.uk/panap/archives/pe-india.htm). This communication first appeared in the *Economic Times*, 9 April 1996.

85 . See http://www.teaindia.org/pesticide.html .

86 . 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).

2000*a*).[89] 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 the rejected shipments.

183. 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.[90] 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 that 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 (2000*a*) regards this added cost as having been unaffordable for the bulk of India's tea exporters.

184. 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).[91] 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 geographic identities of their teas help make the demand for them less sensitive to price rises than for non-differentiated teas.[92]

185. 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,

---

87. Also said to have been banned were BHC, aldrin, aldrex, endrine, heptachlor and chlordane.

88. Government guidelines provide that if the chemicals thjiomton, 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, 2000*a*).

89 . Awareness of these domestic bans seems to have taken a while to percolate through the system. As recently as October 2000, the Government of India 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) And 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.

90. 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 programs (http://www.atimes.com/ind-pak/CF14Df01.html).

91 . According to India's Tea Board, http://www.teaindia.org/planting.html

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

2000*b*).[93] The same year also saw the formation of the Indian Bio Organic Tea Association, a producers' group that promotes the common interest of those who cultivate, produce, process or market Indian organic tea.[94] 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 principals; 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.

186. 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[95], 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.[96] Today, India accounts for almost 90% of the 2.4 million kg of organic tea produced world-wide each year (Anonymous, 1999) — a market that has grown at an average annual rate of 20% since 1990.[97] Only about half of India's organic tea estates are able to make profits (Jha, 2000*a*). Those that do have secured export contracts with sellers of single-origin and even single-estate teas, mainly in Germany, Japan and the USA. 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).

187. 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 to training organic producers and processors on how to conform to standards set by the EU (EEC No.2092/91), the United States (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

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

94 . See http://www.snonline.com/ibota/.

95 . 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.

96 . 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 one million kilograms annually. *See* Daruvala (2001).

97 . http://www.thehealthygourmet.com/articles/teaarticle.htm. India by no means has a monopoly on the organic tea trade: many plantations in other tea-producing countries, including China, Indonesia, Kenya, New Guinea, Sri Lanka and Tanzania, are also converting to organic methods.

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).

188. 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.[98] Although certification does not guarantee any 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.[99] 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

189. The main intergovernmental forum for discussing problems connected with market issues pertaining to tea is the Intergovernmental Group on Tea (IGG). The IGG was established in 1969 by the United Nations Food and Agricultural Organization's (FAO's) Committee of Commodity Problems in 1969, initially as the Consultative Committee on tea. The IGG 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 several OECD countries (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 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 Alimentarias Commission in developing harmonised and universally acceptable standards.

190. The IGG also announced at its 14th session that it had secured financial assistance from the Common Fund for Commodities (an intergovernmental financial institution created by the UN) to support a joint proposal of India and China for the development of organic tea. In India, the project will be administered by the Ministry of Commerce and Industry, in co-operation with the India Tea Board. The CFC is expected to provide a grant of USD 0.9 million and loans totaling USD 40.3 million. 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 then be established to assist exporters.

191. 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 U.S. 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.

98 . 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.

99 . 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."

192. 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.[100] In 1996 the Teekampagne teamed together with the World Wildlife Fund's India affiliate (WWF-India), with the former providing DM 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.[101] 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.

193. 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 may be used exclusively for projects that benefit the workers' families, such as to purchase cows or children's play-ground equipment, or to build community centres — whatever the workers themselves judge important. Only producers who fulfil specific criteria with regard to workers' conditions (e.g., the employment of children) are eligible for Fair Trade funds; certifying agencies in Europe oversee this process.

194. In addition to these intergovernmental and private efforts, Germany's Agency for Technical Co-operation (*Gesellschaft für Technische Zusammenarbeit*, or GTZ) has recently provided funds to help the Centre for Science and Environment (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

195. This case study shows in particular how the lack of complete 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 relatively smoothly. In the case of Indian tea exporters, however, the immediate trade effects (stopped shipments) came as a surprise — not because of a change in policy but because of stricter enforcement of an existing policy.

196. 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, there is much technical assistance available through the industry that can help. Nonetheless, the growers must still rely on foreign certifying bodies to demonstrate their compliance. Finally, that there were also already 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 can lead to differentiated impacts, but also pre-existing differences in production methods. In this case, those estates that were already producing organic tea benefited from a surge in demand in prices; those that were applying conventional growing methods had to adjust quickly or lose additional sales.

100 . At 400 tonnes a year, the Teekampagne is also the world's largest importer of Darjeeling tea (Faltin, 1998).

101 . http://www.indev.nic.in/wwf/eastrn.htm

REFERENCES

Anonymous (2001), "Tee in der Kritik [Tea under criticism]", Lünser & Hennlein Tee-Import Berlin, 6 August 2001 (http://www.tee-import.de/info/teekrit.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, (http://www.unescap.org/itid/publication/t%26ipub2120.htm)

Chawii, Lian (2000), "Tea, pesticide flavoured", *Down to Earth* (India), Vol. 9, No. 11, 31 October 2000 (http://www.cseindia.org/html/dte/dte20001031/dte_srep2.htm)

Daruvala, Dinshah (2001), "Organic tea from South India", *CommerNet*, 27 February. http://www.beverageinfo.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 1998, Berlin. http://www.entrepreneurship.de/documentation/german/faltin/netz.html

Gourmet Retailer, The (1999), "Organic teas: trend or solid future?", November (http://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. http://www.teainstitute.org/newsletter.html

Hermes, Peter (1995), "Tee: Gift und Galle [Tea: poison and bile]", *Öko-Test*, April. http://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 http://www.iacr.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 (http://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 (http://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, UK.

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

Jha, Veena (2000*b*), "Production and trade in organic agricultural products", discussion paper for the Havana Workshop on Trade and Environment (30 May - 2 June 2000), UNCTAD, Geneva (http://www.topqualitea.com/english/projects.html).

Kim, Beryl (1995), "India tea and environment", TED Case Study No. 260, American University, Washington, DC (http://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 (http://www.rabobank.com/).

Mansour, F.A. and Plaut, H.N. (1979), "The effectiveness of various acaricides against resistant and susceptible carmine spider mites", *Phytoparasitica* 7:185-193.

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 (http://www.consciouschoice.com/food/ambootiatea1201.html)

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. http://www.carechannel.de/cgi/ot/otgs.cgi?suchtext=tee&doc=3017&pos=0&splits=0:3819

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

USEPA: United States Environmental Protection Agency (2001), "Oxadiazon and Tetradifon; Proposed Revocation of Tolerances", *Federal Register*, 1 August 2001 Volume 66, Number 148, pp. 39705-9. http://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 2001, World Trade Organisation, Geneva.

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

PHYTOSANITARY MEASURES AFFECTING THE IMPORT OF FRESH DURIAN FRUIT

Introduction

197. 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 peninsular 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).

198. 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 3.5 billion baht (USD 80 million) each year (Lim, 1997; Arunmas, 2000).

199. 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 began only 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).

200. Thai producers of durian consider Australia to be an important export market because of its large and relatively affluent ethnic-Asian population, estimated at two 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 — information crucial to conducting a thorough import risk analysis (IRA). The phytosanitary measures[102] stipulated in the IRA, which was completed in

102 . 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.

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.

201. Australia's biosecurity authorities have stated their willingness to critically review the import protocol, and to examine their measures with a view to determining whether any of them are redundant and therefore 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[103]

Early bilateral discussions

202. 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 would prove to be much lengthier than either party originally imagined, however, and was not concluded until AQIS completed its draft Import Risk Analysis (IRA) on the importation of durian, eight years later.

203. 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

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

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

204. 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 (Anon., 1996).

205. 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 (IRA)

206. 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 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.

207. 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 (hereinafter, "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.

208. 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, 1998*b*).

- 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 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. Six hundred fruit from each consignment will be randomly sampled for inspection under 10-X magnification. Fruit showing surface damage or punctures would have to be cut for internal examination for durian seed borer (DSB). If any live quarantine pest, including DSB, were to be found in the sample, the entire consignment would have to 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.

209. 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 them to be and demanding that it apply even more-stringent measures, or that it continue to prohibit the importation of fresh fruit.[104] 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.

210. 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 — durian seed borer, coffee mealybug and scale insect (*Saissetia* sp.) — which meant that strict pest-control and inspection measures would nevertheless have to be applied (Table 7).

211. 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 durian seed borer (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:

104 . 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.

- 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 made mandatory.

- The measures proposed were comparatively more stringent than those of other durian-importing countries, which require only general inspection and certification.

212. 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 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).

Table 9. Summary of Australia's phytosanitary measures to be implemented to manage 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).

213. The release of the report initiated a 30-day period of appeals against it. Following procedures set out in its *Import Risk Analysis Process Handbook*, AQIS was asked to convene an Import Risk Analysis

Appeal Panel (IRAAP)[105] 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.

214. 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

215. Despite the fact that 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 Thailand 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.

216. In November 2000, Thailand — supported by the European Communities, India and the Philippines[106] — brought its concerns relating to the access of Thai fresh durian to the Australian market to the attention of the SPS Committee.[107] 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.

- *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.[108] Thailand requested that Australia therefore consider importing durians

105 . 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.

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

107 . 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).

108 . 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

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 the 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.

217. 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."

218. 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

219. 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:

- 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.[109] Australia followed a similar cutting regime for inspection of exports and imports for several other fruits and vegetables, and even to 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 1000 fruits and 600-unit random sample

---

license 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 (Anon., 2000).

109. 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.

from lots of more than 1000 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 2000-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 reasons the Thai authorities wanted to focus on that region were 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.

220. 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 from China, Fuji apple from Japan and all future exports of table grapes from California will 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.

221. The Australian delegate acknowledged that the conditions it had imposed on the importation of durian were very strict, but said they were justified based on the pest and disease situation of Thailand. He noted, however, that AQIS was willing to review arrangements after one year of trade to see if adjustments could be made — subject to maintaining Australia's biosecurity needs.

222. 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.

223. 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. Recently, the two governments have started to discuss the possibility of co-operating on research into non-destructive sampling techniques.

224. Meanwhile, in addition to engaging in dialogue with its Thai trade-policy counterparts, Australia has funded 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 example of an ACIAR-sponsored collaborative project with Thailand (and Vietnam, another nascent durian producer) is one that aims to find better ways to control *phytophthora*[110], 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.

Concluding observations

225. 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 its impact on an 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.

226. Australian Governments have consistently adopted a highly conservative approach to risk management, which they assert is both transparent and scientifically based — but not a zero-risk approach (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, the fact that Australia has expressed a willingness to review its measures after a year of trade in the fruit provides a tantalising prospect that, it would appear, their Government would rather short-circuit 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 could 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.

110. 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 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.

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. http://www.aph.gov.au/house/committee/jsct/wto/sub311.pdf

Anon. (1996), "Trade cooperation reached — Thai, Australia agree on new pacts", *Bangkok Post*, 31 October 1996. http://scoop.bangkokpost.co.th/bkkpost/1996/october1996/bp961031/3110_busi07.html

Anon. (2000), "New stickers will certify durian quality", *Bangkok Post*, 22 November 2000. http://scoop.bangkokpost.co.th/bkkpost/2000/bp2000_nov/bp20001122/221100_business13.html

Arunmas, Phusadee (2000), "Durian import rules 'too strict' — Thais want Asean to take up the issue", *Bangkok Post*, 4 December 2000. http://scoop.bangkokpost.co.th/bkkpost/2000/bp2000_dec/bp20001204/041200_business13.html

AQIS: Australian Quarantine and Inspection Service (1998*a*), *The AQIS Import Risk Analysis Process Handbook*, Canberra, ACT, Australia.

AQIS (1998*b*), *Draft Import Risk Analysis for the Importation of Fresh Durian Fruit (*Durio Zibethinus *Murray) from Thailand*, Canberra, ACT, Australia.

AQIS (1999), *Final Import Risk Analysis on the Importation of Fresh Durian Fruit (*Durio Zibethinus *Murray) from the Kingdom of Thailand*, Canberra, ACT, Australia. http://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*, Canberra, ACT, Australia.

Creagh, Carson (1999), "Strict controls to be imposed on imports of fresh durian", Media Release, 17 November 1999, Australian Quarantine and Inspection Service, Canberra, ACT, Australia. http://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 1999.

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 2000, World Trade Organisation, Genève.

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 2000, World Trade Organisation, Genève.

Lim, T.K. (1997), "Durian", in Keith Hyde (ed.), *The New Rural Industries: A Handbook for Farmers and Investors*, Rural Industries Research & Development Corporation, Canberra ACT. pp. 279-85. http://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, Australia. http://www.botany.unimelb.edu.au/botanyunimelb/1pages/research/labs/mycology/duriansite/index.html

Shenon, Philip (1994), "Love It or Hate It, This Is the Forbidding Fruit", *The New York Times*, 18 July. http://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 2001, paras. 11-14.

SUSTAINABILITY LABELS FOR WOOD AND WOOD PRODUCTS

Introduction

227. The Netherlands is the world's seventh-largest importer of wood and wood products, after the United States, Japan, Germany, Italy, France and UK. More than 90% of its total wood product consumption is imported, and about 10% of these imports come from tropical forests. Of that trade, approximately 57% is sourced from Malaysia, 22% from Indonesia, 6% from Cameroon, and an unknown share from Gabon.[111]

228. 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 new bill would oblige 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 use criteria very similar to that of the Forest Stewardship Council (FSC).

229. The proposal was re-notified to the European Commission and newly notified to the WTO, prompting many responses from EU Member States and several members of the WTO. The sponsor of the bill has subsequently sent replies to the EC and the WTO and further revised the bill. The proposal is still being discussed by the Upper House of the Dutch Parliament, and a decision about its adoption is expected before the end of 2001.

Development of the environmental measure

230. 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.

231. 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

111. http://www.efi.fi/cis/english/creports/netherlands.html

and supply of sustainable wood appeared to be having minimal effect.[112] And, 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.

232. Responding to what it saw as the failure of existing measures, in 1994 one of the political parties in the Netherlands (Groen Links, or Green Left) proposed legislation on the labelling of wood and wood products. The bill was initially based on a ban which was to come 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.

233. In 1995 The Netherlands 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 it 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.[113]

234. 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 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.[114]

235. The proposal based its certification criteria on those of the Forest Stewardship Council (FSC), and even included the FSC's criteria in it in a way that allows regional or location-specific characteristics

112. For example, the International Tropical Timber Organisation's goal to limit timber trade to sustainable timber by the year 2000 has not yet been reached.

113. Apparently, the possibility of banning non-sustainable wood in the future has not been ruled out entirely. According to Bercken (2000), the latest 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.

114. A few exceptions to the rules would be 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, nor for products like toothpicks and matches, nor for recycled wood and recycled paper.

to be taken into account. Existing initiatives, of which the FSC certification is 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.

236. In 1998 the amended bill was then re-notified to the European Commission and to the WTO's Committee on Technical Barriers to Trade in 1998. Following further reactions to the proposal, the bill was further amended and discussed in the Lower House (Tweede Kamer) of The Netherlands' Parliament. The revised bill was passed by the Lower House in April 1998. In February 2000 the deadline in the bill 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. As the bill is still waiting for discussion in the Upper House these dates will have to be revised again.

Trade issues and developing country responses

237. Although the measure has not yet been implemented, it has already attracted much criticism from developed and developing countries alike.[115] Countries have argued that the initiative is a violation of The Netherlands' obligations under international trade law, notably the General Agreement on Tariffs and Trade of 1994 and the Technical Barriers to Trade (TBT) Agreement. The European Commission also stated that the Bill would contravene European Union regulations. The objections relevant to developing countries may be summarised as follows:

- The measure is disproportional, considering its trade impact and environmental benefits.
- Costs of certification may be too high for 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.

238. 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

115. Ten EU Member States (Germany, Sweden, Belgium, France, Spain, Italy, Austria, Finland, Portugal, UK) and 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.

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.

Responses to developing country concerns

239. The main sponsor of the Dutch proposal, M. Vos, 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, M. Vos revised the bill to include an explicit measure to help defray the costs for small-scale wood producers: group certification — i.e., 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).

240. 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. Mw. Vos announced that the bill would be amended, but at this stage it is not clear how and when. To minimise the scheme's trade impact, The Netherlands Government would, in case the bill is adopted, keep open the option of phasing in its introduction, so as to enable different sectors (e.g. the paper industry, for which the FSC is a relatively new phenomenon) ample time to prepare themselves for its implementation. However, this phased-in approach would not address the issue of the measure's compatibility with international trade law or with EU regulations.

Concluding observations

241. It is clear that the draft legislation proposed by the Dutch Parliament has 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 toward non-renewable building materials. However, it remains that: a draft. In keeping with its trade obligations, The Netherlands Government notified the WTO of this proposed measure, and responded to some of the comments and criticisms, for some issues by amending the bill. 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. http://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 1998, World Trade Organisation, Geneva.

Netherlands, Government of (1998), "Notification — The Netherlands", Document No. G/TBT/Notif.98/448, 2 February 1998, 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.

Information from Groen Links, Mr. Wolfgang Richert (AIDEnvironment), September 2001.

Information from Milieudefensie, Mrs. Hilde Stroot, September 2001.

ADAPTING TURTLE-EXCLUDER DEVICES TO LOCAL CONDITIONS[116]

Introduction

242. 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 U.S. law may not be imported into the United States, unless the President annually certifies to the U.S. Congress: *(a)* that the harvesting country concerned has a regulatory programme governing the incidental taking of sea turtles in the course of such harvesting that 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 U.S. vessels in the course of such harvesting; or *(b)* 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.

243. 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 a turtle excluder device (TED) — basically, a cage that lets shrimp through into a trawl net but lets turtles escape — at all times. TEDs had to be comparable in effectiveness to those used by the United States. In Costa Rica, however, the TEDs, built to U.S. 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 U.S. TED in Costa Rican waters yields 70% debris and 30% shrimp.

244. These problems made Costa Rican shrimpers reluctant to use TEDs. That, combined with poor enforcement by the national authorities, lead to insufficient use of the device. In April 1999, a U.S. inspection team found serious problems on almost all of the boats inspected. The U.S. authorities promptly ruled that, as of 30 April 1999, Costa Rica could no longer export shrimp to the American market.[117] Costa Rica initiated formal procedures to seek a modification of the TEDs' proportions and 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.

---

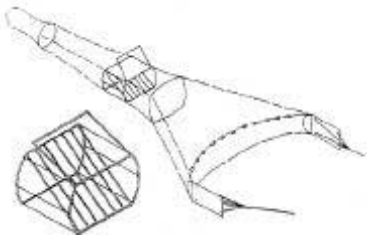
116 This case study is based on a longer paper ("Sanitary and Environmental trade barriers in Costa Rican fisheries") prepared by Max Valverde (Researcher for Fundación Ambio, Costa Rica, funambio@racsa.co.cr) as a contribution to the Workshop on Standards and Trade, 16-17 May 2002, Geneva. Permission from UNCTAD to draw on that paper for this case study is gratefully acknowledged.

117 Communiqué from Richard Baltimore, U.S. Embassy Minister, to Esteban Brenes, Costa Rican Agriculture Minister, 4 May 1999.

Development of the measure

245. 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 a solution to the problem: the turtle excluder device (TED). 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 training end (see Figure 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.

Figure 1. Drawing of a turtle-excluder device



Source: Northeast Fisheries Science Center.

246. 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[118], requiring that all U.S. shrimp trawlers use TEDs or tow-time restrictions in specified areas where there was a significant mortality of sea turtles associated with shrimp harvesting.[119] 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.

247. Initially, the regulations affected only U.S. operations and boats. However, the U.S. shrimp-fishing industry complained that fishing operations in countries exporting to the U.S. were not subject to these requirements, placing them at a competitive disadvantage with trawlers based abroad. One of its representative organisations, the Georgia Fisherman's Association Inc., decided to join the cause as a plaintiff alongside the environmental groups.[120]

248. The U.S. Department of State initially interpreted Section 609 as applying only to nations of the wider Caribbean region, on the understanding that this was Congress' 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.[121] In 1994, the U.S. Government initiated negotiations involving 23 countries from North, Central and South America, as well as the Caribbean region, on an international

118 All six species of sea turtles found in U.S. waters are protected under the ESA.

119 Hereafter the "1987 Regulations" (52 *Federal Register* 24244, 29 June 1987).

120 *See Earth Island Inst. v. Christopher,* 913 F. Supp. 559 (Ct. Int'l Trade 1995).

121 Specifically, Mexico, Belize, Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Venezuela, Trinidad and Tobago, Guyana, Suriname, French Guyana and Brazil.

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.[122]

249. The tougher U.S. line stems from a series of far-reaching decisions by the CIT, triggered by judicial complaints filed by environmental groups, 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 U.S. Court of International Trade (CIT): the Earth Island Institute, the American Society for the Prevention of Cruelty to Animals, the U.S. 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 U.S. 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 U.S. Department of State.

250. 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.[123]

Issues raised by developing-country exporters

251. Costa Rica relies on the U.S. 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 U.S. 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.

252. 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 U.S. Department of State to prohibit, no later than 1 May 1996, imports from all countries not certified.

253. Costa Rica decided neither to initiate litigation before the WTO nor to join the subsequent disputes.[124] 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 the day that the CIT's order went into effect — i.e., 1 May 1996.[125] Henceforth, in order to fish

122 As of 15 May 2001, the Convention had nine parties: Brazil, Costa Rica, Ecuador, Honduras, Mexico, The Netherlands, Peru, Venezuela, and the United States.

123 *See* 61 Federal Register 17342, 19 April 1996, Section 609(b)(2).

124 In 1997, Malaysia and three other countries challenged the U.S. 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.

125 INCOPESCA's Board of Director's Resolution A-JD/061-96, 16 April 1996.

for shrimp, trawl operators had to obtain a permit from INCOPESCA. As of mid-2001, seventy-three fishing boats were permitted by INCOPESCA to conduct trawling operations.[126] Vessels found without a permit, or in violation of its conditions, penalties can be levied the owner of the fishing permit, its captain, or both. As well, either the permit holder or the captain can be suspended from fishing temporarily. Following a requisite inspection by U.S. authorities, Costa Rica was certified for the first time that same May.

254. 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.

255. Notwithstanding these good intentions, INCOPESCA encountered major enforcement problems due 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 the technical specifications by which they were being built. 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 U.S. states bordering the Gulf of Mexico, or off the Atlantic coasts of Florida, Georgia or the Carolinas, where most U.S. shrimp are harvested.

256. Imported from the United States at a cost of USD 300 each,[127] 4-inch (10-cm) TEDs 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. But, most important, it was estimated that in an average trawl 70% would be waste and 30% shrimp.[128] 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 with inadequate surveillance capacity on the part of INCOPESCA, led to incomplete use of the device.

257. U.S. 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 U.S. Department of State and the U.S. 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 program with the local fisheries personnel, the team found that the TEDs enforcement regime was not as comprehensive as it

126 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 artisinal fishermen. Their small boats are not required to use TEDs since they do not use trawl nets.

127 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.

128 *Ibid*.

could have been.[129] 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 U.S. Ambassador explaining in detail the Costa Rican enforcement measures at the time.[130] Meetings at the Embassy followed this letter.

258. Despite these efforts, Costa Rica was not certified to the U.S. Congress. The U.S. 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.[131] 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.[132] 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.[133]

259. 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 inhibit 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, were 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.[134]

These scientific studies led to a specific modification proposal by Costa Rica, the "Tico-TED".[135] The Tico-TED sustains a shrimp loss of only 10%, compared with a 40% loss reported when using the U.S. design.

260. 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, ninety 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 appropriate regulation of such activities, as well as the development, improvement

129 *Ibid*.

130 Communiqué from Herbert Nanne, INCOPESCA's Executive President to Thomas Dodd, U.S. Ambassador to Costa Rica, PESCP/024-99, 29 April 1999.

131 Communiqué from U.S. Embassy Minister Richard Baltimore to the Esteban Brenes, Costa Rican Agriculture Minister, 4 May 1999.

132 *Ibid*.

133 Communiqué from Richard Baltimore, U.S. Embassy Minister, to Esteban Brenes, Costa Rican Agriculture Minister, 20 May 1999.

134 *Ibid*.

135 "Tico" is local slang for a Costa Rican citizen.

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

261. The U.S. 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.[136] 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 inches, 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.

262. On 1 March 2001, the NMFS conducted a visit for the 2001 certification. Even though the inspectors found general compliance with U.S. 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 U.S. Government.[137] 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, the latter of which according to the NMFS, are stronger.[138] 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."[139]

263. Rather than declare Costa Rica non-compliant, however, the NMFS offered to help locate U.S. suppliers of technically compliant TEDs. And, once again, the country was certified to the U.S. Congress. Since then, INCOPESCA has reported an improvement in the general compliance with, and enforcement of, the TED regulations.

Concluding observations

264. This case study underscores the importance of designing technical standards in a way that can allow them to be adapted to local conditions, while still meeting the environmental objective. The turtle excluder devices that Costa Rica agreed to use had initially been designed with U.S. fishing conditions in mind, but were manifestly unsuitable for use in the shallow, debris-clogged waters in which Costa Rican fisherman dragged their trawls.

136 INCOPESCA's Board of Director's Resolution AJDIP/331-2000 of 18 August 2000.

137 National Marine Fisheries Service Inspection Report to INCOPESCA, March 2001.

138 Letter from John Mitchell, NMFS research fisheries biologist, to Ricardo Gutiérrez, INCOPESCA's Technical Director, 13 April, 2001.

139 *Ibid*.

265. 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 U.S. 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 1999, pp. 11-12.

Skou, Lene (1996), "Rules to protect sea turtles could block shrimp imports", *Journal of Commerce*, 30 April 1996, 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. http://www.nmfs.noaa.gov/prot_res/readingrm/turtlesymp/19turtle.pdf

GOVERNMENT REGULATIONS TRANSLATING INTERNATIONALLY AGREED STANDARDS

PHASING OUT METHYL BROMIDE

Introduction

266. 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 CFCs. Among other consequences, ozone depletion contributes to human health problems caused by increased exposure to ultraviolet-B radiation (UV-B).

267. Recognising its threat to the ozone layer, in 1997 the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer agreed 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.

268. This action presents a major technical challenge, since in 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 in 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 already phased out the use of methyl bromide entirely or in particular applications, and some 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 have anticipated that developing countries would need assistance in adjusting to the methyl-bromide ban and have 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

269. 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 to the treaty, calling for a phase-out for industrial nations in 2010, and a freeze in 2002 based upon an average of the years 1995-1998 for developing nations. Within two years, however (at their Ninth Meeting) the Parties had accelerated global controls (reductions in

consumption[140]) on methyl bromide for developed countries, and set a date for a complete phase-out for developing countries.

270. 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 ozone depleting substances (ODS) is less than 0.3 kilogrammes. 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; and

- Article 5(1) countries (i.e., those that have become Parties to the Montreal Amendment) to freezing their use of methyl bromide by 2002 (based on average 1995-1998 consumption), achieving a 20% reduction in its use by 2005, and phasing it out completely by 2015.

There is also process to allow exemptions from the methyl-bromide phase-out schedule for "critical uses". The Methyl Bromide Technical Options Comittee of the UNEP Technology and Economic Assessment Panel (TEAP) will be submitting the procedures manual for assessing these exemptions to its 14th Meeting of the parties in 2002.

271. 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 8). The U.S. 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 U.S. 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):

> Fist, although domestic farmers will be banned from using methyl bromide, *no limitations will be posed 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 U.S. 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 product 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.

272. 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

140 . Under the control measures of the Montreal Protocol, "consumption" is defined as production plus imports minus exports.

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 UK, 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 case study on "Cut Flowers") 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.[141]

Trade issues and the responses of developing countries

273. 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 themselves tighter time frames to phase out the chemical within the same time-frame as developed countries — i.e., by 2005. 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.

274. Those countries that have resisted the targets have generally expressed concern about the cost-effectiveness of alternatives to methyl bromide. This has been a central issue among affected user groups in countries as diverse as Chile, Indonesia, Kenya, Myanmar, Paraguay and Sri 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 themselves, 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 (*see* 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.

275. 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.[142]

141 . See, for example the article by Philippa Stevenson, "Organic growers get helping hand", *The New Zealand Herald*, 6 May 2002 at http://www.nzherald.co.nz/storydisplay.cfm?storyID=1843614&thesection-=business&thesubsection=agriculture

142 . "Danger chemical behind nation's multi-billion cut flower industry", *The East African Standard* (Nairobi), 18 March 2002. Downloaded from http://allafrica.com/stories/200203180130.html on 30 July 2002.

Responses to developing countries' concerns

Multilateral responses

276. 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).

277. 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 bromide for soil fumigation provides.[143]

278. To communicate the results of their demonstration projects, UNEP and UNIDO have jointly established a special web-site, "MAP to a Healthy Harvest" (http://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 regularly updated 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

279. 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 Technology and Economic Assessment Panel (TEAP), which advises the Parties on scientific, technical and economic matters related to the control of ODS, and their alternatives. The Committee currently consists of 39 members from 23 countries representing a wide range of methyl bromide-related expertise, including scientists, users, non-governmental organisations (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.

280. Early in 2001, UNEP and representatives of 10 environmental and agricultural NGOs from around the globe convened in Paris to launch a joint initiative that will raise awareness in 10 developing countries about methyl bromide. UNEP's Methyl Bromide Communication Programme is the first project

143 . Available from http://www.uneptie.org/ozonaction/library/reports/main.html.

under the Montreal Protocol where 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 8 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. Thirty-two projects had been completed as of August 2000. 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;
- and replacing or retrofitting equipment for adaptation to the new substances.

National responses

281. In addition to contributing to the Multilateral Fund, several OECD countries have also helped developing countries through other mechanisms. Several have created Internet web sites dedicated specifically to disseminating information on their regulations affecting methyl bromide and on alternatives to its use.[144] 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) GmbH), 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:

- Integrated pest management (IPM) projects in Argentina, China, Egypt, El Salvador, Ghana, Honduras, Jordan, Madagascar, Malawi, Mauritania, Morocco, Panama, Syria, Tanzania, Thailand.
- Pesticide projects in Brazil, China, Jamaica, Mozambique.

144. See, for example, those listed at http://www.unepie.org/ozonaction/library/otherpubs.html - national .

- Regional projects in biological plant protection for food crops in 26 countries in Africa: IPM for vegetables and fruit crops in 6 African countries; post-harvest protection in 4 countries in Africa; research and development projects on a variety of agricultural issues; and pesticide control and disposal services world-wide.[145]

Concluding observations

282. 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. And, 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.

145. For more information see http://www.gtz.de/proklima/methyl1.htm .

Table 10. OECD countries restricting or phasing out methyl bromide before the Montreal Protocol's 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	Treatments for foodcrops and stored grains have been phased out	—
Italy	MB 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 19??	—

Source: Schafer (1999).

REFERENCES

"Alternatives to the Application of Methyl Bromide" http://www.gtz.de/post_harvest/x0279e/x0279e08.htm

Babb, Suzanne (1995), "Debate on methyl bromide ban continues", *Market Asia*, Vol. 2.5, November-December. http://www.marketag.com/ma/news/archive/v25/mb.stm

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. http://www.fao.org/docrep/meeting/X1402E.htm (Oct. 7, 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 U.S. Environmental Protection Agency and the U.S. 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), Châtelaine, Genève. http://www.unepie.org/ozonaction/library/policy/mebrpol.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), Châtelaine, Genève.

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

GOVERNMENT REGULATIONS AFFECTING TRADE IN PRODUCTS OF ORGANIC AGRICULTURE

STANDARDS FOR ORGANIC FOODS AND BEVERAGES

283. The following three case studies 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 multiple 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.

284. 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.

285. 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: *(1)* they consider organic agriculture to be less harmful (or even beneficial for) the environment compared with other farming methods; *(2)* 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, for some people, *(3)* 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).

286. 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. Its average annual growth rate has been 25%, varying from 10-50% in different markets (ITC, 2001; Rundgren, 2000). The world market for organic products was worth around USD 14-17 billion in 2000, of which 15% was traded. Imports of organic products are evenly divided between the USA (47%) and the EU (42%), with Japan taking most of the rest (11%). Farmers earn a premium of about 15-30% for organic foods or beverages, depending on the product and the market.

287. 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 cover only 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 must be

segregated from non-organic plots, and so forth. The three countries discussed in the following case studies, however, have all implemented comprehensive regulations, with provisions for supervising and approving or accrediting certifiers (Bowen, 2002).

288. 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 adaptations nationally and regionally. In 1992 IFOAM established an independent Accreditation Programme (the International Accreditation Service), 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 bilateral additional requirements).

289. 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.

Table 11. Chronology of major milestones in the development of organic standards

1967	The Soil Association (UK) publishes the first organic standards
1972	Founding of IFOAM
1974	Oregon State (USA) 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 USA
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).

290. As can be seen from Table 11, 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 even before the Codex Alimentarius Commission started work on its guidelines, did not have that option.

291. "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 the international trade have identified several systemic problems and challenges that have resulted from this labyrinth 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 USA);
- 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 IFOAM Accredited certification bodies.

292. In the following three case studies, these issues are explored in more depth.

REFERENCES

Bowen, Diane (2002), "International harmonization of organic standards and guarantee systems", paper presented to the OECD Workshop on Organic Agriculture (23-26 September 2002,Washington D.C.).

Crucefix, David (2002), "Report of the IFOAM Conference on Organic Guarantee Systems," International Federation of Organic Agriculture Movements (IFOAM), Tholey-Theley, Germany. http://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 2000. Available from Grolink, Stockholm at http://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.

THE EU'S IMPORT PROCEDURES FOR ORGANIC FOODS AND BEVERAGES

Introduction

293. 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.

294. A major objective of the Regulation was to provide the organic farming sector with a precise, legal definition of the term "organic", thus harmonising the multitude of definitions extant within the EU at the time. 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.

295. 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 which are developing, 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.

296. 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 15 Member States, multiple interpretations of particular rules is possible. In particular, import procedures, introduced on a temporary basis in order 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.

Development of the environmental measure

297. Organically labelled products were considered with suspicion by many segments of the European industry during the 1970s and 1980s, including farmers applying conventional technologies and practices,

food processors, and even some public administrations. Consumers, as well, 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.[146]

298. Although the objective of organic farming itself 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 in order 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 the European Commission matches under its agri-environmental programmes.

299. Since the EU was the first legislative body to develop a national regulation on organic agriculture it could not harmonise its rules with other countries.[147] 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.[148]

300. 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 unique logo for organic products (Figure 2), but it can only be used for products originating within the EU. At the same time, 6 of the 15 Member States have developed public labels of their own, and in the case of 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).

146. 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-committe (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 to a certain extent consulted when new proposals are prepared.

147. 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).

148 . Although they differ in terms of structure and detail, the EU Regulation and the IFOAM Basic Standard are broadly similar in substance.

Figure 2. The European Commission's organic logo

301. 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 their normal food-inspection systems, rather than involving separate certifiers.

302. 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 Ministry. The EU's executive body, the European Commission, does not normally approve the credentials of certification bodies.[149] However, private certification bodies have to fulfil the requirements of the EN 45011 norm — basically, the European edition of the International Standard Organization's (ISO's) 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 the proof that the certifying organisations fulfil the norm's requirements.

303. 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 is required of certifiers operating outside the EU by many Member States, and which is typically carried out by national accreditation bodies — can range from below 5 000 to 20 000 euros 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.

304. 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 the importers and certification bodies. An accessible brochure describing the rules, in which two pages are devoted to import procedures, was issued only in the year 2000 (CEC, 2000). Nowadays, information is also provided in several languages on the Commission's Internet web site.[150]

149 . The main exception is when an EU Member State requests that the Commission 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).

150 . http://europa.eu.int/comm/agriculture/qual/organic/index_en.htm

305. The Regulation allows two[151] 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 has established equivalence — i.e., those that are 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, seven countries are listed: Argentina, Australia, the Czech Republic, Hungary, 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 has not yet received it. About 20 countries have applied to be listed, and a larger number of countries have signalled interest but not come back with complete applications.

306. 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 in the EU. An exceptional way of approving imports was therefore added, Article 11 (6), known also in the trade as the "importer derogation".[152] Today, the large majority of imports are still brought in 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 2004.

307. In September 2001 the European Commission issued a regulation (Commission Regulation (EC) No. 1788/2001) which mandates that *original* certificates of inspection must now be presented at the point of entry[153] into the EU.[154] (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.[155]

151 . Only the two main routes are discussed here.

152 . In total, since its introduction, Council Regulation (EEC) No. 2092/91 has been amended more than 25 times.

153 . 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.

154. 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,).

155 . 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

308. The production rules in the EU regulation are detailed and designed in accordance with the farming conditions within the EU. Importation into the Community 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; they were subject to inspection measures of equivalent effectiveness to those referred to in Articles 8 and 9; and that these inspection measures will be consistently and effectively applied.

309. The system, however, especially its positive lists of authorised substances[156], 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 are 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" in principle 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.

310. The listing procedure implies that organic farmers in non-listed countries may be at a disadvantage. Organic producers in countries which 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.

311. 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 when products normally sold in the fresh state are involved. (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 who keep consignments whole.

312. The fact that the Article 11(6) importer derogation is slated to expire on 31 December 2004 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 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).

156. 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 critera or procedures to include new substances on the positive lists of authorised substances.

Smallholder group certification

313. 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[157] for smallholder group certification.

314. The EU Regulation — developed for European conditions — 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 at all (Elzakker and Schoenmakers, 2001).

Accreditation or conformity with ISO 65 or EN 45011

315. 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 still are very few accredited certification bodies in most European countries — typically, one per country. 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 competent authority in the country. The requirement has created acute problems for organic exporters in developing countries where accredited certification bodies are virtually non-existent due to the process's length and cost, or because there is no official accreditation body in the country. In particular, it disqualified 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).

316. Based on the ISO 65 criteria, IFOAM has developed an accreditation system — carried out independently by the International Organic Accreditation Services — specifically for organic farming. Unlike the EN or ISO standards, this 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. And in many markets, retailers think IFOAM provides the best guarantee that production inspections are carried out thoroughly.

157. 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.

Again, different application of rules in different Member States can create an uncertain situation for exporters.

Developing country responses

317. Several countries have since 1991 implemented laws to regulate production, sales and trade in organic goods (Vaupel, 2001*a*). Many of those, especially exporting countries, have patterned their laws on those of the EU, largely as a means to secure continued access to the EU market.[158]

Uganda

318. Uganda has emerged over the last six years as the leading African country in organic production. Some 20 000 smallholder farmers managed 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).

319. A case study on organic exports from Uganda to the EU showed that organic exporters face numerous constraints (Axelsson Nycander, 2000). Many of these — such as the high costs of transportation, certification and separate handling of the products, as well as lack of access to specific market information — relate to bottlenecks in the early phase 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 all experienced delays in obtaining the necessary import licenses. Since customers may lose interest if there are delays, and the quality and value of agricultural products degrades quickly over time, such delays may generate severe consequences. For instance, the products may have to be sold as conventional (i.e., non-organic) products at a much lower price.

320. 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 because 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 with EU standard EN 45011 should be enforced. It is difficult to clarify exactly what had happened in these instances, and to find out whether the exporter, importer, certifier, or the 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 licenses have to be obtained for each consignment, the risk is high that somewhere the flow of information and documents may be held up.

321. Early in 2001 key stakeholders in the country 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).

158. 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).

Chile

322. 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 that were shipped to the EU declined drastically, from 64% to 34% (Bañados and Garcia, 2001). This decline was due both to quality-related problems with some exported products (i.e. medical 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. Because of difficulties in obtaining information, a study into the impact of the EU Regulation on the Chilean supply chain was unable to determine which factor was most important.

323. In 1999 Chile established a national organic law, including a scheme of inspection, certification and accreditation, as a response to the increasing demands from international markets. One of the law's objectives was to bring the Chilean system into compliance with the strictest organic regulations — i.e. the EU. (The scheme has not yet entered into operation.) During the same year, Chile requested that it be included in the EU's list of approved countries.

Mexico

324. UCIRI is an organisation of almost 3000 small farmers in Southern Mexico, with 15 years of experience of exporting organic coffee to Europe. The organisation complains that on several occasions containers have been sitting in ports for months due to 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 US (for the time being, although 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 and 2000).

Responses to developing country concerns

325. In its *Agricultural Sub-Sector Strategy Paper* (CEC, 2000), the European Commission's Directorate General for Development notes that one of the potential areas of strategic engagement by the EC could include support for the identification and management of areas suited to low-input approaches, and the promotion of organic certification where possible. The development-assistance agencies of several EU Member States (e.g., Germany) have already been involved in promoting the development of organic production for export to the EU.

Concluding observations

326. 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.

327. 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" has added to uncertainty over future market access.

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 2001. Available from 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/rurpol/outputs/agricultural/agriculturalssp.pdf

CEC (2000b), *Organic Farming: Guide to Community Rules*. (May be downloaded athttp:/// http://europa.eu.int/comm/agriculture/qual/organic/brochure/abio_en.pdf)

Center for Science and Environment (2001). "Untapped potential", *Down to Earth*, Vol 10, No 8, 15 September. http://www.oneworld.org/cse/html/dte/dte20010915/dte_analy1.htm

Crucefix, David (2001), "IFOAM accreditation: organic industry self-regulation", *The Organic Standard*, Issue 2, June, pp. 15-17.

van Elzakker, Bo 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 2000. Available from Grolink, Stockholm at http://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 *IFOAM Conference on Organic Guarantee Systems: International Harmonisation and Equivalence in Organic Agriculture* (17 - 19 February 2002, Nuremberg, Germany), Reader.

Van der Hoff, Francisco (1999), Letter to Eva Mattson at the certification body KRAV, dated 13 October 1999.

Van der Hoff, Francisco (2000), "Is it possible to export organic products from third world countries to the EU?" Comment to the report by Gunnel Axelsson Nycander "Securing Access to the EU market, case study on Uganda", 24 May 2000.

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.

JAPAN'S REGULATIONS AFFECTING THE LABELLING OF ORGANIC PLANT PRODUCTS

Introduction

328. Over the last decade, consumers in Japan have come to attach great importance to the safety of their food. In response to this demand, 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.

329. Sales of organic foods and beverages in Japan are approaching USD 4 billion a year, and growing at a rate of 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 stringently applying 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 caseproved to be caused by the mixing of organic with non-organic foods. Measures have been taken to prevent such mixing occuring in the future.

330. 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 for 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

331. 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 their organic products to the US and Europe, applied for certification with foreign certifying bodies. However, certification for Japan's internal market remained rare.

332. 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 IFOAM[159] or US private-sector organic standards. But most operators sought certification from U.S.-based certifying bodies. Nor did the voluntary guidelines prevent operators from putting non-organically produced products on the market and calling them organic. This created pressure to develop national, mandatory 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.

333. In 1998 MAFF decided to establish a national organic regulation within the Law Concerning Standardization and Proper Labeling of Agricultural and Forestry Products (known as the JAS (Japan Agriculture Standards)Law).[160] Two external factors influenced this decision. The first was the fact that both the EU and the USA 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 was exporting some organic products to the EU.[161] The Japanese administration was also influenced by on-going discussions in the Codex Alimentarius Commission, which eventually led to the publication in 1999 of international guidelines for organic products.[162]

334. During the process of developing its organic labelling regulations, the Japanese Government kept its citizens informed of on-going 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, 1999*a*).[163] 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 set for comments (Japan 1999*b* and 1999*c*). During this time, MAFF provided English-language summaries of texts of the revised Law and draft regulations upon request. MAFF promulgated detailed regulations based on the Law — one for organic plant products[164] and the other for processed foods made from organic plant products[165] — five weeks after the deadline for comments, on 20 January 2000. The regulations went into effect on 1 April 2001.

335. In Japan, some producers expressed frustration at the short amount of time available for comments and revisions of the proposed regulation.[166] The concern among some Japanese farmers appears to have been that they regarded the JAS Law standards as too closely based on European and U.S. 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. As well, many Japanese organic farmers have been worried about competition from imported organic products. A few farmers, unable to obtain certification, gave up

159 . International Federation of Organic Agriculture Movements, http://www.ifoam.org/

160 . The Japan Agricultural Standards Law (Law 175) was created in 1950 in order to protect consumers' rights to information about food products.

161 . The EU organic regulation (EEC 2092/91) has triggered organic regulations in a number of countries; see corresponding case study.

162 . CAC/GL 32-1999.

163 . The deadline was later extended to 22 May 1999.

164 . Notification 59 MAFF, 20 January 2000.

165 . Notification 60 MAFF, 20 January 2000.

166 . Mutsumi Sakuyoshi, Vice President of the Japanese Organic Inspectors Association. Personal communication with Gunnar Rundgren, April 2002.

using organic methods altogether. Nonetheless, the total number of organic certifications in Japan has increased since the JAS law took effect (Table 12).

Table 12. Entities certified to apply the JAS organic seal to food products

(Numbers as of 18 October 2002)

Based in	Farms and farmer groups	Processors or Manufacturers	Repackers	Importers	Total
Japan	1 479	702	422	86	2 689
Foreign countries	197	198	40	0	435
Total	1 676	900	462	86	3 125

Source: based on MAFF sources.

336. 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 3). These regulations apply to the labelling of products, but not other 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.[167]

Figure 3. The official JAS organic mark

337. As with all organic standards, the JAS organic standards relate not to the properties of the final product itself, but *how* 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 great emphasis it places on the qualifications of the person responsible for "grading"[168] — the so-called "Grading Manager". Such a 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's) 10011 series of standards.

338. Only certification organisations registered by MAFF, known as Registered Certification Organisations (RCOs) or Registered Foreign Certification Organisations (RFCOs) in Japan, can certify

167 . Notifications 808, 818, 819, 820, 821 and 830 respectively, all issued on 9 June 2000.

168 . In the JAS organic system, "grading" is used as a term for the act of qualifying a product as organic.

operators. When applying for registration, an R(F)CO must 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.

339. There are currently three ways for agricultural products to qualify for the JAS organic mark (MAFF 2000*a* and 2000*b*; see also graphic overview in the Annex):

1(a) *Certification by a Registered Certification Organisation (RCO) in Japan.* An RCO based in Japan certifies the production or processing, or both, in the exporting country. Currently there are around 10 organisations that 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 (RFCO) 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[169] 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.[170] 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 will undergo further processing — i.e., it cannot be used for ready-made products, or for products that are being 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 an established reliability such as the International Organic Accreditation Service (IOAS).[171]

169 . Registration is valid for five years, and can be renewed. The fees are JPN 51 200 (USD 415) for an initial registration and JPN 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 JPN 60 500 (USD 490), and the fee for renewal is JPN 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.

170 . For example, NASAA (an Australian certifying body) is registered by MAFF to certify throughout the world.

171 . 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.

Issues raised by developing-country exporters

340. Japan depends greatly on imported agricultural products, especially as 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.

341. 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.

342. Naturally, producers and exporters in other countries would have 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 made in the previous translation.

343. The JAS system stresses the neutrality, fairness and reliability of grading and certification services — all with a view to ensuring protection of consumers. This principle also applies to the accreditation of Registered Foreign Certification Organisations (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 systems to detect fraudulent use). Given the rapidity with which Japan recognised the organic standards of Australia, the EU and the United States, the procedures would 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 (one based in Austria) was approved. Several additional EU-based certification bodies are expected to be registered in the future. 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.[172]

172 . 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 U.S. 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.

344. Organic producers and processors in developing countries wishing to export their products as "organic" to Japan, however, can make do with other options. Just five governments of developing countries have implemented rules for organic agriculture within the region: China, Chinese Taipei, India, Korea and Thailand (Table 11). 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: being certified by a (Japan-based) RCO or an RFCO that was already operating in their country at the time 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.

345. Even though China has enacted an organic law, and has established its own certification body, its producers appear to have mainly made use of 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 in China 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 investigated co-operative arrangements with Chinese certifiers, which could eventually lead to re-certification based on a trust contract.

Table 13. Status of organic regulations in southern, south-eastern and eastern Asia[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 (South)	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 were contacted but provided no information: Myanmar (Burma), North Korea and Paupa New Guinea.
Source: The Organic Standard, Issue 10, February 2002, p. 7

346. Most of the documented allegations of implementation problems have come from the United States, the leading exporter of organic foods to Japan. One U.S. operator for example, has complained that it had to re-certify all its facilities to the JAS standard, at a cost of more than USD 20 000 in the first year (Weinberg, 2002). According to this source, 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

347. 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.[173]

Concluding observations

348. Any mandatory labelling regulations can potentially create barriers to, and opportunities for, trade. This case study illustrates both. On the opportunity side, the fact that many domestic producers, who had previously claimed that their products were organic, will no longer be able to make such claims as a result of the new regulations, 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. And, being integrated into a general framework regulation makes it easier for exporters that are familiar with other Japanese requirements to understand.

349. 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 that that recognition be reciprocated.[174] 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 the number of countries in Asia that have adopted national standards can be counted on the fingers of one hand. Local certification organisations (to the extent 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 must send inspectors from their head offices, which increases costs.[175] Other special aspects of the JAS system, with its requirement for a designated "Grading Manager" and its stringent procedural requirements, are also likely to be more difficult to comply within developing countries, especially small or medium-sized enterprises, with a limited number of staff.

350. The Japanese system does, however, allow for the possibility of "trust-contracts" between an approved certification organisation and other certification organisations. This means that, effectively, 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 the procedure of "trust contracts".

---

173 . 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.

174 . For example, in two cases the equivalency is recognised in only one direction: Japan immediately recognised the equivalency of the certification systems of the USA and the EU without delay. The examination of equivalency for the Japanese system, currently taking place in the USA and Europe, has by contrast made little progress — despite Japan's frequent requests.

175 . Mutsumi Sakuyoshi, Vice President of the Japanese Organic Inspectors Association. Personal communication with Gunnar Rundgren, April 2002.

Figure 4. Certification by Registered Foreign Certification Organisation (RFCO)

The same applies for a Japanese RCO certifying in a foreign country
A RCO or a RFCO can also certify in other countries without an equivalent system if their head office is in a recognised country

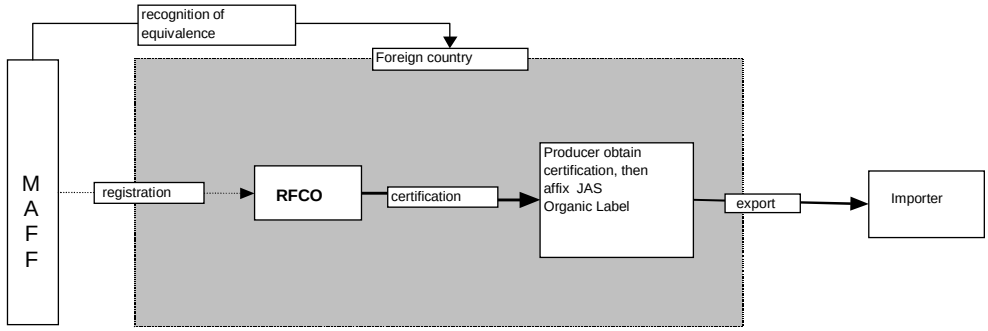


Chart 2 Certified importer

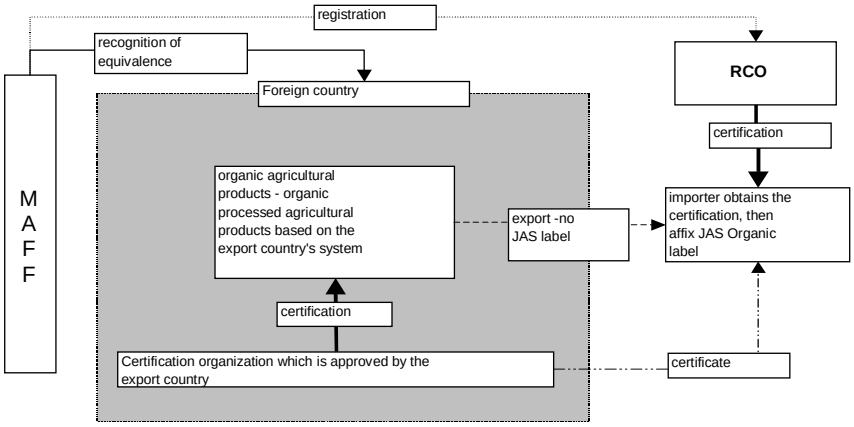
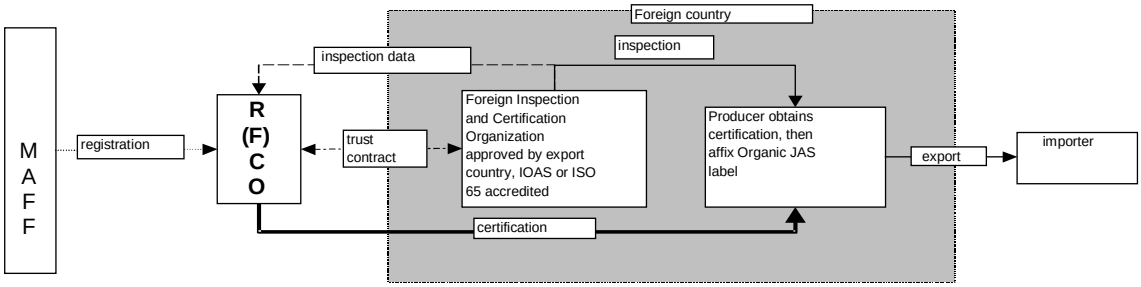


Chart 3: Re-certification based on trust Contract



MAFF: Minister of Agriculure, Forestry and Fisheries
RFCO: Registred Foreign Certification Organization
RCO: Registered Certification Organisation

Registration
Certification
Physical distribution (with JAS Organic label)

REFERENCES

Anonymous (2002), "USDA and Japan reach agreement", *The Organic Standard*, No. 11, March 2002.

Commins, Ken and Ong Kung Wai (2002), "Status of national organic regulations", *The Organic Standard*, No. 11, March 2002, pp. 3-4. Available from http://www.grolink.se/studies/Status of national organic regulations.pdf

Japan, Government of (1999*a*), "Committee on Technical Barriers to Trade — Notification — Japan — Agricultural and forestry products", Document symbol no. G/TBT/Notif.99/141, 30 March 1999, World Trade Organisation, Geneva.

Japan, Government of (1999*b*), "Committee on Technical Barriers to Trade — Notification — Japan — Organic plant products", Document symbol no. G/TBT/Notif.99/539, 22 October 1999, World Trade Organisation, Geneva.

Japan, Government of (1999*c*), "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 1999, World Trade Organisation, Geneva.

JASA: Japanese Agricultural Standard Association (2002), *List of Registered Certification Organisations* [in Japanese] www.jasnet.or.jp

MAFF: Ministry of Agriculture, Forestry and Fisheries (2000*a*), "Standards and Labelling Based on the Law Concerning Standardization and Proper Labelling of Agricultural and Forestry Products (the JAS Law)", November. www.maff.go.jp/soshiki/syokuhin/hinshitu/organic/eng_yuki_top.htm

MAFF (2000b) "How to export organic food to Japan. www.maff.go.jp/soshiki/syokuhin/hinshitu/organic/eng_yuki_top.htm

MAFF (2002), "Additional Q&A", (2001.3, 2002.1) www.maff.go.jp/soshiki/syokuhin/hinshitu/organic/eng_yuki_top.htm

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/info/asia/e3208.htm

Sakuyoshi, Mutsumi (2001), "Japanese organic rules and implementation", *The Organic Standard*, No. 1, May 2001, pp. 2-5.

Sakuyoshi, Mutsumi (2002), "A year on from JAS law: Where are we now?", *The Organic Standard*, No. 10, February 2002, p. 15. Available from http://www.organicstandard.com/test_issue.htm

Weinberg, Sheldon (2002), "Experiences with the Japan Agricultural Standard", *The Organic Standard*, No.11, March 2002, 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 2002, pp. 3-6. Available from http://www.organicstandard.com/test_issue.htm

REGULATING "ORGANIC" FOOD LABELS IN THE UNITED STATES

Introduction

351. In December 2000, the U.S. Department of Agriculture (USDA), after some 10 years of deliberation, published its National Organic Program (NOP) Final Rule, which establishes legally binding national standards for what agricultural products can be defined and labelled as "organic." When these standards go into effect in October 2002, only agricultural products meeting the USDA standards may be sold, labelled or represented as "organic" in the United States.

352. 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 in this growth by environmental NGOs and similar organisations trying to help these countries take advantage of their often simpler and less intensive farming practices and production methods.

353. The USDA's organic labelling rules potentially will affect all producers and distributors of organically-produced foods attempting to place their products onto the U.S. 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

354. Sales of organic products in the USA developed significantly during the 1980s and 1990s, prompted by consumers' concerns about health and environmental issues (Box 4). 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 unfairly compete 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.

355. The current national U.S. standards have their origins in the late 1980s, when a small group of organic farmers asked members of the U.S. 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 — in addition to 33 private certifying bodies. Some State programs passed laws regulating production and handling, but did not require certification.

Box 4. 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 recent study by the USDA's Economic Research Service on the status of U.S. 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) across 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, fibre products like 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 U.S. organic output is consumed domestically at this time, the export market is expected to grow in importance. The major markets for U.S. 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.

356. After several major rewrites, in 1990 the U.S. Congress enacted the Organic Foods Production Act (OFPA) as part the omnibus Farm Bill.[176] The main objective of the Act is to ensure that U.S. 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).

357. 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 the USDA then took until April 1997 to issue proposed regulations. The draft regulations, comprising over 1000 pages, soon began to attract criticism from the organic food producers and processors. Most controversial was language in which the USDA raised the question whether the use of sewage sludge (as a soil amendment) and genetically engineered crops in organic production, and irradiation as a means of preserving organic foods might be allowed in agricultural products labelled as organic.[177] 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 — by far more than the USDA had ever received on any other single regulatory proposal (Vaupel, 2001; AFSIC, 2001).

176. The Farm Bill is reviewed and amended by the U.S. Congress every five years.

177. The USDA had not proposed that they be allowed, but raised the question whether they could be.

358. In the mean time, the U.S. organic community, working through the Organic Trade Association, had decided to write its own standards based on the NOSB recommendations, 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 U.S. 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.

359. 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 U.S. Government also notified the proposed rule to the WTO Committee on Technical Barriers to Trade (United States, 2000). Based on public comments, 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 — 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.

360. 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 and be used in producing and handling organic crops and livestock, as well as processed products, and (in contrast with the original draft rules) 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 5). 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 5. The USDA Organic seal

361. A recent study comparing and contrasting 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 U.S. standards for methods, practices and substances to be broadly equivalent with those of other countries and international organisations (May and Monk, 2001). In some areas the U.S. standards may be slightly more strict; in others they may be less strict. One area in which they are less strict is in the use of animal manure: basically, manure used on an organic farm for fertiliser can come from a non-organic or intensive ("factory") farm under the U.S. rules; it is not permitted under the Codex

guidelines or those of the European Union. On the other hand, the U.S. rules prohibit the use of agricultural ingredients grown using municipal sewage sludge as a soil amendment; the EU does not.

362. The NOP Final Rule (Section 205.500) provides three options for accrediting certifying bodies in foreign countries: *(1)* direct accreditation of the certifying bodies by the USDA; *(2)* 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 *(3)* 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 the special concerns that the USA had to avoid potential conflicts of interests 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.

363. USDA-accredited certifying agents may certify, at the request of an organic producer or handler, to 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 whose use is currently allowed, with restrictions, by the NOP final rule. And it may adopt its own requirements for truthful labeling 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 could indeed 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, nor the products certified to specific contract requirements, are "more organic" than those products which only meet the USDA organic standards.[178]

364. In order to help defray the costs of initial organic certification, the USDA has provided financial assistance to farmers in 15 U.S. states.[179] 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.

Trade issues and developing-country responses

365. 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 to the European Union's organic rules provide any indication of what could be expected (see corresponding EU case study), the challenges they will have to face to obtain 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, few

178. Individual States and individual farms can establish more stringent standards, but not certifying bodies.

179. 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.

developing countries have established local certification bodies; in Africa and Asia there are only a few on each continent (Rundgren, 2000). Developing such bodies can be expensive and many countries lack access to the necessary technical and regulatory information, management skills and finance.

366. Certification by a body accreditated 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 to IFOAM's Internal Control System for smallholder group certification (*see* 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 shall be conducted annually thereafter only for each certified *operation* — which presumably could be interpreted as the smallholder group.

367. Organic farmers and producers in developing countries are often SMEs, which have been set-up or assisted by charities and NGOs committed to assisting environment-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 U.S. market under the brand name of a U.S. importer, producer or distributor that can undertake the responsibility for obtaining the USDA organic certification and seal. While this means that they can escape the difficulties of obtaining certification themselves, they are thereby made more dependent on their U.S. associates.

Responses to developing country concerns

368. In the first round of accreditation of organic certifying bodies, the National Organic Program (NOP) offered to absorb all labour charges for accreditation services (applicants will be 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.

369. As of 11 July 2002, the USDA had received applications for direct accreditation from 49 private foreign certifying agents, of which 15 were based in developing countries. Of the latter, three received accreditation (one each from Brazil, Costa Rica and Peru).

370. 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 U.S. buyer. The NOP, working in conjunction with the USDA's Foreign Agriculture Service and the Office of the U.S. Trade Representative, establishes a process through which equivalency or other trade agreements can be negotiated with governments of foreign countries to which U.S. organic products are *exported*. However, as of the end of September 2002, only India and Japan had formally requested an equivalence determination from the Agricultural Marketing Service of the USDA.

371. The NOSB's Accreditation Committee has responded to concerns about smallholder group certification by promolgating recommendations regarding "Criteria for Certification of Grower Groups."[180] 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

372. The USDA's National Organic Program 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.

373. In developing its regulations, the U.S. 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 available copies of the final regulationavailable in at least two other languages, Japanese and Spanish.[181] By regularising the meaning of "organic" across the whole of the U.S. market, exporters will no longer have to face the panoply of definitions and criteria previously defined by individual U.S. 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.

374. 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 agriculture 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 of them may have benefited from the initial grace period during which the USDA did not charge for its labour costs incurred in processing accreditation applications.

180 . http://www.ams.usda.gov/nop/NOSBGrowerGroupsItemforPublicCmt.pdf

181. See http://www.ams.usda.gov/nop/ .

REFERENCES

AFSIC: Alternative Farming Systems Information Center (2001), "Organic Food Production", U.S. Department of Agriculture, Washington, DC. http://www.nalusda.gov/afsic/ofp/ofp.htm, verified 31 October 2001.

AMS: U.S. Department of Agriculture, Agricultural Marketing Service (2000), "7 CFR Part 205: National Organic Program; Final Rule", *Federal Register* , Vol. 65, No. 246, 21 December 2000, pp. 80547-80684. http://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. ftp://ftp.fao.org/codex/standard/organic/gl99_32e.pdf

Green, Catherine (2000), "U.S. organic agriculture gaining ground", *Agricultural Outlook* (U.S. Economic Research Service), April 2000, pp. 9-14. http://www.ers.usda.gov/publications/agoutlook/apr2000/ao270d.pdf

IFOAM: International Federation of Organic Agriculture Movements (1998), *IFOAM* A*ccreditation Criteria For Programmes Certifying Organic Agriculture And Processing*, IFOAM, Tholey-Theley, Germany. http://www.ifoam.org/accredit/criteria_final.pdf

Kortbech-Olesen, Rudy (2000), "Export opportunities of organic food from developing countries", paper presented to the *WorldOrganics 2000* conference, London, 9-10 May 2000. http://www.ifoam.org/orgagri/worldorganics_2000_conference.html, verified 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. http://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, USA.

Rundgren, Gunnar (2000), "The challenge for developing countries to establish an organic guarantee system", Grolink, Stockholm. http://www.grolink.se/studies/challeng.htm

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 2000, 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

ECO-LABELS FOR CUT FLOWERS

Introduction

375. World trade in cut flowers is a six-billion U.S. dollar a year business. The Netherlands, accounting for almost 60% of the 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.

376. 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 US$ 580 million in export earnings for the country. In value terms, 84% of these exports went to the United States, and 10% went to the EU — a share that has been declining since the mid-1990s, when it was frequently 15% or more.

377. 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 flower-export industries of African and Latin American countries. As part of this campaign, several labelling programmes were created in European countries, most intended to raise environmental and social standards in developing countries. However, significant concerns about their possible trade effects were raised by developing countries, who complained about their loss of access to OECD markets. Colombia initiated a debate about private eco-labelling schemes in the context of the Technical Barriers to Trade Agreement. The lost prestige of Colombian flowers affected sales to Europe, at least initially. However, foreign pressure, coupled with the work of Colombian activists, also spurred Colombian flower producers to adopt their own environmental programme, and to implement other changes in the industry.

Development of the measure

378. The environmental and social impacts of flower production can be considerable. They include groundwater contamination resulting from the excessive application of agrochemicals, and health effects stemming from inadequate protection of workers who handle dangerous chemicals. In some countries they also have included the use of pesticides banned for safety or health reasons in OECD countries.[182] Conditions in the cut-flower industries of Latin American countries began to attract attention in OECD countries during the late 1980s, particularly with 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. Among the allegations made in the film were that female workers in the

182. 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.

business were being exposed to pesticides without respiratory protection and appropriate protective clothing.

379. In 1991, concerned about the plight of 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 "to secure the fundamental rights of the female workers and workers as well as environmental protection in flower production."[183] Among other activities, the Campaign created a newsletter, *Blumen-Zeitung* (Flower 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).

380. 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, 1998). 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 around DM 3 0000 to DM 10 000, depending on the size of the enterprise, are covered by the producers.

381. The BGI also approached the larger of Colombia's flower exporting associations, Asocolflores[184], with a proposal to establish a separate programme called the "Colombia Flower Declaration". The idea was that cut flower companies who wanted to export to Germany would sign the declaration in order to be placed on a "white list". In so signing, the companies would declare that they would strictly comply with all Colombian laws and norms concerning labour regulations, agrochemical use and handling, and environmental and natural resources preservation (Wijk, 1994). The companies would have also had to 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.[185]

382. 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, which have been solely determined by domestic interests, are meant to assure consumers that the products are considerably less damaging to the environment than those produced using conventional methods. For the cultivation of MPS-labelled flowers, only limited and selected use of chemicals and artificial fertilisers are permitted. After initial difficulties, growers in Zimbabwe, Kenya, Tanzania and Israel were eventually able to obtain the label.

183. http://www.oneworldweb.de/tdh/aktion/blumenlabel.html

184. Ascoflores represents mainly the larger exporters; Fedeflores represents mostly small- and medium-scale growers that are Colombian-owned.

185. 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.

383. Since opening the scheme to developing countries, the Stichting Milieukeur has perceived a need to include social and energy efficiency criteria in the programme. 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. Foreign country producers generally consider these energy efficiency criteria to be unfair, as they negate any climatic advantage they would otherwise enjoy (Verbruggen *et al.*, 1997).[186]

Trade issues and developing country responses

384. 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), fulfilling its environmental and social standards. Several others (among them Sri Lanka, Tanzania, Uganda and Zambia) have signalled interest.

385. Yet Asocolflores itself, backed by the Government of Colombia, 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 bad reputation that the developed-country campaigns were creating (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.

386. 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, there are more than 150 companies participating in the programme, covering about 2 700 hectares (over half of the cultivated area) and almost 39 000 employees.

387. The Florverde programme is voluntary and based on the principle of self-management. No external auditors are used, 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 *(1)* an initial review or diagnosis; *(2)* elaboration of a plan-of-action; and *(3)* 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 could be contributing 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

186. 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 the programmes. According to Verbruggen *et al.* (1997) they aim primarily at protecting domestic flower growers.

companies and establishes the benchmark for the following three years. During this period, the companies submit their own progress reports, and also receive progress reports from others, so that each can compare its performance with others. After three years, a new benchmark is established.

- *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 process 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.

388. 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.

389. The critical light shown on the Colombian flower industry by overseas NGOs took a toll, however. While Colombia's global flower exports showed an upward trend between 1992 and 1996, exports to Germany declined markedly. One of 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 with 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 one dollar 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 from 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 Government of Colombia considered such an arrangement "inadmissible", as that task fell within the exclusive competence of the National Government.

390. 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

391. The responses to Colombia's concerns have been mixed. Unable to reach a deal with Asocolflores, the BGI agreed to help in the creation of an office of the Colombia Flower Council in Germany in order to promote the local consumption of Colombian flowers.

392. Meanwhile, the Flower Campaign's interest in Colombia, if anything, 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)[187], 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, two flower exporters in Colombia that are members of Asocolflores (Flores de Tenjo and Flores la Esmeralda) have agreed to join the FLP, even though Asocolflores itself has chosen to stay out of the programme.

187. The ICC is based on the Universal Declaration of Human Rights, relevant ILO conventions and "basic environmental standards" — as well as on the information gathered in the course of the Campaign's working with partners in both Germany and the exporting countries.

393. 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 Gesellschaft für Technische Zusammenarbeit, or GTZ (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. Altogether DM 584 000 has been provided by the federal government so far.

Concluding observations

394. 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 flower exports", Trade and Environment Database (TED), Case No. 108. < http://www.american.edu/projects/mandala/TED/flower.htm >

Asocolflores (1999), "Florverde" < http://www.colombianflowers.com/4000/4031.htm >

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. < http://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 1998, World Trade Organisation, Genève.

Greiner, Andreas (1998), "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. http://www.gtz.de/dokumente/AKZ/deu/AKZ_98_1/akz1_98.pdf

Greiner, Andreas (1998), "Vouching for environmental and social standards. Ecuador's producers join Flower Label Programme, Gate 2/98, Gesellschaft für Technische Zusammenarbeit, Eschborn, Germany.

Max Havalaar (1999), Fairtrade Conditions. < http://www.maxhavelaar.org/eng/eng_han.htm >

Rodriguez, Marta and Jorge Silva (1988), "Love, Women and Flowers" (film).

Verbruggen, H., Jongma, S. 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*, UNCTAD, Geneva, pp.

Wijk, Joeren van (1994), "Floriculture in Colombia", Biotechnology and Development Monitor, No. 20, p. 4-5. http://www.biotech-monitor.nl/2003.htm

MANGROVE PROTECTION INITIATIVES AND FARMED SHRIMP

Introduction

395. 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 — shrimp aquaculture since the late 1980s has been one of the fastest-growing segments of the seafood industry. The total annual production of farmed shrimp today exceeds 1 million tonnes. Most of that 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 USA 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).

396. 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 traditional, low-intensity (polyculture) forms of shrimp farming.

397. The impression given by much of the NGO literature 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:[188]

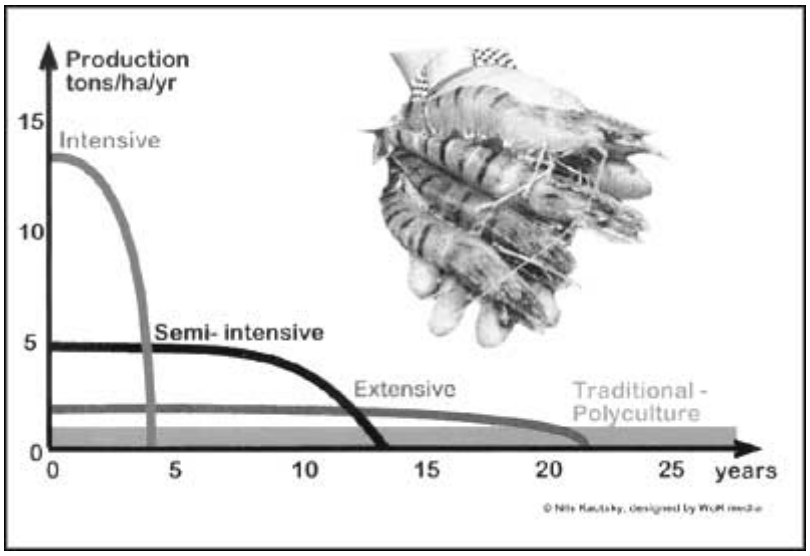
> … an unsustainable industry, migrating from place to place, leaving behind a trail of degraded landscapes stripped of biodiversity, and destitute people. Not only coastal wetlands, *particularly mangroves*, and the coastal communities that depend on them, but also farming areas have been destroyed — 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

188 . http://www.greenpeace.org/politics/wto/shrimp.html

> 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. [emphasis added]

398. The industry, naturally, refutes these claims. While admitting that somewhere between 55% and 60% of the 31 million hectares once covered by mangrove forests has already been destroyed, they concede that less than 5% of that loss can be attributed to shrimp farming.[189] 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 are 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 6 depicts an environmentalist's subjective impression of the sustainability of different forms of shrimp culture based on past performance.

Figure 6. One view of the sustainability of different forms of shrimp culture



Source: Nils Kautsky, as reproduced in Quarto (1998).

399. 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 together with inter-governmental bodies to promote a code of conduct for shrimp aquaculture, and the industry itself is on the verge of introducing its own "Responsible Aquaculture Program", 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

189 . Source: Global Aquaculture Alliance, http://www.gaalliance.org/issu2.html , 12 November 2001.

instead to put pressure on lending institutions while at the same time working with shrimp producing countries and policy makers to encourage a more sustainable use of coastal zones.

Development of the environmental measures

400. In 1992 a small group of like-minded NGOs and scientists concerned about the degradation of mangrove forest ecosystems world-wide, and who wanted to reverse that degradation, founded a new organisation, the Mangrove Action Project (MAP). MAP's central tenet 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: *(1)* co-ordinating an international NGO network and information clearinghouse on mangrove forests; *(2)* promoting greater public awareness of mangrove forest issues and of the basic needs and struggles of third-world coastal fishing and farming communities; and *(3)* 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.

401. MAP frequently but called for voluntary consumer boycotts of all farm-raised shrimp, but with little impact.[190] One important vehicle for their message has been organising 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 this forum the participants issued "The Choluteca Declaration", a document setting out 18 specific demands related to shrimp aquaculture and mangrove forests.[191] 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 concluding demand called for "a global moratorium on any further expansion of shrimp aquaculture in coastal areas until the criteria[192] for sustainable shrimp aquaculture are put into practice."[193]

402. Earlier in that same year, over 200 representatives of governments and non-governmental organisations (NGOs) around the world met in the United Nations building 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 actions being taken by them to address those impacts and assure the sustainability of shrimp production.

403. By 1998 the Tribunal announced that it had achieved its initial goals:

190 . However, several NGOs *have* urged voluntary consumer boycotts. In December 1998, for example, Greenpeace launched a press campaign in Spain urging consumers: "Don't buy tropical shrimp this Christmas. Give a gift to Nature". See http://www.earthsummitwatch.org/shrimp/index.html

191. http://earthsummitwatch.org/shrimp/positions/pov3.html

192 . One difficulty has been in obtaining international consensus on what those criteria might be. Attempts to use existing international frameworks have focussed on relevant MEAs, particularly the 1971 Convention on Wetlands (the Ramsar Convention), the Biodiversity Convention, and the FAO Code of Conduct for Responsible Fisheries, adopted in 1995.

193 . Lately MAP has begun to address other serious problems affecting mangrove forests, such as logging, oil, charcoal and tourism industries.

> Governments, international agencies, industry, and increasingly the public recognize 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.

404. 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. What follows is a brief overview of initiatives in Honduras and Tanzania (by way of example), focussing on the period of most intense activity, 1995-1998.

Honduras[194]

405. 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, CODDEFFA-GOLF (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 in the exploitation of mangroves.

406. In August 1996, after strong urging from CODDEFFAGOLF, the Honduran government decreed a one-year moratorium on new licenses for shrimp farms. Yet, despite 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 nations' 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 giant shrimp farms were having on local communities. According to CODDEFFAGOLF, during the six months following passage of the decree, no studies were undertaken. And the expansion of shrimp farming continued to grow uncontrollably. Yet satellite imagery of the Gulf of Fonseca region show that mangrove areas has actually increased in the last 10 years.

Tanzania

407. 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 complete its own EIA, which the NEMC completed in August. The NEMC urged the Tanzanian Government to reject the project because of its environmental impacts, and

194 . 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." Despite the NEMC's recommendation, the Tanzanian Government approved the AFC project in November 1997.

408. 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 the Government of Tanzania to reconsider its decision to approve the proposed large-scale industrial shrimp farm in the Rufiji Delta.

409. In April 1998, a group of more than 2000 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 set-backs, the LEAT lawyers eventually won for the residents 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 on-line 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

410. 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.

411. First, the campaigns seem to have influenced the process of financing of 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 debts) and more generally to enter onto an export-led development path. Although the 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.[195] Second, the campaigns forced national policy makers, regulators and producers to become much more sensitive to mangrove ecosystems and their role in protecting the natural resources on which some of the poorest members of their societies depend.

412. 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 intergovernmen-

195 . As shrimp volume continues to increase and profits diminish, consolidation and integration are occurring within 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.

tal organisations in 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 from further NGO campaigns and recompensed for their more-responsible behaviour through higher-prices.

413. 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 its 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 including hatcheries, farms, feed companies, processors, importers, retailers, and food service companies.

414. Since its creation, the GAA's core activity has been to develop a "Responsible Aquaculture Program" (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 that all shrimp farms can 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 (see programme logo at right).

Companies that complete the Responsible Aquaculture Program will be able to use this seal on packaging.

415. 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 "utilize 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 5).

Box 5. The GAA's recommended management practices relating to mangroves

It shall be the objective of all adherents to this Code to not 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 waste water 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, http://www.gaalliance.org/code1.html , accessed 12 November 2001.

416. 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.

417. 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 backed off 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.

418. In developing its private certification and accreditation programme (which is expected to be ready in late 2002), 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. Judging from the interest already shown in the programme by producers (and their governments) from the major exporting regions, it is likely that a significant number of the first shrimp farms to be certified will be from developing countries.

419. In the meantime, developing-country governments themselves 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 has begun 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). The DOF has also expressed its willingness to serve as a certifier in the GAA programme.

Responses to developing countries' concerns

International responses

420. NGOs also attempted to exert their influence through intergovernmental organisations (IGOs) — notably the FAO's Fisheries Department and the World Bank. Commercial shrimp farmers were unfamiliar with the machinations of 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.

421. 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 eleven 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.

422. 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 Code of Conduct for Responsible Fisheries 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.

423. Since 1999, the FAO has combined forces with the World Bank[196], 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 both 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 (see Howarth *et al.*, 2001).

424. 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 within 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). Already the ITTO has provided almost one million U.S. dollars to help fund the project.

National initiatives

425. National governments have generally provided support for more sustainable shrimp production through the intergovernmental organisations in which they are members. Several national aid agencies of OECD Member countries are official partners in 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 mbH*) 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. (Equator, along with Thailand, is one of the leading suppliers of shrimp to Germany.) This project, the first of its kind, 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.[197]

Concluding observations

426. 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

196 . The World Bank itself operates a Fisheries and Aquaculture Network that involves the same organisations, plus a number of research institutes, government fisheries agencies, and aid agencies.

197. See http://www.naturland.de/englisch/frame_defs/framedef.html.

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 those local groups led to moratoriums being declared on the expansion of new farms, though often the moratoriums have ended up being overturned or ignored. And, perhaps most importantly, they have spurred a major part of the industry to develop its own Responsible Aquaculture Program (RAP), based on quantitative standards and third-party certification. It is significant that the Global Aquaculture Alliance, 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.

427. In contrast with 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 to be used. At the same time, research is starting to be directed at issues related 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), "The trade, environment and human rights: the paradigm case of industrial aquaculture and the exploitation of traditional communities", Port Angeles, Washington. http://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 1990, Bellagio, Italy.

E-LAW (2001), "2001 E-LAW Annual Meeting", Environmental Law Alliance Worldwide, Eugene, Oregon, USA. http://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. http://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. http://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. http://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. http://www.fao.org/Legal/default.htm

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. http://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. http://www.earthisland.org/map/rdstb.htm

Smith, Deborah A. (1998), "The Honduran shrimp farming industry: social and environmental impacts", *Shrimp Sentinel Online.* http://www.earthsummitwatch.org/shrimp/index.html

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*, Volume 8, No 2. http://www.itto.or.jp/newsletter/v8n2/18.html

PRIVATE CERTIFICATION OF A FISHERY AS SUSTAINABLE

Introduction

428. 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.[198]

429. 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.

430. 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. 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.

431. Over the six 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

198 . 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.

openly admitted, unless this and other hurdles can be overcome, the MSC's reputation in developing states will be undermined.[199]

Development of the measure

432. 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 seafood brand names[200], 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.

433. The MSC spent its first two years developing the standards against which certification would be judged.[201] 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 Code of Conduct for Responsible Fisheries (FAO, 1995), the United Nations Agreement on Straddling Fish Stocks, and the Principles for the Conservation of Wild Living Resources (Mangel *et al.*, 1996).

434. 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 D.C., 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.[202]

435. 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: *(1)* the condition of the fish stock; *(2)* the impact of the fishery on the marine

199 . See WWF (2001).

200 . Including Findus®, Birds Eye® and Iglo®.

201 . Although the MSC was informally established in 1996, it did not become a separate legal entity until 1997.

202 . 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 Governors — and was being funded by a wide range of charitable foundations, private companies, individuals, and even one government agency (the Swedish International Development Agency).

ecosystem; and *(3)* the robustness of the fishery-management system. The MSC's role is to accredit the certifier to ensure that it is competent to carry out all the required procedures, and to administer the standards and the use of the logo.

436. 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 were to proceed 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 on how the assessment should be conducted and the qualifications of the assessment team members. In assessing the fishery against the MSC standards, the certifier develops criteria, indicators and scoring guidelines specific to the fishery. This is a necessary step because the same standards cannot be applied to fisheries as fundamentally different as salmon and lobster.[203] Before evaluation, these criteria, indicators and guidelines are made available for public review and comment.

437. 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 meets the Marine Stewardship Council Environmental Standard for a well-managed and sustainable fishery* (Peacey, 2000). Between renewals, the fishery must undergo a monitoring inspection by the certifier at least once a year.

438. Although participants in a certified fishery may display the MSC logo on fish sold directly to consumers, in practice this occurs only in the case of lobsters and other marine products normally sold in a fresh state. Most fish are further processed and packaged, which introduces the possibility of labelling. Participants in downstream supply chains may display the MSC logo on products sourced from certified fisheries only on the condition that they successfully undertake regular "chain-of-custody" audits. This requirement 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 80 product lines display the MSC logo, selling in various forms (fresh, smoked and canned) in eight countries.

439. Although the MSC has no control over the costs of certification, which normally must be born by the client, it has provided rough estimates from the 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 U.S. dollars to over USD 20 000. Proceeding through the next step, full fishery certification, may range from about USD 10 000 for a small, simple fishery to more than USD 100 000 for a large, complex fishery.[204] The cost for the annual audit is expected to be small compared with the cost of initial certification.

---

203 . This scoring system is not generic, as sometimes implied, though certifiers do build up on previous scoring guidelines in developing guidelines for new fishery assessments.

204 . Some observers have estimated that the costs can run to *much* more than USD 100 000 for large, complex fisheries.

440. 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 1000 per million U.S. dollars of product — with a minimum fee of USD 1000.[205]

441. The MSC chose to try out its Principles and Criteria first on the Thames Blackwater herring fishery[206], 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 about the same time. Neither of these fisheries was contributing to Unilever's fish-brand portfolio. The third fishery to receive full certification, Alaska's wild salmon fishery, did however 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.

Issues raised by developing-country exporters

442. 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 of it 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.

443. 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 Food and Agriculture Organisation, 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 Organization rejected the MSC initiative in a resolution adopted at its Ministerial Meeting in Havana, on 6 November 1996.[207] 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.

444. In 1998, the ICSF expressed several concerns about the MSC's certification process and its potential implications for artisanal and small-scale fisheries in developing countries.[208] Over 90% of fish-workers 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 that, in the ICSF's view, had

205 . The MSC originally contemplated that these revenues would eventually sustain the organisation.

206 . Thames herring is distinguished from other herring species, such as North Sea Herring, by having one less vertebra.

207 . 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.

208 . *Fish Stakes*, Issue . (cited in Mathew, 2000).

been developed without due consultation with fishworker organisations[209] and that 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 that 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 multispecies 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.

445. 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 muted, the MSC was 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 become 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.

446. Even though the scheme is purely voluntary, critics have worried that the MSC label could 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 U.S. Government-sanctioned labelling of tuna as "dolphin-safe" — had been a contentious one.

447. 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.[210]

448. 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

209 . Mathew (2000) claims that none of the consultations took place in those 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 MSC mainly includes wholesalers, retailers, environmental groups and consultancy companies; it includes no fishworker organisations from any developing country.

210 . 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).

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).[211] 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 the retailers — who are looking for ways to demonstrate a sense of corporate responsibility to shareholders and critics — more than final consumers themselves, who are driving the demand for eco-labelled products. Purchasing and identifying with eco-labelled seafood products presents an opportunity for them to do just that.

449. 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 "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.[212]

Responses to concerns raised by developing countries

450. 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.

451. That strategy, above all, required adapting the Principles and Criteria to facilitate certification of community fisheries.[213] 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,

211 . In the former fishery, the MSC reports a 50% producer-price increase following certification.

212 . 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.

213 . 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 developed 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 have other acceptable means by which they can be assessed.

depends on partnerships with fishers and other stakeholders to assess the state of a fishery. To overcome the barrier posed by 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.

452. Several fisheries have been chosen to test out 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.

453. One of the first to participate in this experiment was a small, community-based lobster fishery near Prainha do Canto Vede (PCV), in Northern Brazil — a community with a venerable history of promoting sustainable fishing.[214] 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: 36). Essentially, the stock that the community fished could not evaluated in isolation from the larger whole (which was threatened by illegal fishing), and it could exert only partial control over the management of the fishery.

454. 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 they are dealing with 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."[215]

455. Lack of 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 of developing-country clients overcoming the hurdles to certification, the MSC has responded in three ways. First, it is trying to identify indicators of sustainability that are equally 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.[216] 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 July 2002 work will commence on producing the specific guidelines.

456. Second, the MSC is itself 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 is contributing to the costs of undertaking a pre-

214. According to the WWF. See http://www.panda.org/endangeredseas/fishingcommunities/update.htm

215. WWF, "Biological Assessment of the Blue Crab Fishery, Sulu Sea", Retrieved from http://www.panda.org/endangeredseas/fishingcommunities/field3.htm on 16 June 2002.

216. 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.

assessment study of a hand-line and long-line mixed fishery in Eritrea. This marks 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, recently 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 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.

457. Third, the MSC is working to facilitate the certification process at a 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 increase the involvement of companies already in the certification business to branch into fisheries. One outcome it hopes to achieve through these efforts is to increase greater competition among certifiers, and thus lower the costs of certification.

Box 6. Applying the MSC certification: an example from Mexico

In May 2001 a fishery-certification process got underway 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 km2. Moreover, both of these fishing grounds are contained within officially designated biosphere reserves: respectively, the Vizcaíno Biosphere Reserve and the Banco Chinchorro Biosphere Reserve (RBBCH). The RBBCH was decreed as 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 program were held with all co-operatives in July and August 2000, by Comunidad y Biodiversidad (CoBI), a local NGO working to support biodiversity conservation and fisheries 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. The Co-operatives perceive MSC certification as an opportunity to differentiate their product in the market place, 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.

458. Currently, six fisheries have been certified to use the MSC logo, and another six (including two in Mexico; see Box 6) are undergoing a full assessment. Some 30 others are going through earlier stages of certification. About 10 of these are small-scale fisheries from developing countries.

Concluding observations

459. 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 inter-governmental 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.

460. 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 do industrialised countries (FAO, 2000). Lack of scientific data required by the MSC certification process has presented an especially daunting challenge, requiring in several cases that new research be undertaken to fill information gaps. Such studies require time and money, which, funding by the WWF 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.

461. As of mid-October 2002, no developing-country fishery had obtained full certification by the MSC, though several were close to reaching that stage. Perhaps the more important contributions that the MSC has made to developing-country fisheries to date, therefore, 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, pristine fisheries), while ensuring that the certification process does not become unduly burdensome for exporters and in so doing unwittingly evolve to become a barrier to trade.

462. 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 or fresh water fisheries), and that "sustainability" may be a message that is too diffuse to be easily understood by all but the most informed consumers, that dominance may not last. There is, for example, a growing consensus world-wide 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 (no date), "The mantle of 'going green' ", *Fish Stakes* (International Collective in Support of Fish Workers). http://icsf.net/jsp/fish-stakes/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. http://www.ieep.org.uk/IEEPNL2_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). http://icsf.net/jsp/fish-stakes/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*. http://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. http://www.fao.org/fi/agreem/codecond/ficonde.asp

FAO (1996a), "Initiatives of non-governmental organizations regarding sustainable resource use and environmental protection in fisheries", Document No. COFI/97/Inf.12, December. http://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. http://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. http://www.icsf.net/jsp/samudra/english/issue_32/art4.pdf

Le Sann, Alain (no date), "Whose labels? Whose benefit?", *Fish Stakes* (International Collective in Support of Fish Workers). http://icsf.net/jsp/fish-stakes/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. http://www.worldcatch.com/page/WC_Article_View.wc?priority=9&Featured=False&wave=25132&id=6985

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. http://www.ictsd.org/English/BRIDGES4-3.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 (no date), "Who's being seduced?", *Fish Stakes* (International Collective in Support of Fish Workers). http://209.237.42.146/jsp/fish-stakes/art8.pdf

Peacey, Jonathan (2000), "The Marine Stewardship Council Fisheries Certification Program: Progress and Challenges", paper presented to the IIFET 2000 Workshop, Corvallis, Oregon. http://www.orst.edu/Dept/IIFET/2000/papers/peacey.pdf

Sutton, Michael and Caroline Whitfield (no date), "A powerful arrow in the quiver", *Fish Stakes* (International Collective in Support of Fish Workers). http://209.237.42.146/jsp/fish-stakes/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 2000. http://www.panda.org/endangeredseas/fishingcommunities/information.htm

WWF: World Wide Fund for Nature (2001), "Community-based Fisheries Certification: A Proposed Methodology", June 2001. http://www.panda.org/endangeredseas/fishingcommunities/Certification_Methodology.doc

THE INTERNATIONAL FRUIT CONTAINER ORGANISATION (IFCO) RETURNABLE PACKAGING INITIATIVE

Introduction

463. 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 after each trip are cleaned and sent back to the produce suppliers for reuse.

464. 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 which are IFCO's customers. These retailers have an interest in returning the containers to their suppliers, because otherwise they are required, under the terms of the Directive, to meet the costs of recycling or disposing of the containers.

465. Despite resistance from fresh produce exporters and their packaging suppliers in developing countries, who 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 world-wide in the ten years since its inception.

Development of the IFCO System

466. 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 that there was a preference in Germany 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.

467. To market and manage the international pool of foldable fruit and vegetable crates, a new company, the International Fruit Container Organisation GmbH (IFCO), 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.

468. 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[217] and sanitary requirements. IFCO Systems was therefore under no position 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.

469. The idea behind the IFCO system is to reduce the volume of packaging waste in the receiving country, by employing crates of sufficient strength that they can 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 round-trips), 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, however, the further they have to travel, as energy has to be expended in transporting them in two directions.

470. 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).

471. 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 accept only IFCO crates. In fact, the notification said only 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 thereupon announced, it had requested the traders to write a new letter to their suppliers

217 . 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.

clarifying this point and confirming that they would honour their previous contractual arrangements (CEC, 1996).

472. 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 both in Germany and in other 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 six million trips per month and the crate was accepted by more than 1000 international producers and distributors of fruit and vegetables.

473. Reference to the current IFCO Systems web site[218] is sufficient to demonstrate 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

474. 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 their supplier participating in the IFCO system.

475. 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.

476. 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 who 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.

218. http://www.ifcosystems.com/

477. 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 local, traditional materials and create local employment.

Responses to developing countries' concerns

478. 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

479. The IFCO Systems initiative offers an example of a private sector organisation that has succeeded in using its own country's environmental legislation as a lever to the achievement of 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.

480. 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 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, rather than those of the industrialised ones.

481. Further expansion of returnable plastic crate use is now expected as a result of a recent (effective October 2001) 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 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, France. http://www1.oecd.org/daf/clp/Roundtables/ENVR09.HTM

FEFCO: Federation Europeenne Des Fabricants De Carton Ondule (1998), "The Production Committee", *FEFCO News*, October, No. 11, p. 3. http://www.fefco.org/membre/f_efco/publicat/n11.pdf

Saphire, David (1994), Delivering the Goods: Benefits of Reusable Shipping Containers, Inform Inc., New York. http://www.p2pays.org/ref/03/02141.pdf

DEVELOPING AN INTERNATIONAL STANDARD FOR "GREEN" TOURISM

Introduction

482. 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 GDP and nearly 200 million jobs world-wide (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.

483. 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 pre-dates the emergence of ISO 14001, 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 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 are largely focussed 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.

484. 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 acting as a barrier to entry to 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 the regular re-branding may present problems of perception both for Green Globe itself and for its members.

Development of the measure

485. 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 and non-governmental organisations.

486. The lead organisation in this effort was the World Travel and Tourism Council (WTTC), an international membership organisation composed of CEOs 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.

487. In 1994 the WTTC had 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 7500, depending on the company's turnover. In exchange, members were provided with information and guidance material 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 that the company had declared a commitment to making environmental improvement and to undertaking regular self assessments; no particular standards or criteria were yet associated with the logo.

488. 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 program for local implementation. These regional seminars took place in London and Jakarta in 1997, and in Victoria Falls and Dominica in 1998.

489. 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 — moving the industry from codes of good practice to an approach based on developing an environmental management system for each corporate unit.[219] Although no formal consultation process was used to decide the criteria for the standard, the WTTC assumed that, since much consultation had taken already place prior to and following the production of *Agenda 21 for the Travel and Tourism Industry*, and that 186 governments had signed onto that document, these criteria could be considered "agreed to" by a wide range of stakeholders. In addition, the outputs of regional seminars on the Agenda 21-inspired action plan were

219 . 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; waste-water management; waste minimisation, reuse and recycling; and storage and use of hazardous substances.

being fed into the ongoing development of Green Globe.[220] Because it was a private, voluntary initiative, the Green Globe standard did not have to be notified to the World Trade Organisation.

490. The WTTC also extended the scope of the Green Globe programme (in 1997) by creating "Green Globe Destinations" — a framework for integrating environmental programmes over 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.[221] 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.

491. 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.[222] The scheme was renamed **Green Globe 21** and revised to allow independent, third-party verification from among 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).

492. Along with a new institutional structure, new fees were set at USD 350 for SMEs, USD 750 for locally based companies; USD 2500 for companies that operate at a national level, and USD 5000 for companies that operate at an international scale (Synergy, 2000). In addition, participants had to pay for the cost of an audit, which could run to around USD 1500 for a large business. For destinations, the basic cost for the first phase are estimated to have been in 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

493. To date there has been no independent research to evaluate the impacts of tourism certification schemes on developing-country suppliers.[223] 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 designating 2002 as the "International Year of Ecotourism"), has prompted several critical reviews of

220 . Geoffrey Lipman (former president of the WTTS), personal communication with Dilys Roe, April 2002. Unfortunately, no documentation exists that describes specific issues that were raised in these meetings, or how they were addressed.

221 . Margot Sallows (former Green Globe Destinations Programme manager), personal communication with Dilys Roe, April 2002.

222 . 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 its headquarters.

223 . 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 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 evaluating what the various schemes have actually achieved on the ground in terms of environmental or sustainability improvements and their impacts on different stakeholders.

494. 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.[224] In any case, most standards are not applied by tourism buyers as such. Likewise, Green Globe is not itself 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.

495. 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) 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.

496. The WWF-UK report also considered that the cost of Green Globe certification was prohibitive for the small businesses which 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[225] 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.

224. 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 and as a result there is substantially more commitment to a supplier in whom the tour operator considers a considerable investment has been made.

225. Restaurants and hotels are graded against quality criteria — e.g., the number and condition of toilets — by numerous private companies (e.g., Michelan) and in some countries by government tourist boards.

497. The WWF-UK report estimated that less than 1% of tourism businesses had joined certification initiatives by 2000, though there is significantly greater participation in some regions than 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;
- and uncertainty about the importance of environmental or sustainability credentials to visitor purchasing choice.

498. 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 correlates 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.

499. The report by Honey and Rome (2001) reaches many of the same conclusions but also discuss concerns specific to developing countries. As they observe, 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, beach-front property, and private reserves. In many countries, foreign investors enjoy special advantages over their local counterparts in the form of preferential regulations, licenses, 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 towards 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." (p. 66)

500. 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 can, for example, Tanzania or Thailand.[226] Such concerns have been raised in discussions on eco-tourism certification taking place within the World Tourism Organization, activities surrounding the International Year of Ecotourism, and an online discussion group about eco-tourism certification organised by a not-for-profit organisation, Planeta.com (*see* http://groups.yahoo.com/group/ecotourism_certification/).

226 . Attributed to Megan Epler Wood and Elizabeth Halpenny.

Responses to developing-countries' concerns

501. 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 7).

502. 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 waste water, 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.

Box 7. The Green Globe 2001 Upgrade

The Green Globe's web site (http://www.greenglobe21.com/refs/history.htm) advertises that the new millennium GREEN GLOBE 21 Path to Sustainable Tourism includes the following changes:

- Improved support for operational cost savings and market positioning.
- Internet-based promotion of GREEN GLOBE 21 members to consumers world-wide.
- 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 4 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 programs 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.

503. Second, three separate categories of membership were established — **A**ffiliate**, B**enchmarked, and **C**ertified — in the expectation that members should progress along an "ABC" pathway from one stage to another:

- Companies, communities, suppliers or professionals may register as a Green Globe Affiliate as an introductory stage, 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:

- 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.

504. Third, Green Globe 21 significantly lowered its fees (Table 12). 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.[227] In explaining its reduction in fees, the Green Globe 21 website states 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."

227 . Geoffrey Lipman, personal communication with Dilys Roe, April 2002.

Table 14. Current Green Globe fees

Sector and status	Pounds Sterling	U.S. Dollars
Companies		
Affiliate (standard fee per unit)	75	100
Benchmarking[1]	from 125	from 200
Certified[1]	from 125	from 200
Suppliers and professionals	75	100
Communities[2]		
Affiliate	from 700	from 1000
Benchmarking	from 3500	from 5250
Certified	from 3500	from 5250

1. Fees vary according to size of company: micro (less than 10 employees); small (greater than 9 but less than 50 employees); large (single unit with more than 50 employees); or Corporation (multiple units). Corporations are further divided into those with a Head Office and Affiliate ranking for 75 units, and Head Office and Benchmarking for 25 units. Fees for additional Affiliate units are £50.00 per unit.
2. The standard fees are applied to communities with 30 000 to 250 000 residents. For communities with a population less than 30 000, the fee is reduced by 30%. For communities with a population greater than 250 000 a 30% surcharge is applied. For communities with a population greater than 1 million, fees are quoted individually; benchmarking and certification start from a base fee of £15,000 (US$22 500).
Source: Based on the Green Globe website, htttp://www.greenglobe21.com/index_cp.html

505. 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.[228] It has also actively promoted its scheme and, unlike many others, has achieved a high level of recognition world-wide.

506. 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 — e.g., the Pacific Asia Travel Association's Green Leaf scheme — which then have to become compatible with the Green Globe standards. Green Globe's Asia Pacific arm has also recently (2002) signed a five-year partnership with Australia's well-regarded National Ecotourism Accreditation Programme (NEAP), which will be adapted to become an international Green Globe standard for the eco-tourism sector. 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 International Hotels Environment Initiative (IHEI)[229] benchmarking process to be recognised under the Green Globe benchmarking scheme.

507. 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

228 . 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.

229. See http://www.ihei.org/csr/csrwebassist.nsf/content/f1c2a3b4.html .

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 take-overs as Honey and Rome appear to imply.[230] The WWF-UK (2000) also notes that this development of partnerships — e.g., with the Caribbean Alliance for Sustainable Tourism and The Co-operative Research Centre in Australia — has been one of Green Globe's strengths, helping it to deliver regionally relevant information.

508. Future developments may, however, result in yet more changes: a study is currently underway, led by the Rainforest Alliance, an environmental NGO, to investigate the feasibility of establishing a Sustainable Tourism Stewardship Council (STSC) to act as an international accreditation agency for tourism certification schemes. One of the proposals under consideration is for the STSC to take over Green Globe and for the scheme to metamorphose from a certification programme to an accreditation body — although to some extent Green Globe already operates like an accreditation organisation.[231] Meanwhile, the "other WTO" — 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

509. Green Globe, in its current form, describes itself as "the ONLY independently verified ***world-wide*** certification scheme for Travel and Tourism". In a recent (2001) review of tourism certification programmes, Honey and Rome describe the Green Globe 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.

510. 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 to 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 its image. That responsiveness has 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 bear 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.

511. 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. But generally they are excluded from certification schemes because

230. Geoffrey Lipman, personal communication with Dilys Roe, April 2002. Margot Sallows with Dilys Roe, personal communication, April 2002.

231. Margot Sallows, personal communication with Dilys Roe, April 2002.

of the schemes' price or complexity, or simply because they are unaware of the schemes. 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.

512. 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 gone down 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 though local associations. As suggested by the WWF-UK (2000), however, the development of guidelines to help local or national authorities to develop credible programmes possibly 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*, Washington DC, Institute for Policy Studies. Retrieved 14 May 2002 from the World Wide Web: http://www.ips-dc.org/ecotourism/protectingparadise/

Synergy (2000), *Tourism Certification: An Analysis of Green Globe 21 and Other Certification Programmes*, A report by Synergy for WWF-UK, August 2000. Retrieved 14 May 2002 from the World Wide Web: http://www.wwf.org.uk/News/n_0000000132.asp

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 1999, New York. http://www.un.org/esa/sustdev/tsbp.htm

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 1999, New York. http://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.