

The Trade and Environmental Effects of Ecolabels: Assessment and Response



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Foreword

The research undertaken for this report has made it clear that there is not enough concrete evidence to determine what the effects of ecolabels are on the environment, trade flows or market access for particular products. More research would be required to determine these effects, as set out in the conclusions of the report. The other broad lesson drawn from this examination of the effects of ecolabels is that participation of a broad range of stakeholders is required to design effective and equitable information tools which promote sustainable consumption. UNEP hopes that the findings from this report will contribute to the design and implementation of such tools.

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Executive Summary

Ecolabelling entered mainstream environmental policy-making in 1977, when the German government established the Blue Angel programme. Since that time, ecolabels have become one of the more high-profile market-based tools for achieving environmental objectives. Ecolabelling has also run into criticism from those who claim that it may, in some cases, operate as an unjustified non-tariff barrier to trade.

This report reviews what is known about ecolabelling as an environmental policy tool and as a potential trade barrier. It focuses on five well-known ecolabelling programmes that incorporate environmental requirements: the Blue Angel programme in Germany, and the programmes associated with the Forest Stewardship Council (FSC), the Marine Stewardship Council (MSC), Fairtrade Labelling Organizations International (FLO) and the International Federation of Organic Agriculture Movements (IFOAM).

The report's ultimate aim is to identify specific issues and policy integration challenges that need to be addressed if ecolabels are to be designed and applied in ways that support sustainable development – balancing environmental, social and economic outcomes. In the report it is demonstrated that considerable additional data collection and research needs to be undertaken if the effects of ecolabelling are to be understood and policy recommendations developed.

The environmental and trade effects of ecolabelling

Evaluating the effects of policies in the real world is difficult. Ecolabelling policies are no exception to this rule. There is no easily accessible, independent body of data on the environmental effectiveness of ecolabelling. Despite the relatively high profile of the five labels that are the focus of this study, adequate data does not even exist on them. Anecdotal evidence and proxy indicators (many of which are imperfect) are not a sufficient basis for evaluating the environmental usefulness or desirability of ecolabelling programmes. In addition, it is currently difficult to isolate the effects of labelling from other variables that could lead to more sustainable production and consumption. There remains an urgent need to collect additional, reliable scientific data on the environmental effects of existing ecolabelling programmes.

Neither is reliable, quantified evidence available concerning changes in trade flows – positive or negative – related to ecolabelling. Until trade statistics differentiate between labelled and non-labelled products, the only basis for discussion will be anecdotal evidence and imperfect proxies, such as percentage growth of a labelled market segment. It is currently difficult to evaluate the effects of ecolabelling among all the other variables that affect trade flows. This is particularly the case in regard to developing countries, about which less information is generally available. Thus there is an urgent need to collect additional reliable economic data on the trade effects of ecolabelling programmes.

Research on (and analysis of) the trade or environmental effects of ecolabelling cannot be conducted effectively without a more refined and comprehensive methodology for categorizing ecolabels. Many more types of ecolabels exist than is reflected in the relevant International Organization for Standardization (ISO) standards. Rather than focusing on the aggregate categorization of ecolabels into broad 'types' (e.g. ISO Types I, II and

III), a new methodology should be developed for differentiating among their multiple characteristics. More detailed categorization relating to criteria, procedures and standards for labelling would make it easier to define, understand and address potential environmental and trade effects.

While there is inadequate data on which to base an assessment of the environmental effectiveness of ecolabelling, it is clear that ecolabelling can have a significant role in combination with other policy tools. It can provide a tool for operationalizing public or private environmental policy measures, particularly in regard to procurement policies.

Private sector policies

Commercial policies in the private sector are becoming a far more important factor in the spread of some environmental requirements than, for example, any formal environmental or trade policies. In some sectors the requirements of retailers and supply chains are also becoming more important than direct consumer preferences. Because of their market power, retailers have far greater capacity to change the practices of producers than do individual consumers.

Companies are increasingly motivated to impose requirements in relation to employee concerns, access to capital, reputational risk management, and the emerging trend of corporate social responsibility. Large multinational companies' impact on market access can be as important in some sectors as that of many national governments; in some situations multinationals can impose environmental requirements more easily than can governments. Furthermore, as price competition increases in many sectors, a relatively small proportion of concerned consumers might also be able to influence a whole company's purchasing policy.

Minimizing undesirable trade effects

Two problems deserve to be given particular attention:

- the lack of checks or balances in regard to the proliferation of ecolabels, including the lack of any way to harmonize existing and new ones; and
- the cost of conformity assessment (often the most significant barrier for developing country producers), which is related to the proliferation of ecolabels.

The discussions on ecolabelling within the World Trade Organization (WTO) seem unlikely to progress in the short to medium term. Discussions on 'labelling for environmental purposes' under the Doha agenda are taking place in the Committee on Trade and Environment (CTE). This committee has no authority to create new rules on labelling or to amend existing ones. The Committee on Technical Barriers to Trade (CTBT) has the authority to create new rules in this area, but it remains unconvinced that rules for ecolabelling should differ from those for other types of labelling programmes. In any case, the CTBT is unlikely to turn its attention to ecolabelling before 2006 at the earliest.

Even if WTO members were to discuss the need for new ecolabelling rules in the CTBT, anything this committee decided would impose rules only on governments. The WTO Agreements do not directly impose obligations on the types of private bodies that develop most ecolabelling programmes, nor do they impose obligations on companies establishing purchasing requirements or buying preferences. The WTO does not provide a forum that includes these bodies and other non-governmental stakeholders in the trade of ecolabelled goods. For all these reasons, the WTO does not appear to be adequately equipped to address the issue of this type of environmental requirement, which is increasingly being imposed through supply chains.

The fact remains that environmental requirements, including some related to ecolabelling, are increasingly used to define commercial relationships between producers and buyers. While meeting these requirements is not legally mandatory, it is becoming an economic imperative, especially for small and medium-sized enterprises and producers in developing countries. The different facets of this problem, including producers' lack of financial resources, information and access, need to be addressed in a holistic way. It would be most appropriate to do so in a forum that can encompass the broader array of factors and policies influencing businesses and consumers – beyond the trade policies, technical regulations and standards covered within the WTO.

The economic benefits of ecolabelling

Without the promise of economic reward, it is unclear why producers would want to invest the additional resources often required to change production practices and adopt an ecolabel. To date, much has been made of consumers' willingness to pay for environmentally preferable products. While most ecolabels have not existed long enough for markets to reach maturity, anecdotal evidence generally suggests that price premia (where they exist) are often not sustained. It is unclear why this is the case. It may be due to a transformative impact on the market leading to overall shifts in production patterns (e.g. an increasing supply of ecolabelled products), which satisfies demand and thus reduces prices. However, it may also indicate that consumers are generally unwilling to pay higher prices for ecolabelled products.

Where price premia do exist, and do accrue to the producer, they can be very important in helping to pay for investments in cleaner technology or production processes. This is another potential effect of ecolabelling that requires further examination.

Other economic incentives, including long-term supply contracts, may prove more important than a price premium. Initial analysis suggests that access to markets and (perhaps even more important) the *predictability* of future access to markets is of greater consequence. In this respect, the extent to which ecolabelling could help to create stronger relationships between buyers and suppliers should be investigated.

Another key factor in assessing the impacts of ecolabelling on sustainable development is: Who receives the economic benefits derived from ecolabelling if these benefits exist? Is it the producers, middlemen or retailers, and in what proportions? Although the data is inadequate for firm conclusions to be drawn, it appears likely that the producer (who bears most of the costs of shifting to more sustainable production techniques) is not the main benefactor of these investments. In some cases, the spread of ecolabelling may be facilitated by inequitable power dynamics within the supply chain.

Potential areas for future work

The spread of environmental requirements, including ecolabelling and other types of standards, can be expected to continue to increase due to the actions of private market actors, particularly through supply chain contracts and big retail chains. Future work on these issues should actively engage ecolabelling practitioners and organizations developing ecolabelling programmes, including the International Social and Environmental Accreditation and Labelling (ISEAL) Alliance and the Global Eco-labelling Network (GEN). These bodies are effectively 'industry associations' for the main private labelling organizations. This work should also engage trade and environment officials from governments who are responsible for addressing these issues as well as relevant intergovernmental bodies, including the UN Conference on Trade and Development (UNCTAD), the WTO and the Organisation for Economic Co-operation and Development (OECD), as well as business and NGOs.

Some potential foci for this work are as follows:

- develop a framework for categorizing the characteristics of ecolabels;
- develop monitoring systems to examine ecolabels' environmental effectiveness;
- undertake case studies on why ecolabelling works or fails in environmental terms, as well as on the quantification of its trade effects;
- undertake research on the design of accompanying private and public policies that use ecolabels to promote environmental objectives, with a view also to minimizing any undesirable trade effects;
- contribute to the design of ecolabelling programmes and accompanying private and public policies that respond to SME and developing country needs and conditions, including 'phased approaches' to the introduction of standards, technical equivalence agreements, and lower-cost conformity assessment and certification services;
- participate in bodies shaping international standards or certification procedures that affect the design and implementation of ecolabelling programmes, such as ISO, the ISEAL Alliance and the GEN;
- collaborate with developing countries in gathering and analysing market information on ecolabelling and on low-cost techniques for complying with its requirements;
- develop guidelines (perhaps in cooperation with the Global Compact) on how to integrate environmental requirements, including ecolabelling, into supply chains, so that positive environmental and economic benefits – including predictability of market access – are maximized and undesirable trade effects are minimized; and
- provide guidance and advice to the members and secretariats of multilateral environmental agreements (MEAs) that are considering the development of ecolabelling or similar types of consumer information tools for implementation purposes.

Data collection and analysis undertaken on these themes would help answer the question: At what point do governments need to intervene to ensure that ecolabelling supports legitimate and rational environmental objectives? Such information would also make it possible to assess whether 'rules' for ecolabelling should be developed at all and, if so, in which forum or forums.

Acronyms

| | |
|---------|---|
| ATFS | American Tree Farm System |
| CFPs | Certified forest products |
| CSA | Canadian Standards Association |
| CTE | Committee on Trade and Environment (World Trade Organization) |
| CTBT | Committee on Technical Barriers to Trade (World Trade Organization) |
| FLO | Fairtrade Labelling Organizations International |
| FSC | Forest Stewardship Council |
| GEN | Global Eco-labelling Network |
| IFOAM | International Federation of Organic Agriculture Movements |
| ISEAL | International Social and Environmental Accreditation and Labelling Alliance |
| MSC | Marine Stewardship Council |
| nprPPMs | Non-product related process and production methods |
| PEFC | Programme for Endorsement of Forest Certification schemes |
| PPMs | Process and production methods |
| SFI | Sustainable Forestry Initiative |

1. Introduction

The objectives of this report are to:

- 1) present an overview of existing literature on the effectiveness of ecolabelling as an environmental policy tool;
- 2) help identify the effects of ecolabelling on trade flows, including on market access for developing countries;
- 3) outline the challenges that need to be addressed, in terms of both sustainable development policy and trade policy, if labelling and standards in general are to contribute to the promotion of sustainable consumption and production.

Wherever possible, the report will draw on existing information about five specific ecolabels. These labels are associated with:

- the Forest Stewardship Council (FSC);
- the Marine Stewardship Council (MSC);
- Germany's Blue Angel programme;
- Fairtrade Labelling Organizations International (FLO);¹ and
- the International Federation of Organic Agriculture Movements (IFOAM).

This report was prepared in the context of a range of international declarations and decisions, among them the World Summit on Sustainable Development (WSSD) Plan of Implementation and the decisions of the UNEP Governing Council. Particularly relevant are WSSD PoI paragraph 14(e):

(e) Develop and adopt, where appropriate, on a voluntary basis, effective, transparent, verifiable, non-misleading and non-discriminatory consumer information tools to provide information relating to sustainable consumption and production, including human health and safety aspects. These tools should not be used as disguised trade barriers;

and para 5 of UNEP GC decision 22/6:

Requests the Executive Director to develop and facilitate consumer awareness campaigns and provide information to Governments to assist in implementing sustainable consumption approaches, such as those contained in the United Nations Guidelines for Consumer Protection;

Paragraph 15 of the WSSD Plan of Implementation called for a ten-year framework of programmes to accelerate the shift towards sustainable consumption and production. The International Expert Meeting that launched the process to establish this framework, which took place in Marrakech in June 2003, included working group discussions on ecolabelling as a consumer information tool¹. Some participants in the working group noted that ecolabels based on credible criteria could make a broad contribution to the encouragement of more sustainable consumption and production patterns. A range of concerns that required more examination were also identified, including the trade and market access effects of ecolabelling.

¹ <http://www.un.org/esa/sustdev/sdissues/consumption/marrakech.htm>.

This report will contribute to an analysis of these trade effects and make some recommendations on the criteria, overall design and categorization of ecolabels, in order to enhance their contribution to sustainable development.

It should be noted that no primary research was conducted in the preparation of this report. Information was gleaned from literature reviews and through personal communications with people closely involved with the issues. It is also important to recognize that only a very limited amount of independent information is available concerning the environmental effectiveness of ecolabelling programmes. Apart from general anecdotal case studies and proxy indicators, the author was unable to identify any independent information on the environmental effectiveness of the five specified ecolabels. It is very possible, and in fact likely, that some of this information does exist in the large amount of grey literature on the subject, but these sources are not easily accessible.

Not only is there a lack of information on the environmental effectiveness of ecolabelling, but there is an almost complete lack of independent data on its trade and economic effects. No comparable data sets were found on the five specified ecolabels. This lack of data, which came as a surprise to the author, placed significant constraints on the report's analytical content. In the absence of new information, however, insights can still be derived from new perspectives and analysis. It is therefore hoped that the report can help provide a more comprehensive perspective on the challenges that must be addressed to ensure that ecolabels become more effective environmental policy tools without creating unnecessary barriers to trade.

The absence of independent, quantified data on the effectiveness and impacts of ecolabelling is not an exception in the field of policy analysis. Just as with any policy measure, the challenges involved in isolating and measuring the impact of a measure from a multitude of possible factors should not be oversimplified. Neither should the types and strength of conclusions that might be reached if more information had been available be overstated. That said, there currently appears to be a disconnect between the relative importance ascribed to ecolabelling as an environmental policy tool and the amount of investigation and analysis being carried out in regard to its design. Consequently, there would seem to be value in reducing the uncertainties that presently surround ecolabelling.

A number of papers have been written about the state of the debate within the WTO on ecolabelling, and about ecolabelling's impacts on access to developing country markets. It is recommended that this report be read in conjunction with:

- IISD, 2003: *Labelling for Environmental Purposes: A review of the state of the debate in the World Trade Organization* (http://www.tradeknowledgenetwork.org/pdf/tkn_labelling.pdf); and
- OECD, 2003: *Developing-Country Access to Developed-Country Markets Under Selected Ecolabelling Programmes*; Joint Working Party on Trade and Environment; COM/ENV/TD(2003)30.

2. The Environmental Effectiveness of Ecolabelling Programmes

The research undertaken for this report failed to identify enough independent sources of quantitative information to arrive at any firm conclusions on the relative environmental effectiveness of any of the five selected ecolabelling programmes. This should not, of course, be taken to suggest that these programmes are ineffective. Rather, there is not enough evidence to support definitive claims for ecolabelling, either positive or negative.

Reaching a conclusion on the effectiveness of an ecolabelling programme depends on the availability of three specific categories of information:

- 1) There is a need for data on the environmental effectiveness of the ecolabel itself (i.e. data showing that labelled goods cause less environmental impact/stress than non-labelled ones).
- 2) There is a need to consider whether available information on the effectiveness of ecolabelling can also be used to assess the reasons for its effectiveness.
- 3) There is a need for information on the relative effectiveness of one ecolabelling programme in comparison with competing programmes.

Without adequate data on each of these three categories of information, it is difficult to draw reliable conclusions about ecolabelling's impact on overall environmental performance. The following section presents an overview of the information available under these three categories, draws some tentative conclusions based on this information, and suggests priorities for further research.

At this point, it would be worthwhile to highlight one of the major impediments to more effective research on ecolabelling. For too long the term 'ecolabel' has been used to refer to anything that involves environmental requirements and the application of a mark of conformity. Even the International Organization for Standardization's ISO 14020 series of standards and tools, which define three commonly accepted types of ecolabels, have not succeeded in promoting a more considered use of this term.² As a result, the term 'ecolabel' is used to refer to initiatives that fail to distinguish among, for example:

² The ISO defines three types of ecolabels. *Type I* labels compare products with others in the same category, awarding labels to those that are environmentally preferable throughout their whole life cycle. The criteria are set by an independent body and monitored through a certification or auditing process. Ranking products in this way requires tough judgement calls. Consider two otherwise identical products, one air-polluting and the other water-polluting. Which is superior? *Type II* labels are environmental claims made about goods by their manufacturers, importers or distributors. They are not independently verified, do not use predetermined and accepted criteria for reference, and are arguably the least informative of the three types of environmental labels. A label claiming that a product is 'biodegradable' without defining this term is a *Type II* label. *Type III* labels provide a menu of a product's environmental impacts throughout its life cycle. These labels are similar to nutrition labels on food products that detail fat, sugar or vitamin content. The information categories can be set by an industrial sector or by independent bodies. Unlike *Type I* labels, these labels do not judge products. That task is left to consumers. Critics question whether the average consumer has the time and knowledge to determine whether, for example, emissions of sulphur are more hazardous than those of cadmium. From UNEP, 2000: *Environment and Trade: A Handbook*, published by IISD and available at http://www.iisd.org/trade/handbook/5_4_1.htm.

- voluntary or mandatory;
- targeted at individual consumers, industrial customers, investors, government agencies or others;
- single issue or multiple issue;
- consumption effects, production impacts or the product's complete life cycle;
- single or multiple sectors;
- approaches to setting criteria, based on leadership, rating or information;
- criteria concerned with management processes or performance outcomes, or both;
- criteria or scope defined locally, regionally or internationally;
- second- or third-party certifications, or self-declarations of conformity;
- impacts of a single product, a range of activities or a defined manufacturing site; and
- environmental, social and economic issues, or a combination of these.

Thus it is imprecise to talk generally about ecolabels. Indeed, the fundamental differences between the five ecolabelling programmes chosen for this study make it difficult to consistently compare and contrast them. What is needed is a more mature and comprehensive framework for systematically classifying different types of ecolabelling and certification programmes, based on their unique characteristics and drivers.

It is not the purpose of this report to construct a comprehensive typology that more appropriately reflects the diverse types and characteristics of 'ecolabels'; consequently, the report repeats the same mistake it identifies by using that term. However, this underlines the fact that without a framework the overall benefit of future research on ecolabelling will be greatly reduced. Oranges will continue to be compared with apples. It is possible that only certain combinations of characteristics will result in effective ecolabelling or in significant trade impacts. It should also be noted that most of the criticisms of ecolabelling made in the trade policy community also suffer from the failure to distinguish between different types of ecolabels, or to identify specifically which types of labels and which characteristics are creating problems and for what reasons. Advocating the use of ecolabels as a general category of instruments is thus as untenable as maintaining that they should not be used.

Do ecolabels achieve their intended environmental objectives?

The ultimate objective of an ecolabelling programme is to improve environmental performance. While an ecolabel may be intended to do this by targeting proximate causes such as low consumer awareness, lack of market segmentation or insufficient financial rewards for innovators, this is a means to an end (i.e. improved environmental performance).

What then is the evidence that ecolabelling leads to improved environmental performance?

While it should be possible in principle to use life-cycle analysis and other assessment methodologies to establish quantifiable data reflecting the marginal environmental improvement associated with compliance with certain types of ecolabels (e.g. reduced emissions), in practice this information is generally not widely available and is rarely communicated publicly. Indeed, the lack of information must be due, at least in part, to the incredible complexity of gathering data and understanding causation.

For the most part, the little information available on the FSC, MSC, Blue Angel and FLO labels exists in the form of anecdotal case studies frequently produced directly by (or in cooperation with) the relevant labelling organization. When contacted early in the study, neither the FSC nor the MSC was aware of any independent

scientific assessments on environmental improvements stemming from their certification and labelling programmes. A request to the German Federal Environment Ministry for substantive data on the environmental effectiveness of various Blue Angel labels also failed to turn up any hard data. This is lamentable, but it should not come as a surprise: depending on the nature of the ecolabelling programme, there are a number of very real challenges to obtaining this information. The exception to the rule is organic agriculture, where a significant amount of scientific research suggests a range of positive impacts including improved soil and water quality.

The first challenge relates to obtaining scientifically reliable information. The difficulty is most pronounced in the case of ecolabels such as those of the FSC and MSC, which target extremely complex ecosystems (forests) or species (fish stocks) for which sustainability is difficult to define and monitor. The second challenge relates to isolating the role of the ecolabel as an influence on a company's environmental performance. Companies respond to a large number of variables, including both real and anticipated market and regulatory pressures, technology changes and a host of other exogenous factors. Whether companies react to ecolabelling, or simply use the ecolabel as a way to communicate actions taken for other reasons, can be difficult to discern.

Furthermore, most environmental problems are created by different interrelated factors. Whether an ecolabel can be effective in achieving an environmental policy objective depends on the range of other factors contributing to the problem, and on the range of other policy tools brought to bear on these other factors. Finally, because in some cases there may be a certain degree of competition between voluntary labelling programmes, a single programme may hesitate to undertake an assessment of its label's effectiveness (which could uncover critical information) unless similar assessments are made of all competitors.

Most of the evidence used to demonstrate the environmental effectiveness of the five selected ecolabels is based on proxy indicators. Two main types of indicator are used:

- quantifiable data on other types of performance, including the number of product categories covered by a general ecolabelling programme, the market share of a certain ecolabelled product, growth in sales, the number of companies or products certified, the frequency with which criteria are upgraded; and
- qualitative information that attests to an ecolabel's credibility, generally consisting of information on the process through which the ecolabel was developed and the names and types of organizations that endorse it.

Again, there is a need to approach the assessment of environmental effectiveness differently for different types of ecolabel.

The Blue Angel labels

In the case of many of the Blue Angel labels, the criteria for granting the label are often very straightforward and are also directly related to a very specific environmental improvement. The increase in market share for Blue Angel-labelled low-emission gas and oil burners, for example, can be used as a reasonable basis for assessing relative reductions in emissions. That said, no estimates of the net environmental impact of the use of this ecolabel are available.

IFOAM accreditation

For IFOAM-accredited organic products, it is also relatively straightforward to assess, for example, average pesticide use for non-organic cultivation of a certain crop type, and then to extrapolate environmental improvement from the increase in organic production and the associated decrease in pesticide use.³ While in

such cases there may be a relatively direct relationship between the proxy indicators and actual environmental improvements, it would be worthwhile to consider whether the whole range of proxies used are equally acceptable substitutes for hard data.

FSC and MSC certification

The assessment of environmental effectiveness is not so straightforward in the case of labels such as those of the FSC and MSC, where certification criteria are not exclusively restricted to environmental issues; the certification process does not rely on binary pass-fail information; and the relationship among the different management practices of a single company and, for example, the long-term sustainability of fish stocks is not as direct or as easily demonstrated. Consequently, although the use of proxies for environmental effectiveness is almost universal, it is especially pronounced in the case of ecolabels that address more complex sustainability issues.

As an example, the FSC's promotional material refers to the number of FSC certifications, the total area of certified land and the number of new members.⁴ The November 2003 FSC Fact Sheet includes a text box in which the characteristics that distinguish the FSC from other forest product labels are listed. No mention is made of the environmental effectiveness of FSC certification. Instead, there is a focus on the fact that the FSC is 'credible, inclusive and democratic'.⁵

The situation is the same for some of the organizations that support the FSC. For example, Leadership in Energy and Environmental Design (LEED™), which is the Green Building Rating System developed by the US Green Building Council (USGBC), distinguishes the FSC from other certification programmes based on two characteristics:

- FSC's global framework, which promotes national and regional initiatives tailored to various forest types and conditions; and
- the requirement for chain-of-custody (COC) certification to track and monitor wood as it moves from the forest through manufacturing and distribution to the point of sale.

Nothing is said about the actual effectiveness of the standard on which FSC certification is based, or about whether the FSC is more effective than other sustainable forest management standards. This type of information would be much more useful than proxy indicators, but there is no data to support either claim.

Fair trade labels

Although some fair trade labels include environmental requirements, the focus is basically on labour rights, occupational health and safety, community development and improved terms of trade (particularly through a guaranteed price premium). The basic FLO standard includes general statements on the principle of environmental protection and encourages organic certification. It also includes specific requirements relating to integrated crop management (ICM), pesticides and other hazardous products, forests, water, soil erosion, ecosystems of high ecological value and waste management.⁶

³ Scientific data points to a broad range of environmental benefits from organic production systems, including biodiversity conservation, maintenance of soil fertility, prevention of soil erosion, prevention of agrochemical pollution of surface and groundwater and sedimentation of surface waters, reduction of air pollution, reduced fossil fuel inputs, as well as some that are economic (lower input costs) and social (reduced human exposure to pesticides). For a list of sources on the environmental impacts of organic agriculture, see <http://www.aber.ac.uk/modules/current/RSM1710.html>.

⁴ See, for example, FSC News+Notes, No. 19, 5 December 2003 <http://www.fscoax.org/fsnews/nov-dic2003/NewsandNotesDec5.pdf>.

⁵ http://www.fscoax.org/com_center/FactSheets/fsc_general_4p.pdf.

It is reasonable to assume that organizations implementing fair trade standards improve environmental performance in line with the relevant requirements, but no information is available on this. Most of the available information about fair trade labels relates to social or economic impacts, and is either anecdotal or depends on proxy indicators. In the promotional section of the FLO website one finds the number of certified producer organizations, traders and licensees; the number of families impacted; the percentage increase in the total value of all fair trade sales; an estimate of the total price premium paid to fair trade coffee producers; and the volume of trade in certain goods measured by weight.⁷ No information is provided, even in a general way, on environmental performance improvements associated with fair trade certification. Nor is there consistent information about trends in price premia over time and across different product categories.

A number of issues concerning the use of proxy indicators should be given further attention. Some will be addressed in this report. There is a need to recognize that while certain types of proxy data may provide useful information and insight into the effectiveness of some types of ecolabels, their use is not appropriate for all types of ecolabelling. In particular, the greater the number, diversity and complexity of the criteria used to determine compliance with the ecolabel, the less reliable the proxy data is as an indicator of the label's effectiveness. This is evident in the trend among some types of environmental and social labelling programmes to define the credibility of their label in terms of the process by which the label was created.⁸

A thorough assessment of which proxy indicators are appropriate for different types of ecolabelling would be very useful. This would require both a framework for distinguishing between the types of ecolabels, based on their different characteristics, and primary research on their environmental impacts.

What determines an ecolabel's success?

Before looking at evidence of ecolabelling's effectiveness, consideration will be given to what is meant by 'success'. As mentioned in the preceding section, the relative absence of independent data and the difficulty of assessing causality makes it very hard to assess the impact of ecolabelling on actual environmental performance improvements. From a policy perspective, 'effectiveness' must ultimately be judged in terms of environmental improvements; but from a practical standpoint, success is almost always assessed in terms of proxy indicators that suggest the ecolabel's scope of influence rather than its impact.

While imperfect, proxy indicators enable some assessment of the ecolabel's success in achieving proximate objectives including market share, adoption rates, consumer awareness or frequency of upward revision in the criteria. To the extent that these proximate objectives are directly related to the mechanisms by which ecolabels might catalyze change, they are currently the only available quantifiable indicators of success.

However, discussions concerning the success of ecolabelling – and therefore the selection of proxy indicators of its effectiveness – have long focused on the role of the consumer and the potential for price premia. Evidence suggests that a wide range of factors determine the success of an ecolabel, and that relatively few of these factors have much to do with the final consumer. There is also some evidence to suggest that the success of some ecolabels may not necessarily be related primarily to their environmental characteristics. If the reasons why ecolabels spread through the market are not understood, their design is less likely to be improved in the future.

⁶ From the generic FLO standard for companies depending on hired labour. Available at <http://www.fairtrade.net/pdf/hl/english/generic.pdf>.

⁷ <http://www.fairtrade.net/sites/impact/facts.htm>.

⁸ For example, a recent draft policy document prepared for the ISEAL Alliance and seen by the author highlights the strategic importance of focusing on the credibility of the process through which ISEAL members' standards are developed. No mention is made of the need to provide more information on the effectiveness of the labelling programmes themselves. On file with the author.

The anecdotal evidence available to the author seems to support the view that most successful ecolabels do not just address individual consumer preferences, but are designed as a complement to other policy initiatives. Potter and Hinnells, for example, state that product labelling ‘needs to be integrated with other environmental policy instruments, and to be part of a coherent policy-making structure.’⁹ This suggests that ecolabelling is not effective in itself, but that its overall impact depends on the effectiveness of these other complementary policies. In effect, the establishment of an ecolabel should not be seen as a policy initiative in its own right. Instead, some types of ecolabels should perhaps be considered as – in a general sense – communication tools that enable the creation of incentive mechanisms through other policy initiatives. These can be public or private initiatives.

Consider the following examples:

- The success of the Blue Angel label awarded to low-noise construction machinery, such as wheel loaders, road-making vehicles, concrete mixer trucks and motor compressors, was linked to officially introduced user benefits. In particular, regulations permitted only these machines to be used in sensitive areas such as near hospitals, or at times of day when louder machinery could not be used.¹⁰
- Some product categories covered by the Blue Angel label, such as municipal service vehicles, copiers or biodegradable lubricants, target professional purchasers, including public procurement. Studies undertaken in 1990 and 1991 showed that the Blue Angel label was more important to professional purchasers and public procurement than it was to private consumers.¹¹
- The spread of sustainable forest management (SFM) standards has been attributed to the incorporation of SFM certification in corporate purchasing policies. In addition, the German government has recently adapted its public procurement policies to prohibit the purchase of non-certified timber products. More specifically, the success of the FSC has been linked to the development of buyers groups, made up of companies that commit to purchase only FSC certified timber products. In some cases, products made with FSC certified timber that could also carry the FSC label have not been labelled, presumably because of the relative weakness of consumer preferences for these products.

Even in cases where the success of an ecolabel seems directly linked to consumer preferences, it is not necessarily the case that the ecolabel’s adoption or market share is due to environmental preferences, either alone or primarily. Consider two very basic examples: energy efficiency and organic agriculture.

By many accounts, mandatory energy efficiency labels for white goods have helped to create a new market segment for energy-efficient products such as refrigerators and computer monitors. But it is unclear whether this is attributable to consumer concern about the environmental impacts of energy consumption. It is quite possible that consumers in markets with high electricity costs realize that paying a little more for an energy-efficient product will save money in the long run. Similarly, since 1994 the market for organic food in the UK has grown at between 11 and 53% per year.¹² Is this growth due to concern about the environmental impacts of agricultural practices? Or is it due to increasing concerns about the human health effects of pesticides or genetically modified organisms?

The desire to reduce the cost of operating an appliance, or health concerns, constitute perfectly rational bases on which to make purchasing decisions. Nor is there anything wrong with using non-environmental preferences

⁹ Quoted in Kern, et al., ‘Policy Convergence and Policy Diffusion by Governmental and Non-Governmental Institutions – An International Comparison of Ecolabelling Systems,’ Discussion Paper FS II 01-305, Wissenschaftszentrum Berlin für Sozialforschung 2001.

¹⁰ Müller, Edda, 2002: ‘Environmental Labelling, Innovation and the Toolbox of Environmental Policy: Lessons Learned from the German Blue Angel Program,’ paper available at <http://www.blauer-engel.de/downloads/EDDA-Mueller-Papier.pdf>.

¹¹ OECD, 1997: *Ecolabelling: Actual Effects of Selected Programmes*, OCDE/GD(97)105, Paris, France.

¹² <http://www.defra.gov.uk/farm/organic/introduction/org61.pdf>.

to motivate environmental improvements. Environmental improvements that result from the collateral impact of consumer preferences are still environmental improvements. However, unless the extent to which consumers base their purchasing behaviour on environmental concerns alone is understood, the potential for ecolabelling as a consumer-focused market tool may be exaggerated.

In many cases, it can be argued that the availability of a medium for communicating an environmental message does not create – on its own – a strong incentive to act in an environmentally responsible way. Even where public awareness and consumer preferences are assumed to have been sufficient to drive the label, as in the case of dolphin-friendly tuna, experts have suggested that the net impact of the label is difficult to judge and that other policy initiatives could have had a more significant impact.¹³

Despite the fact that this analysis is based on anecdotal evidence, it appears possible that, in many instances, ecolabelling might be considered not as a tool in itself but as a communication tool working in concert with and empowering other public or private policy initiatives. This supposition, if accurate, in no way calls into question or diminishes the usefulness or necessity of ecolabelling, but it implies the need for a more nuanced consideration of the mechanisms by which ecolabelling catalyses change. That is, it suggests that more inquiry is needed into *how* many ecolabels can be made more effective, rather than *whether* they are effective.

It would be appropriate to conduct more meaningful research to assess the full range of reasons why some ecolabels may be successful on their own, and why others must be complemented by other policies. Again, any such assessment must be based on an analytical framework that distinguishes between different types of ecolabelling. Above all, no conclusions on the effectiveness of ecolabelling, or of the mechanisms through which ecolabels work, should be made without more data.

Is one ecolabel more effective than another?

In the previous section it was suggested that, in many cases, certain types of ecolabels should perhaps be viewed as components of policy initiatives rather than as policy tools in their own right. In this respect, the effectiveness of ecolabelling may be related most directly to the effectiveness of the policy initiative and, in particular, to the range of incentives that it creates. While there may be instances in which an ecolabel could stimulate changes in consumption and production patterns on its own – especially where the information being communicated is simple and addresses a product or sector not already strongly characterized by environmental issues¹⁴ – it is possible that the collective actions of individual concerned consumers on their own might not be enough, generally speaking, to spur the adoption of more sustainable practices.¹⁵

If the effectiveness of ecolabelling is more directly related to the complementary policies and associated incentives built around it, one must consider whether or not variations in the ecolabel itself will greatly influence the overall effectiveness of the measures. This is a nuanced issue that overlaps to some degree with the questions raised earlier concerning the use of proxy indicators. Simply put, the question is: Is there anything uniquely important about the specific information being communicated by *this* ecolabel? Or would similar results, in terms of total contribution to an environmental policy objective or the spread of the ecolabel through the market, be achieved even if the ecolabel's criteria were different? While changes in criteria should

¹³ A study by the US Department of Agriculture (USDA) tracks the decline in dolphin deaths associated with tuna by-catch against a range of policy initiatives. It suggests that the introduction of mandatory 'dolphin-friendly' tuna labelling followed a number of other policy initiatives and may have coincided with, rather than caused, trends in reduction of by-catch deaths of dolphins. See USDA, 2001: 'Dolphin-Safe Tuna Labelling' in *Economics of Food Labelling*, Agriculture Economic Report No. AER793, p. 23, available at <http://www.ers.usda.gov/publications/aer793/aer793f.pdf>.

¹⁴ Müller, Edda, 2002: 'Environmental Labelling, Innovation and the Toolbox of Environmental Policy: Lessons Learned from the German Blue Angel Program,' paper available at <http://www.blauer-engel.de/downloads/EDDA-Mueller-Papier.pdf>.

¹⁵ Alan Knight, Director of Social Responsibility, Kingfisher, quoted in 'Building Single Planet Homes', Special Report on Sustainable Business, *Financial Times*, 16 October 2003, p. 5.

presumably lead to changes in demand for (or expressions of preference for) the ecolabelled product, this is not always the case.

This issue arises most obviously in the case of sustainable forest management (SFM) standards. No data is currently available to suggest that any of the many SFM standards is more successful than any other at promoting the long-term sustainability of a defined forest area. This does not mean that some standards may not be better than others. It simply suggests that the information on which to base these claims does not exist. Without hard evidence that, for example, the FSC label is a better tool than the certification system of the Pan-European Forest Council, which has established the Programme for Endorsement of Forest Certification schemes (PEFC), it is difficult to justify adherence to one rather than the other from an environmental policy perspective.

It appears to be the case in sustainable forest management that the main basis for support of an ecolabel is a proxy variable that does not clearly reflect environmental improvements, such as the inclusiveness of the development process. As will be discussed later, while this issue might not be of significance from an environmental policy perspective, it is very relevant from a trade policy perspective and may further justify the establishment of frameworks to support technical equivalence agreements.

Summary: The environmental effectiveness of ecolabelling

There can be little doubt that some ecolabelling has a positive influence on the environmental impact of production and consumption. Nevertheless, there is no consistent and definitive body of independent evidence to support this claim. Virtually no data is available that could be used to quantify the degree of influence that these programmes have and the reasons. The complexity of the systems involved, and the difficulty of assessing causation, make it very hard to collect this information – a task that is perhaps beyond the capacity of any single organization. Without more information on ecolabelling’s environmental effectiveness, however, it will continue to be difficult to assess the degree to which investments should be made in its development and improvement.

The impact of an ecolabel is a function of both the marginal environmental improvements associated with it and its rate of adoption. If the rate of adoption depends on characteristics of the ecolabel that are not directly related to actual or assumed environmental improvements, there could be an important disconnect between adoption rates and assumed environmental improvements. Moreover, if adoption rates depend more on the incentives that arise from complementary public and private policies than on those arising from individual consumer demand, these complementary policies must be built into the design of the ecolabel from an early stage. For example, could the FSC’s buyers groups (which helped to drive the FSC, through supply chains) have been created were it not for the multi-stakeholder nature of the FSC development process and the endorsement of major NGOs? At the same time, it is worth asking whether it is desirable for process-related issues to be the most important criteria determining the success of sustainable forest management ecolabels.

Increasingly, it is generally accepted that many types of ecolabels are not likely to be successful in the absence of complementary public or private policies. A 1997 OECD study identified the following items as important to the success of the Blue Angel programme:¹⁶

- campaigns by consumer organizations and the media, particularly the local media and specialized press;
- targeting some product category labels at professional purchasers;

¹⁶ OECD, 1997: *Ecolabelling: Actual Effects of Selected Programmes*, OECD/GD(97)105, Paris, France.

- public procurement policies that support the Blue Angel programme; and
- anticipated consumer preferences.

However, these factors are all directed at increasing the market penetration of ecolabels, which is an insufficient proxy indicator for the environmental effectiveness of ecolabelling. Without scientific data on the environmental impact of ecolabelling, and on ecolabelling's relative contribution to the achievement of an environmental policy objective, it is questionable whether the environmental improvements associated with an ecolabel can be extrapolated from data on its market penetration and, consequently, it is difficult to assess the ecolabel's value as a public policy tool.

It is dangerous to draw conclusions on the basis of anecdotal evidence alone, but it seems possible that in some cases ecolabelling's role in promoting environmental improvements has been misjudged. While there may be multiple mechanisms through which an ecolabel influences consumption and production – and therefore a need to recognize the cumulative nature of its impacts – its main value could lie in its ability to catalyze or operationalize other public and private policies.

From the public policy side, without the Energy Star label the US government would not have been able to communicate to its suppliers that it had integrated energy efficiency into public procurement contracts, and producers of computer monitors would not have been able to communicate to the US government that their products deserved preferential treatment in procurement decisions. Similarly, IKEA would have a hard time operationalizing its corporate commitment to produce sustainably harvested forest products without an ecolabel like that of the FSC, which communicates social expectations to IKEA, communicates IKEA's requirements to its suppliers, and helps suppliers communicate their compliance back to IKEA.

In this respect, an ecolabel should be seen as a communication tool – not in the traditional sense of an awareness-raising tool for consumers, but rather in a more general sense as a tool that communicates expectations and requirements to whoever is interested. From a more general perspective, ecolabels remain one of the most widely accepted ways for a company to communicate environmental credentials. It is possible that companies have adopted ecolabelling as part of a competitive strategy, not to differentiate their products from competing products but rather as a means of differentiating themselves from competitors in the eyes of consumers, government agencies, investors, employees and others. For example, do companies that promote ecolabels in one prominent product line, such as Unilever (which has been a strong supporter of the MSC), obtain carry-over benefits for other product lines?

The rapid spread of the concept of corporate social responsibility could be seen as a logical extension of this, with companies using ecolabelling as one of many tools to demonstrate their responsibility to society from a reputational risk management perspective. From this perspective, the mere existence of environmental communication tools (e.g. ecolabels, reporting standards) can stimulate a process of environmental awareness-raising in companies and the general public.

In this case, the value of an ecolabel should not be viewed exclusively within the context of its impact on a specific production process or purchasing pattern, but in a more holistic way as a catalyst for change in corporate and consumer cultures. If consumers or companies are prompted by an ecolabel to consider the environmental impacts of one range of activities, they can reasonably be expected to consider the possible impacts of other activities as well. If an ecolabel's awareness-raising potential can influence an individual's purchasing decisions, perhaps it can also influence other decisions, such as investments, donations to charity or voting.

It is difficult to draw more detailed conclusions without: a robust methodological framework for categorizing different types of ecolabels; more data on the environmental effectiveness of the criteria included in ecolabels;

more experience analysing the available data to assess the specific proportion of environmental improvements attributable to an ecolabel; and data that enables comparisons across competing ecolabels.

The collection of this data must be a priority for future work on ecolabelling. Policy makers, industry and others assessing the environmental effects of ecolabels should be dissatisfied with the use of proxy indicators alone, and the subsequent limits on the types of analysis that can be carried out. One of the most straightforward ways to increase the quantity of data available would be to develop tools that organizations could use to assess the effectiveness of their own initiatives. Currently, none of the five selected ecolabelling programmes has a monitoring system in place to assess its environmental effectiveness. A 2002 report prepared by Environmental Resources Management (ERM) Inc. for the European Commission reviewed 17 different Type III environmental product declarations. Of these, only four had an effectiveness monitoring system in place and all were focused on market penetration data rather than data on environmental improvement.¹⁷

¹⁷ ERM, 2002: *Evaluation of Environmental Product Declaration Schemes*, report prepared for the European Commission, Reference B4-3040/2001/326493/MAR/A2, September.

3. Economic Incentives to Adopt Ecolabelling

As mentioned earlier, the impact an ecolabel has on the environmental effects of production and consumption is a function of the marginal environmental improvements made in order to comply with it (not including changes that would have taken place anyway due to technological or other reasons) and the market share of the producers that adopt the ecolabel. The previous section looked at the first component: the link between ecolabelling and environmental performance. This section will address the second component, focusing on the factors that determine the adoption of an ecolabel.

At a very basic level, there are two reasons why companies will adopt an ecolabel:

- because it is mandatory (i.e. to conform to regulations); or
- because there is an economic benefit.

If there is an economic rationale, there will be an incentive for companies to voluntarily improve the sustainability of their activities and products. The availability of data on the economic benefits of ecolabels is as patchy as that of data on the environmental benefits, in part because many companies consider economic data (including both the costs and benefits of adopting ecolabels) to be a trade secret.¹⁸ In addition, many of the benefits often associated with ecolabels are either intangible or long-term benefits that are hard to quantify. A recent study conducted on behalf of the Rainforest Alliance identified the following potential benefits of certification programmes:

- improved corporate reputation and positive brand impact;
- strong corporate governance;
- improved regulatory relationships;
- risk mitigation and management (crisis avoidance, defence of existing markets, reduced risk of business disruption);
- management of food safety risks;
- competitive advantage;
- access to new markets;

¹⁸ OECD, 1997: *Ecolabelling: Actual Effects of Selected Programmes*, OECD/GD(97)105, Paris, France.

- cost reductions (reduced employee turnover, lower chemical application costs/lower risk associated with chemical use, savings realized through reductions in water and electricity use and implementation of recycling programmes, lower insurance premiums, reduced cost of capital).

The report goes on to note that:

*Some of these benefits are quantifiable and generate immediate measurable impact on financial performance. Others are more difficult to quantify and support longer term impact on financial performance. For the most part, firms have yet to quantify the costs and benefits of certification.*¹⁹

That said, it is possible to disaggregate and verify the economic rationale based on the anecdotal evidence that exists.

The economic incentives associated with ecolabelling seem to fall into two basic categories:

- the impact of ecolabels on profit margins; and
- their impact on the predictability of future revenues.

Shifts in production require investments. Therefore, decisions on production methods should be regarded in terms of investment decisions. Anyone who has invested in the stock market understands the fundamental trade-off between rate of return on an investment and the predictability of the profit. In this light, it should be noted that a company's decision to shift to more sustainable methods of production (as with any investment decision) will depend on the expectations of profit. In reality, then, there is no separating these two categories. Profit margins (as a function of the relationship between costs of production and price) and predictability work together to influence an enterprise's decisions.

Profit margins and predictability

In recent years, much attention has been paid to the possibility that ecolabels confer a price premium. This is only part of the equation, of course. If you can sell an ecolabelled product for 10% more than a product that does not have an ecolabel, but the costs of production are 15% higher, there is little economic rationale for shifting production in order to adopt the ecolabel apart from potential benefits such as reputation or market segmentation. The obvious lesson is that *price premia* are less important than *profit premia*. Less obvious, however, is the potential impact that short-term scarcity has on the premia that have been seen in certain markets for ecolabelled products. The key factor here is the relationship between price, production costs, market size and long-term supply. The cautionary note is: Are decisions to invest in ecolabelling being based on short-term price signals rather than more realistic expectations of long-term profitability? And if so, do these investment decisions lead to sustainable business models?

The evidence suggests that fundamental lag times between increases in demand and supply may result in both a decline in premia over time and an increase in unpredictability. The result may be a situation in which a combination of a decline in the profit premium and an increase in the uncertainty of market access can make investments in ecolabelled markets uneconomical, or less economical than assumed.

¹⁹ CERC, 2004: *Economic Benefits of Certification Programmes: Producers, ReSellers and End Consumers*, Center for Environmental Research and Conservation, Columbia University, New York, June 2004 (prepared on behalf of the Rainforest Alliance). On file with the author.

Price premia

This proposition is supported by evidence from the organic banana sector. Although the price of conventional bananas has fluctuated by roughly 30% over the past seven years and is currently roughly the same in real prices as it was in 1996,²⁰ during this period the price of organic bananas has dropped by 73%.²¹ According to CIMS, a Latin American sustainable markets information service, this price drop is due to the increase in supply outstripping increase in demand. A price premium is still paid for organic bananas, but it appears to be decreasing over time as scarcity decreases.

In research by Udomicit and Winnett on rice production in Thailand, three factors are identified that determine overall profitability: yield, price and variable costs. Where no premiums were paid, lower yield and higher variable costs resulted in organic farming becoming relatively unprofitable (i.e. it offered lower gross margins than conventional rice farming).²² Fortunately, as Udomicit and Winnett report, demand for organic rice far outstrips supply, resulting in a fairly predictable and consistent price premium. But given the long-term likelihood of market entry increasing supply relative to demand, it would be worthwhile to consider carefully the durability of this price premium and the economic sustainability of the operations. The same lesson, in theory, could apply to any non-exclusive ecolabel.

A report on organic products by the International Trade Centre (ITC) also provides a mixed message. According to this report, price premia generally range between 20 and 40% above conventional prices, with price differences regularly beyond that range. Given the large premia, it would be difficult not to conclude that market forces seem able to promote the spread of organic farming and labelling. However, the report goes on to qualify this by reflecting on the fact that the marketing of organic products in many countries is dominated by a relatively small number of traders, which has an important effect on price transparency.

The report also suggests that the increase in the volume of organic produce sold in developed countries and the progression to more competitive markets will likely create a downward pressure on prices. In addition, it is not clear what percentage of the price premia accrues to middlemen along the supply chain and how much accrues to the producer. Production decisions will be influenced only by the money that actually accrues to the farmer – which may be unclear before entering the market. Ultimately, the ITC study concludes that the decrease in the price differential between organics and conventional produce will depend on the relative growth rates of supply and demand. This relatively unsurprising conclusion seems to suggest that the consumer's valuation of the intrinsic benefits of organic products might not be the most important component of present price differentials.²³

While it would take targeted research to give an accurate picture, there are many reasons why demand may lag behind supply in ecolabelled markets. Perhaps the most obvious example is for organic farming. Although there are differences based on crop type and jurisdiction, many organic standards require a minimum conversion period of up to 36 months from the last application of a prohibited substance to the first certifiable harvest of organic produce. All things being equal, this creates a three-year time lag between when a producer reacts to price signals (a function of supply and demand) and when they can enter the market. A time lag can also exist for other types of ecolabelling where, for example, capital investments in technology or production processes are needed to comply with ecolabelling criteria. Because capital expenditure schedules are linked to depreciation

²⁰ UNCTAD, InfoComm <http://r0.unctad.org/infocomm/anglais/banana/prices.htm>.

²¹ http://www.cims-la.com/EN/noticias/ficha_noticias.phtml/813/2/area.

²² Udomicit, Nuntana and Adrian Winnett, 2003: 'FairTrade in Organic Rice: A case study from Thailand,' *Small Enterprise Development*, Vol. 13, No. 3, September, pp. 45-53.

²³ ITC, 2003: *World markets for organic fruit and vegetables: Opportunities for developing countries in the production and export of organic horticultural products*, can be ordered at <http://www.intracen.org/mds/sectors/organic/>.

rates of as much as 15 years for some industrial equipment, it is not necessarily possible for a company to decide from one year to the next to make the investments needed to comply with ecolabelling criteria.

Not only may price premia be higher in immature markets, but initial research on the integration of environmental and social requirements in supply chains suggests that even where additional rents are available, these may accrue more often to the retailer or distributor than to the actual producer. For example, value chain research in the coffee sector suggests that market differentiation within a commodity sector can lead to a concentration of power in importing countries and a deconcentration of power in producing countries.²⁴ In the UK, a 2003 *Sunday Times* report provided the following information on the breakdown of the average supermarket price for fair trade bananas:²⁵

| Average supermarket price (pence/kg): | |
|---------------------------------------|------|
| Regular bananas: | 80p |
| FairTrade bananas: | 154p |
| Price difference: | 74p |
| Paid to Third World farmers: | 24p |
| Additional supermarket income: | 50p |

These figures do not indicate the relative amount of the premium captured by the producer. A UN Food and Agriculture Organization (FAO) report on the banana commodity market states that:

*Depending on the market, the price premium at retail level may vary from 50 percent to 200 percent. The price premium to producers is substantial albeit more difficult to estimate. Industry sources indicate US\$11 per box (18.14 kg) as an average FOB price for organic bananas landed in Europe, compared with US\$8 for non-organic bananas.*²⁶

While the premium paid by the consumer can reach between 50 and 200%, the premium paid to the farmer is roughly 37.5%. It would appear that a proportionately greater premium is being obtained by the retailer and by middlemen than by the farmer, despite the fact that most of the costs of switching to organic farming are presumably borne by the farmer. Additional research would be useful for understanding the conditions under which rents could be captured at a relatively higher level by the farmer.

From a purely environmental perspective, what is important might primarily be that one of the market actors in the value chain has an incentive to promote the use of an ecolabel: the more ecolabelled products on the market, the less the overall environmental impact. But from a sustainable development perspective, other factors need to be considered including the equity of supply chain relationships and, on a more fundamental level, the economic and social sustainability of environmental practices. The principles of equity suggest that rents should accrue more or less in proportion to the costs borne at different stages of the value chain. The existing evidence, while incomplete, suggests that this may not always be the case.²⁷

²⁴ Kaplinsky, R. and R. Fitter, 2001: *Who Gains from Product Rents as the Coffee Market Becomes More Differentiated? A Value Chain Analysis*, Institute of Development Studies (IDS) Working Paper, Vol. 32, No. 3.

²⁵ 'The Grocer', *Sunday Times*, no date recorded, available at <http://www.racetothetop.org/news/radio/2003/07/07.html>.

²⁶ FAO, 2000: *The Market for 'Organic' and 'Fair-Trade' Bananas*, Report of the FAO Committee on Commodity Problems: Intergovernmental Group on Bananas and on Tropical Fruits, First Session, Gold Coast, Australia, 4-8 May 1999, available at <http://www.fao.org/docrep/meeting/X1149E.htm>.

²⁷ Also see Robert Winnet, 'Supermarkets take cut of fair trade cash for poor farmers', 11 July 2003, available at http://www.newfarm.org/international/news/070103/071403/uk_fairtrade.shtml.

The predictability of future profits

The predictability of future profits is a second component influencing a firm's investment and production decisions. This component is related to both the relationship between production costs and prices and the characteristics of future markets. The impact of two market characteristics are particularly important:

- consumers' willingness to pay a premium into the future; and
- the future size and entry conditions of the market for the ecolabelled good.

Surveys carried out in 1994 and 1996 in eastern and western Germany on consumer reaction to the Blue Angel programme suggest that there may be a saturation point for some types of ecolabels. While there was no change in the proportion of consumers reporting that they paid attention to Blue Angel-labelled products, their willingness to pay more for these products declined significantly, from 59 to 35% in western Germany and from 24 to 17% in eastern Germany over this period.²⁸ If one also compensates for the consistent gap between survey response and store behaviour, this reduction could be quite significant.

It is also important to note that even where a price premium exists despite sufficient supply, there is a finite demand for certified products and so all producers may not be able to obtain the benefits of adoption of the ecolabel. For example, although the median market price of Brazilian organic coffee in 2002-3 was roughly three times that of conventionally grown coffee,²⁹ many organic coffee growers could not find a buyer for their goods and had to sell on the conventional market.³⁰ For these reasons, UNCTAD recommends that farmers considering the benefits of organic farming should not rely on the availability of a premium price,³¹ not because the premium market does not exist but because it is oversupplied. Entry into the market will be particularly difficult for new producers that have not established relationships with purchasers and middlemen.

Again, there is an important distinction to be drawn between different types of ecolabels. Exclusive ecolabels, whose criteria change so that no more than a specific percentage of products qualify, could conceivably pay a long-term price premium because they are designed to ensure long-term scarcity. However, lack of predictability about the change in the criteria and the related costs of continued compliance may make it difficult for a company to safely predict production costs, market size or relative price premium. Although a price premium may be attributable to an exclusive ecolabel in general, it may not be predictable or consistent enough to be integrated into a producer's decision-making process. In the case of inclusive ecolabels, for which a whole product category could conceivably qualify, the economic rationale for the price premium is unclear except in cases of short-term scarcity or lower production costs. Individuals closely associated with FLO have reported that it has noted that long-term supply chain relationships are often more important than the price premium.³²

Of course, consumers are not the only market actors willing to pay a premium. Public and private procurement policies favouring ecolabelled products can also lead to a price premium. But again, there is no evidence to suggest that the premium is due to anything other than short-term scarcity or basic underlying higher costs of production. In the latter case, it should be noted that a price premium does not necessarily imply a profit premium.

²⁸ OECD, 1997: *Ecolabelling: Actual Effects of Selected Programmes*, OCDE/GD(97)105, Paris, France.

²⁹ The median market price for conventional coffee was US\$ 2.24/kg; that for organic coffee was US\$ 6.68/kg (ranging between US\$ 8.52/kg and US\$ 4.55/kg). http://www.cims-la.com/EN/noticias/ficha_noticias.phtml/1035/.

³⁰ Personal communication: Jorge Vieto, Operations and Research Manager, Centro de Inteligencia sobre Mercados Sostenibles, Costa Rica.

³¹ UNCTAD, 2003: *Organic Fruit and Vegetables from the Tropics: Market, Certification and Production Information for Producers and International Trading Companies*, UNCTAD/DITC/COM/2003/2.

³² Personal communication: Pat Mallet, Executive Director, ISEAL Alliance.

If an ecolabel is integrated into a complementary procurement policy, and if the ratio of supply to demand for the differentiated labelled good is less than the ratio of supply to demand for the unlabelled good, in theory this should improve the negotiating position of companies supplying the labelled product. The lack of evidence of long-term price premia would seem to suggest that the actual negotiation position is not greatly improved. However, a price premium is not the only economic incentive available to companies that adopt ecolabelling. Some producers have expressed a willingness to sacrifice a price premium for longer-term supply contracts. Particularly in commodity sectors such as coffee, a long-term supply contract can greatly improve the lot of the producer and therefore provide a powerful incentive to adopt an ecolabel.³³

This is the concept being promoted by Unilever in its commitment to the MSC. Unilever will not commit to pay a price premium, but it will give preference to suppliers of MSC-certified fish products.³⁴ This is also the concept behind the FSC Buyers Group. FSC certification helps a timber products company gain access to a 'members only' procurement club. A survey referred to in a recent FAO report indicates that the primary reason for seeking sustainable forest management standard certification is market access, while the least important is price premia.³⁵ It is also reported that the governments of many European countries and the European Parliament serve only fair trade coffee.³⁶ To date, the organics and fair trade sectors have not been integrated into retailers' formal sourcing policies even though many retailers, including UK-based Sainsbury's, Waitrose and Tesco, have actively publicized their offering of fair trade products. Other large buyers such as Nestle have established preferential supplier contracts for producers that can provide sustainable milk, coffee and cacao but have not aligned their policy with a specific ecolabel.³⁷ While there is a significant amount of anecdotal evidence suggesting the increasing importance of procurement policies and preferred-supplier contracts, and the theoretical underpinnings are sound, the data on which to base a more comprehensive policy analysis is inadequate.

Summary: Incentives to adopt ecolabels

The link between ecolabelling and economic incentives is obviously an important determinant of whether market forces on their own can promote voluntary environmental improvements. Especially in larger companies, ecolabels may have a number of intangible benefits, including building brand equity and protecting a company's license to operate. Indeed, short-term profit expectations are not the only factor influencing corporate decision-making. For many companies, however, there are probably two basic types of tangible economic incentives to be considered: increased profitability and the increased predictability of future profitability.

While one important component of profitability is certainly price premia, these should be considered in the context of long-term production costs and long-term prices. The evidence suggests that both short-term transition costs and short-term prices are higher than long-term averages. This may not be a problem. In fact, given that short-term transition costs are likely to be higher than average costs in the long run, the availability

³³ The main benefits ascribed to long-term supply contracts arise from the predictability of the demand, which enables more accurate planning and cost projections and can also smooth out fluctuations in prices. In some cases, long-term supply contracts may also reduce the role of intermediaries ('middlemen') and therefore increase the price paid to the producer. See, for example, Udomkit, Nuntana & Winnet, Adrian, 2002: 'Fair Trade in Organic Rice: a case study from Thailand', *Small Enterprise Development*, Vol. 13, No. 3, September 2002, pp. 45-53.

³⁴ Personal communication: Lutz Asbeck, Managing Director, Frozen Fish International, and leader of Unilever's Fish Sustainability Initiative (FSI) Team.

³⁵ UNECE, 2002: *Forest Certification Update For The UNECE Region – Summer 2002*, Geneva Timber And Forest Discussion Papers, ECE/TIM/DP/25, available at <http://www.unece.org/trade/timber/docs/dp/dp-25-cert.pdf>.

³⁶ Levi, Margaret and Linton: 'Fair Trade: One cup at a time?', *Politics & Society*, Vol. 31, No. 3, September 2003, pp. 402-32.

³⁷ 'Nestlé procurement policy for agricultural raw materials,' 28 May 2002, quoted in Stefano Ponte, 'Standards and Sustainability in the Coffee Sector: A Global Value Chain Approach', paper prepared for the Sustainable Commodity Initiative, International Institute for Sustainable Development, Winnipeg, Canada, 2003.

of a premium might be most significant in the short term alone. Nonetheless, it is important to consider the overall impact of uncertainty in important market characteristics, including the size of the market, ease of market entry and the size, if any, of a price premium. Regardless of the actual profit premium, without some predictability of the characteristics of the market for the ecolabel, it may be difficult for enterprises to justify investment decisions.

In this light, particularly due to anecdotal evidence suggesting that long-term profits will not necessarily be any higher in ecolabelled markets than in non-ecolabelled ones, it may be worth considering how preferential treatment in public and private procurement policies could help to make sustainable production more economically attractive than unsustainable alternatives. If it is not more economically attractive in the long run, it is unclear why market forces alone would prompt significant shifts in production patterns. In this context, it is relatively easy to conceive of ways that governments can support ecolabelling, both by creating their own incentives and by creating a policy framework that encourages private bodies to establish incentives as well. However, until there is more concrete data on ecolabels' impact on environmental performance, governments should consider conducting additional studies as the basis for undertaking such actions. Given the focus on market-based approaches in recent years, the apparent reluctance of governments to support the research needed to address these questions is hard to understand.

4. Ecolabelling and Trade Flows

One of the main reasons for opposition to ecolabelling has been that under certain circumstances it has the potential to negatively impact economic development through unjustifiably restricting market access by developing country producers to OECD markets. If ecolabels do unjustifiably impede market access and retard economic development in developing countries, this would be a compelling reason to reconsider their design or – in the extreme – to reduce their use. This section will consider the evidence of various impacts of ecolabelling on trade flows, focusing in particular on developing countries.

A 1997 OECD study of eight national ecolabelling programmes, including the Blue Angel programme, did not produce any hard evidence of changes in trade flows arising from these programmes. The study noted that fears and concerns had been voiced concerning potential effects.³⁸ However, the analysis of the effect of ecolabels on trade flows suffers from fundamental data deficiencies. In particular, because import and export statistics do not use different universal codes for tracking trade flows of ecolabelled and non-ecolabelled products, there is no information available on international trade in ecolabelled products. Absence of hard data has given rise to the use of proxy indicators, particularly percentage growth in market share, as an indicator for trade flows. In the absence of information on exports and imports, generalized data on trends in domestic market share obviously cannot be used to assess the impact of ecolabels on market access. Without this information, it is difficult to draw any reliable conclusions concerning the impacts of ecolabelling on market access and there is no way to assess whether developing countries have a greater or smaller share proportionally of markets for ecolabelled products as opposed to non-ecolabelled ones.

While it may be possible to quantify the positive economic effects of ecolabelling, it is extremely difficult to quantify the negative effects directly attributable to a specific ecolabel. A huge number of variables, including production levels, consumer preferences and a long series of other standards and technical regulations, influence trade flows. It is impossible to isolate from this larger group the actual impact of an ecolabel on market access. Consequently, discussions on the negative impacts of ecolabels frequently remain couched in theoretical generalities.

What can be said about the impact of ecolabels on trade flows? In fact, given the data available for this study, not very much can be said. The following section will outline the available information concerning the impacts of the five selected ecolabels on trade flows from developing countries. It will then outline some of the concerns raised by developing countries with regard to the potential negative impacts of ecolabelling programmes. However, it should be noted that the difficulty of isolating the negative impacts of ecolabels and the subsequent lack of quantitative data may lead to an underestimation of the negative impacts of ecolabelling on developing country market access.

³⁸ OECD, 1997: *Ecolabelling: Actual Effects of Selected Programmes*, OCDE/GD(97)105, Paris, France.

The Blue Angel labels

While some information is available on the market share achieved by certain Blue Angel labels, there is no information on the proportion of the market that is supplied domestically versus by imported goods. As a result, no meaningful information can be provided on the increase in trade flows for developing countries. Given the sheer number of different product categories under the Blue Label programme, and the unique market-based characteristics of each product category, it would be inappropriate to draw conclusions about the overall impact of the Blue Angel programme on developing country market access. Each specific product label would have to be assessed on an individual basis. On a more general level, it may be possible to predict approximate impacts by assessing compliance costs in developed countries (in terms of the necessary capital expenditure on equipment and human resources) and comparing this with capital constraints facing companies in developing countries.

Marine Stewardship Council certification

The most frequently cited source of information on the market for sustainable fish is a 1999 consumer survey carried out in the United States which suggested that there was a demand for ecolabelled fish products. This survey has been referenced in MSC promotional material.³⁹ Until the creation of the MSC, there was no internationally recognized ecolabel that could be used to monitor either the demand for or flows of sustainable fish products. As of June 2004, there were only ten MSC-certified fisheries – which may well be insufficient to catalyse significant market demand.⁴⁰ To date, there is no freely available information on the volume or value of the MSC market or, more generally, the market for sustainably produced fish. Because only two of the ten MSC-certified fisheries are located in developing countries,⁴¹ it is clear that the existence of the MSC has not yet led to significantly increased trade flows of fish products or sustainable fish products from developing countries.

Forest Stewardship Council certification

Information on the share of certified forest products (CFPs) in major import markets is often based on rough estimates.⁴² In the United Kingdom, respondents have provided a crude estimate of 10% of total volume of wood consumption and around 1% of paper consumption. In the Netherlands, one of the few countries with more reliable data, the current share of CFPs in total wood supply has been estimated at around 7%, or some 620,000 m³ (FSC and Keurhout⁴³ authorized wood), up from about 5 to 6% in the previous year.⁴⁴ An estimate

³⁹ Wessells, Cathy, Holgar Donath and Robert Johnston, 1999: 'US Consumers' Preferences for Ecolabeled Seafood: Results of a consumer survey,' University of Rhode Island, Department of Environmental and Natural Resources Economics <http://www.riaes.org/media/ecolabel.pdf>.

⁴⁰ As mentioned earlier in the report, market demand for ecolabelled products depends on awareness-raising and marketing activities. While the MSC does engage in publicity activities, these are marginal compared to the impact of in-store marketing campaigns. Until retailers are able to source significant volumes of MSC-certified fish, it is unlikely that they will invest in expensive publicity or marketing campaigns.

⁴¹ An additional 12 fisheries are under assessment, of which one is in a developing country. For information on MSC certifications and assessments, see http://www.msc.org/html/content_463.htm.

⁴² CFPs are not segregated and tracked separately in formal trade statistics. Many of the figures available in the literature have been collected using a variety of different methodologies, primarily through surveys of timber product companies. This is a somewhat imprecise approach. Also, many of the studies focus on different specific timber products, or categories of timber products, so that comparisons between studies are very difficult. In addition, given the high degree of competition between different certification programmes, the CFP sector is plagued by misinformation and unverified statistics. As a result, and to maintain a degree of consistency between the figures being compared, all the information included in this section has been taken from two UNECE publications: UNECE, 2002: *Forest Certification Update for the UNECE Region – Summer 2002*, Geneva Timber And Forest Discussion Papers, ECE/TIM/DP/25, available at <http://www.unece.org/trade/timber/docs/dp/dp-25-cert.pdf>; and UNECE, 2002: 'Forest Products Annual Market Review,' Timber Bulletin, Vol. LV, No. 3, ECE/TIM/BULL/2002/3, available at <http://www.unece.org/trade/timber/docs/tb/tim-bull-2002-3-cpcomplete-fpamr.pdf>.

⁴³ The Dutch Keurhout system has recently been withdrawn. It is no longer in operation.

⁴⁴ An FSC-backed study of The Netherlands' timber market suggests that in 2001 FSC-certified forest products had captured 7% of the construction and do-it-yourself (DIY) markets, of which roughly 42% was from imports. The summary of the study did not indicate whether these were developed or developing country exports.

from Denmark is 500,000 m³. Switzerland reported about 400,000m³, or 5 to 10% of total roundwood supply. In Germany this share, estimated at less than 1% in 2001, remains low but is reportedly growing. Other countries, such as Belgium, have provided rough estimates of up to 5%.

Overall, the market share of CFPs compared with total volume of wood supply in Europe appears to have been less than 5% as of mid-2002. The UN Economic Commission for Europe (UNECE) studies from which this information has been taken do not include any information on the total value of these markets. They also note that no official statistics are available on the trade in CFPs, which is not tracked in official trade statistics.⁴⁵ Valuation of the market for CFPs is complicated by the fact that few sources indicate exactly what range of forest products is included in the figure they have calculated. Without this information, it would be imprudent to make comparisons of data from different sources. Even data on total certified area is somewhat misleading, as there is no direct relationship between certified forest area and the annual volume of forest products that can be harvested from the forest area. Perhaps the best proxy is the use of annual allowable cut figures, but these are not provided in a consistent fashion.⁴⁶

It is estimated that 2% of total wood consumed in the US and less than 1% of paper consumed is ecolabelled. In Canada, the estimate is more than 5% of wood and paper products. A larger share of CFPs is reported to be labelled in the wood sector than in the paper sector in many countries. CFPs are estimated to represent around 23,000 m³ or 0.02% of total wood consumption in Japan.

The supply of CFPs is determined by the supply of certified forest areas. Forest certification has been dominated by six main programmes: those of the Forest Stewardship Council (23% of certified forests), the Pan European Forest Certification (PEFC) system (34%), the Sustainable Forestry Initiative (SFI) in North America (26%), the Canadian Standards Association system (CSA), the recently initiated American Tree Farm System (ATFS) and the recently withdrawn Dutch Keurhout system, which was mostly active in tropical forests. Of the six main certification programmes, those of the FSC and the Keurhout system are the only ones that have been active in developing countries, with 18% and 100% respectively of their certified forests located there. Roughly 10% of the total certified land area is currently in developing countries, compared with 1996 when 70% of all certified forests were in these countries. It should be noted that these figures indicate total certified forest area rather than the percentages of ecolabelled goods in the marketplace.

To qualify for an ecolabel, a forest product must come from a certified forest area and be produced, distributed and marketed according to a chain-of-custody process that ensures traceability from forest to shop floor. While the PEFC, SFI and CSA programmes have certified significant areas of certified forests, until recently they have not had an associated chain-of-custody system. Therefore, products derived from forested areas certified by these programmes could not be ecolabelled. Roughly 94% of all chain-of-custody certificates are currently issued by the FSC. This means that a roughly corresponding percentage of ecolabelled forest products have also been FSC-certified products.

The most important market for CFPs consists in retailers and other corporate buyers. Some buyers require only that the forest products originate in a certified forest area, not that they be ecolabelled. The total market for certified forest products is therefore larger than the volume of ecolabelled products. For example, in 2002 the total annual supply of CFPs was estimated at about 234 million m³. In the case of some market segments, such as roundwood, several large producing countries were able to supply up to 100% of total forest product demand

⁴⁵ Levi and Linton, *op. cit.*

⁴⁶ Information on total annual allowable cut (AAC) for different certification programmes is available from some trade magazines. The author did not consult them for the purposes of this study.

from certified forests sources. Consequently, only a small fraction of the supply of CFPs is actually marketed as an ecolabelled CFP to meet individual consumer demand.

In the absence of detailed information on trade flows from developing countries, it is difficult to assess the market share of developing country CFP producers. However, given that entry into the CFP market requires a chain-of-custody certificate, that the vast majority of all chain-of-custody certificates are issued for FSC-certified producers, and that 18% of FSC-certified forests are in developing countries, it is safe to assume that the total share of ecolabelled CFPs supplied by developing country producers is proportionately larger than the 10% of certified land area in these countries. Because private buyers do not always require ecolabels on the CFPs they purchase – and therefore are not restricted by chain-of-custody considerations – it is difficult to reach credible conclusions on the total share of CFPs supplied by developing countries. If all private buyers required ecolabels, and therefore chain-of-custody requirements, the FSC market share could be expected to increase.

Fair trade labels

Annex 1 presents information on the growth in market share of a range of commodities for which fair trade standards exist. Since all fair trade products originate in developing countries, the entire market for fair trade products can be considered to be sourced from these countries. While the rate of growth in fair trade markets is significant, overall market penetration by fair trade products is relatively insignificant. For example, the relative proportion of total world trade for any single commodity listed is no greater than 0.2% (bananas, 2000). The volume of fair trade sugar increased by 38.8% between 2001 and 2002, but the total volume represented less than 0.0019% of global sales.⁴⁷ The total value of certified sustainable coffee sold in 2000 is reported to have been US\$ 565 million, or roughly 1% of the global coffee market.⁴⁸ Although the data does not distinguish the relative share of fair trade coffee, it does give a sense of the relative size of the market for sustainable coffee. It is also worth noting that the vast majority of fair trade sales occur in just three countries: Switzerland, Germany and the UK. Unless efforts are made to increase its presence in other countries, or to promote the spread of fair trade through public and private procurement policies, the growth of fair trade sales may be limited.

IFOAM accreditation

Annex 2 presents market information on the main organic markets in developed countries. As was the case with fair trade, while the growth rates for organic sales are tremendous (averaging between 5 and 20% per year depending on the market and the product category), the share of organics as a percentage of total food consumption is still very small. In most countries, organics represent roughly 2% of total food consumption. The highest share is in Switzerland, with between 3.2 and 3.7%.⁴⁹ No information was found on the rates of growth of exports from developing countries, or on the relative market share of IFOAM-accredited organic labels versus other types. Until organic products are classified differently and given a distinct universal product classification code, it will be very difficult to reach more concrete conclusions.

⁴⁷ See Annex 1 for detailed information. It should be noted that fair trade sugar is marketed to final consumers, not to industrial buyers. The majority of sugar traded on the global market is sold to industrial buyers. Thus, the share of fair trade sugar in the retail market is certainly much higher than the figure shown above. If the objective of fair trade sugar standards and labelling is to influence the retail market, the above figures are not relevant. However, if the objective is to influence total sugar production and trade, it should be recognized that consumer-focused ecolabels are only capable of influencing a small share of total production.

⁴⁸ Ponte, *op. cit.*

⁴⁹ Yussefi, Minou, and Helga Willer (eds.), 2003: 'The World of Organic Agriculture – Statistics and Future Prospects – 2003, International Federation of Organic Agriculture Movements, Tholey-Theley, Germany.

Potential impacts of ecolabelling

As mentioned earlier, no reliable information is available on the extent to which any of the five ecolabels has affected trade flows from developing countries because of their possible role as technical barriers to trade. To date, almost no concrete concerns have been expressed within the WTO or any other forum regarding a specific Type I ecolabelling programme. Concerns have tended to be general in nature and to be directed at environmental labelling in general.⁵⁰ A review of the potential negative impacts of ecolabelling can do little more than summarize the widely expressed but largely unsubstantiated concerns expressed by WTO members. Considering the volume of documents that provide comprehensive overviews of the kinds of problems that exist, this report will restrict itself to a general overview.

To understand the range of concerns expressed by WTO members, it is important to note that within the WTO context an ecolabel is treated as a specific type of standard, accompanied by a mark of conformity. Therefore, virtually all the concerns WTO members have expressed about standards and conformity assessment procedures, and virtually all the problems they have with implementing the Agreement on Technical Barriers to Trade (TBT), exist in the context of ecolabelling.⁵¹ This section outlines some of the requirements in the TBT Agreement and problems associated with their application in the case of ecolabelling.

The TBT Agreement outlines certain procedural obligations that are intended to ensure that standards, technical regulations and conformity assessment procedures are not prepared, adopted or applied by one member in such a way that they impose unnecessary or unjustified barriers to trade on other members. In particular, Annex 3 of the TBT Agreement outlines a Code of Good Practice (Standards Code): a number of requirements relevant to the development of voluntary standards. The first of these procedural requirements is the use of international standards.

Article F of the Standards Code calls on standards bodies to base their work on relevant existing or imminent international standards. This presents problems in the case of ecolabels. One problem is that, apart from the generic ISO 14020 series of ecolabelling template standards and the generic ISO 14040 life-cycle assessment standards, both of which are tools for *developing* ecolabels rather than actual ecolabels, there are very few international ecolabels. Ecolabels are generally developed based on national environmental priorities and preferences. They have evolved outside the context of traditional national standards bodies, and therefore outside the context of international standardization infrastructure. Moreover, there is no working definition of 'international standard' in the TBT Agreement.

Because there is no legal basis for ensuring that new standards do not overlap or conflict with existing ones, there is no check on the proliferation of ecolabels. Since developing countries are standards takers, some in the trading community argue that a proliferation of ecolabels can greatly increase the cost to these countries of accessing different markets. This is one of the main complaints expressed by developing country exporters. In the case of each of the five ecolabels discussed in this report, there is a variable degree of competition between different standards and frequently there is no scientific information available to justify the differences. Some experts believe that some bodies that develop ecolabels have been set up for the express purpose of offering an

⁵⁰ Polak, John, 2003: 'Trade as an Environmental Policy Tool? GEN, Ecolabelling and Trade,' paper presented at the World Trade Organization Public Symposium: Challenges Ahead on the Road to Cancun, 'Ecolabelling: Trade Opportunities & Challenges', 16-18 June 2003. One exception has been the March 1998 submission by the Colombian Government to the WTO CTE CTBT setting out its concerns about the various European ecolabelling schemes for flowers. See WT/CTE/W/76 and G/TBT/W/60, World Trade Organization, Geneva, 9 March 1998.

⁵¹ Both the Agreement on Technical Barriers to Trade (TBT Agreement) and the Agreement on Sanitary and Phytosanitary Provisions (SPS Agreement) contain provisions relevant to ecolabelling. For the sake of clarity and simplicity, this paper focuses on the TBT Agreement.

alternative to existing ecolabels, either as a way to add confusion to the marketplace or to provide alternatives with less strict criteria.⁵²

Articles J, K, L and M of the Standards Code address issues related to transparency and coordination. They call on standards bodies to publish a work plan every six months, to associate with national members of ISONet,⁵³ to allow comment periods of at least 60 days, to publish a notice of the comment period, and to provide drafts of standards for comment to any interested party within the territory of a WTO member. Because most ecolabels are developed by non-governmental bodies outside the traditional standards networks and infrastructure, it is likely that many ecolabel practitioners are unaware of (or lack the means to implement) these procedural provisions. In some cases, traditional national standards bodies (e.g. ISO member bodies) are unwilling to interact with non-traditional standards bodies developing ecolabels, and vice versa. As a result, it is often very difficult for producers in one country to obtain timely information on the existence or specific requirements of an ecolabel in another country.

Article 5.1.2 of the TBT Agreement requires WTO members to encourage non-governmental standards bodies operating within their territory to ensure that conformity assessment procedures are no stricter than necessary. The cost of third-party certification has been identified generally as a particular concern of SMEs and low-cost producers in developing countries. From a trade barrier perspective, the important issue with regard to certification costs is whether these costs are relatively higher in developing countries than in developed ones. Statistically significant data on the costs of certification does not exist, but it is widely accepted that certification costs are a function of:

- the availability of domestic certification (and hence accreditation) services;
- the size of the facility; and
- the gap between existing practices and the requirements of the ecolabel.

The accepted wisdom is that conditions in developing countries are such that each of these factors contributes to relatively higher certification costs vis-à-vis those in developed countries. It is also significant that the only conformity assessment procedure accepted by most ecolabelling programmes, and all of the programmes addressed in this report, is independent third-party certification. It would be worthwhile to assess whether some markets would accept second-party certification or self-declarations of conformity for some types of ecolabels under some circumstances.

Article 6.3 of the TBT Agreement requires WTO members to encourage non-governmental standards bodies operating within their territory to be willing to enter into negotiations for the conclusion of agreements on the mutual recognition of conformity assessments procedures. As mentioned above, many ecolabels, including those of the FSC, MSC and FLO, maintain a monopoly over the accreditation of conformity assessment service providers and therefore do not enter into mutual recognition agreements with other competent bodies. FSC auditors are also forbidden from certifying to any other SFM standard. Experience with mutual recognition agreements is very thin on the ground. However, a system for mutual recognition has been established under the Japanese national organics regulation, whereby Japanese-accredited conformity assessment bodies can enter

⁵² 'Building Bridges: Ethical Standards, Sustainable Development and Trade', meeting report, Geneva, Switzerland, 12-13 June 2003, meeting sponsored by the Rockefeller Brothers Foundation and GTZ; on file with the author.

⁵³ ISONet (the ISO Information Network) is an agreement between standardizing bodies to combine their efforts in order to make information on standards, technical regulations and related matters readily available whenever it is required. See <http://www.wssn.net/WSSN/RefDocs/isonetdir/introduction.html>.

into 'trust contract of providing inspection data' with International Organic Accreditation Service (IOAS)-accredited certifiers in the country of production.⁵⁴

Summary: Implementation-related impacts

As mentioned above, the lack of data available makes it impossible to quantify (and difficult even to identify) barriers to market access arising from environmental requirements, certainly in the case of the five ecolabels on which this report focuses. Although the World Bank has conducted a significant amount of research on how to value the impact of Sanitary and Phytosanitary (SPS) requirements,⁵⁵ the author is not aware of any similar work being carried out in the area of environmental requirements. Given the difficulty of isolating an ecolabel's impacts on market access from the variety of other variables with such impacts, it is unclear how these concerns could be accurately isolated and quantified. In addition, without an estimation of the benefit of the ecolabel in terms of reductions of environmental impact, a consideration of costs in terms of reduced market access would be from a relatively one-sided perspective.

The TBT Agreement contains many provisions that are directly and indirectly related to the preparation, adoption and implementation of ecolabels and to conformity assessment services operated by non-governmental bodies. If standards bodies comply with these provisions, their activities are assumed not to impose unnecessary obstacles to trade. Many of these provisions are procedural in nature and not particularly onerous, such as the requirement that a standards body provide a summary of its work plan every six months. Others impose certain structural requirements and are more difficult to implement, such as the requirement that foreign conformity assessment bodies have equal access to a conformity assessment process. While it is possible to say that each of the five selected ecolabelling programmes has failed to fully implement all of the relevant provisions of the TBT Agreement, the barriers to trade associated with any specific implementation concern cannot be quantified.

It is also important to note that even if a standards body complies with all of the provisions of the TBT Agreement, a standard that it develops may still create barriers to trade. The reason is very simple: without access to a basic institutional infrastructure, a company may not be aware that a standard exists or may not be able to demonstrate that it is in compliance with the standard.

Three complex functions are important in this respect: rule-making (standardization and regulation), conformity assessment and accreditation. As demonstrated by the recent OECD and UNCTAD case studies, the majority of trade impacts related to standards of any kind arise from (or are complicated by) a basic lack of capacity in these institutions. It is for this reason that Dr. Eve Kasirye-Alemu, Executive Director of the Ugandan National Bureau of Standards, states that 'Without technical assistance on TBT issues, the TBT provisions are in themselves barriers to trade.'⁵⁶ From this perspective, while ecolabels may impose *additional* burdens on companies in developing countries – in the same way that any new requirement adds to the total burden – they do not necessarily impose *greater* burdens than any other kind of standard or technical regulation. That said, if an ecolabel's requirements have not been designed with a clear understanding of the domestic environmental, social and economic context of the developing country, adoption of the ecolabel could impose inappropriate requirements. This is the warning of Rio Principle 11.⁵⁷

⁵⁴ See, for example, OECD, 2002: *Government Regulations Affecting Trade in Products of Organic Agriculture*, COM/ENV/TD (2002)86/FINAL, p. 22.

⁵⁵ Compare K.E. Maskus, T. Otsuki and J.S. Wilson, 2001: 'An empirical framework for analysing technical regulations and trade', Chapter 2 in *Quantifying the Impact of Technical Barriers to Trade: Can it Be Done?*, University of Michigan Press.

⁵⁶ From a presentation made to the WTO CTBT Workshop, July 2000.

⁵⁷ Personal communication: experts in Brazil, South Africa and Costa Rica.

That said, the responsibility for addressing this problem lies above all with developing countries, which should take the initiative to convene national consultation processes to assess their priority needs and to consider proposals on how they can be addressed. Requests for technical assistance with TBT implementation can only be effective if they are integrated into national economic development and poverty reduction strategies, so that bilateral donors and development assistance agencies learn about these needs from their national contact points. Only then can developed countries acknowledge their obligations under Article 11 of the TBT Agreement and begin to invest more in technical assistance to developing countries.⁵⁸

⁵⁸ For more on this, see Tom Rotherham, 2003: 'Implementing Environmental, Health and Safety (EH&S) Standards, and Technical Regulations: The Developing Country Experience', available at http://www.tradeknowledgenetwork.org/pdf/tkn_standards.pdf.

5. Overview of Discussions Within the WTO

The previous section provided an overview of the different reasons why ecolabels can have trade impacts. It suggested that there are very few fundamental differences between ecolabels and other types of standards. This section will review some of the obstacles to addressing ecolabels within the WTO and consider whether the WTO is the appropriate forum for the discussions.

Ecolabelling has been part of the work plan of the Committee on Trade and Environment (CTE) since 1994. The third item of its original work plan was to investigate:

The relationship between the provisions of the multilateral trading system and:

- (...)
- *Requirements for environmental purposes relating to products, including standards and technical regulations, packaging, labelling and recycling*⁵⁹.

Discussions at the September 1994 meeting covered almost all the issues that would crop up over and over again during the next nine years, including products, process and production methods, extraterritoriality, international standards, technical assistance and a host of others. However, until the Doha work programme, which gave the CTE its mandate to address ecolabelling, no WTO body has had a formal mandate and a strict reporting deadline.

Prior to the slowdown in negotiations on agriculture and other areas in the months leading up to the Cancun Ministerial, this was seen as a compelling reason to hope that the CTE might actually make some progress. As it turned out, the European Commission was unable to secure the support it needed even to bring forward a watered down proposal on ecolabelling. This was a proposal to convene three additional technical sessions in the CTE dedicated to ecolabels.

There is no question that the collapse of talks in Cancun made progress on minor issues such as labelling for environmental purposes all but impossible. However, even without the distraction caused by more important negotiating agendas collapsing around them, WTO members would have been unlikely to agree even to the EC's modest proposal to keep talking. There are several structural and political obstacles to addressing ecolabelling within the WTO, which will be discussed below. Fundamentally, however, whether the WTO should consider the question of ecolabelling further depends on a number of factors, including:

- evidence of the trade-related effects of labelling;
- the capacity of the WTO to undertake research and analysis of environmental matters;
- its capacity to address the actions of non-governmental organizations;

⁵⁹ PC/SCTE/M/3/Rev.1*; para 2.

- whether ecolabels (particularly those focusing on production-related environmental impacts) fall within the scope of WTO Agreements;
- whether ecolabels are covered by WTO Agreements, whether they are presently permitted, and what changes would be required in order to regulate them; and
- whether WTO members have a political interest in negotiating these changes, in light of other priorities.

The CTE has no authority and the CTBT will not focus on ecolabels

The CTE acts solely as a convener for discussions on ecolabelling. It does not have any formal authority for rule-setting in this area. While it has a mandate to make recommendations on ecolabelling, what happens to its recommendations depends on the Committee on TBT (CTBT), which could decide either to address the CTE's recommendations itself or to give the CTE a negotiation mandate in those areas.

There are only two formal mechanisms by which the CTBT or CTE could establish concrete new rules or guidelines: through reopening and revising the TBT Agreement, or through the Triennial Review process.

Currently, WTO members are almost unanimous in their opposition to reopening the TBT Agreement. It has always been very unlikely that the CTE would recommend opening formal negotiations on ecolabelling. Realistically, the only recommendation that the CTE could have made would have been to address specific issues within the context of the 3rd Triennial Review of the TBT Agreement. Unfortunately, paragraph 32(iii) gave the CTE until the Cancun Ministerial – which took place after the agenda for the 3rd Triennial was to have been completed – to make its recommendations. More importantly, the CTBT had already agreed to address labelling in general during the 3rd Triennial Review process. In the absence of compelling evidence that ecolabelling should be treated differently from other types of labelling, the CTBT would not have accepted any recommendation to include a specific agenda item on ecolabelling in its 3rd Triennial Review process.

The 3rd Triennial Review has now been completed and the Report of the 3rd Triennial Review has been published.⁶⁰ The process of negotiating the Report and recommendations of the 4th Triennial Review will not begin until 2006. It may appear that this is a long time to wait before any concrete actions can be taken on ecolabelling, but the hiatus should also be seen as an important opportunity for governments to look for solutions outside the WTO.

The TBT Agreement does not impose obligations directly on non-governmental bodies

Although the TBT Agreement contains provisions that are directed at non-governmental standards bodies, including the Annex 3 Standards Code, there is no direct obligation for non-governmental bodies to comply. Neither is there a mechanism for assessing or imposing compliance. The TBT Agreement imposes obligations on WTO members, not on independent organizations. While Article 4.1 of the TBT Agreement states that

[Members] shall take such reasonable measures as may be available to them to ensure that local government and nongovernmental standardizing bodies within their territories, as well as regional standardizing bodies of which they or one or more bodies within their territories are members, accept and comply with this Code of Good Practice

⁶⁰ WTO/G/TBT/13, available at <http://docsonline.wto.org/DDFDocuments/t/G/TBT/13.doc>.

discussions with delegates to the CTBT have suggested that there is general unwillingness to interfere in the actions of private bodies by actively imposing these requirements.⁶¹ Of the five ecolabelling programmes considered in this report, only the Blue Angel programme operates under the authority of a national government, and even then it is not under that government's direct control. It can be expected that this issue, which deserves significantly more attention than it has received to date, will be discussed further both within and outside the WTO.

Like products and non-product related PPMs⁶²

By far the greatest obstacle to resolving the ecolabelling debate within the WTO is the issue of whether two products can be differentiated solely on the basis of different environmental impacts. To date, it has been generally accepted that labels whose requirements result in differences in the physical characteristics of a product are included under the scope of the TBT Agreement – even if the change in physical characteristic comes about as a result of a requirement that addresses processes or production methods.

A question mark hovers over labels whose requirements do not refer to physical differences between products or nprPPMs (non-product related Process and Production Methods) but to environmental effects associated with their production. The debate centres on the legal interpretation of the term 'like product'.

This is not a problem of semantics. It is a widely held view in the trade policy community that international trade rules must be based on a strict definition of 'like product'. On the other hand, it has also been recognized that ecolabelling is an effective way to help consumers distinguish between products on the basis of whether they have been sustainably produced, and that governments should be able to use ecolabelling in pursuit of a legitimate public policy objective: promoting sustainable development. Unless they incorporate nprPPMs, ecolabels can only address the consumption impacts associated with products and services and not a product's complete life cycle. The implications are clear from an environmental policy perspective, but there are also implications from an economic perspective. Unless ecolabels can incorporate nprPPMs, they will not be an effective means of capturing the rents associated with a wide range of PPM-related environmental preferences.

The likeness of products is determined on a case-by-case basis within the WTO.⁶³ Prior to the establishment of the WTO, the first General Agreement on Tariffs and Trade (GATT) cases to address the issue from an environmental perspective were the 1991 US-Mexico and the 1994 US-EC disputes concerning a US ban on tuna products caught using methods that led to dolphin by-catch. The Panel Reports, which were not adopted, stated that only the characteristics of the final product were relevant under the GATT, in effect prohibiting any trade measures based on PPMs. This approach was not, however, adopted by the WTO Appellate Body. In the Appellate Body's 2001 report in the Shrimp-Turtle Case, it ruled that WTO members can use Article XX to justify the '*imposition of conditions on imports*' PPMs to accomplish environmental objectives both outside their jurisdiction and in the global commons' as long as they are applied in ways that do not discriminate between WTO members. This clarified the application of Article XX and opened the door to the integration of nprPPMs into trade measures.

The most recent ruling on issues of 'like product' arose in the EU-Asbestos Case. Canada claimed that asbestos fibres, which were banned under a French decree, were 'like' other similar non-asbestos fibres that were not

⁶¹ Personal communication: delegates to the CTBT.

⁶² For a more detailed discussion of PPMs, see Howard Mann and Stephen Porter, 2003: *The State of Trade and Environment Law 2003: Implications for Doha and Beyond*, published by IISD and available at http://www.iisd.org/pdf/2003/trade_enviro_law_2003.pdf.

⁶³ See, for example, the Appellate Body's discussion of case-by-case approaches in *European Communities – Measures Affecting Asbestos And Asbestos-Containing Products*, WT/DS135/AB/R, p. 38.

banned. The Panel Report in the EU-Asbestos Case clearly defined four criteria which, among others, could be used when determining likeness. These are:

- the product's properties, nature and quality;
- the product's end use;
- consumers' tastes and habits, which change from country to country;⁶⁴ and
- tariff classification.⁶⁵

The Dispute Panel ignored the relative health risks associated with asbestos when assessing its likeness with other types of fibres. The Panel suggested that although the concept of risk is relevant to the justification of the objective of a trade policy measure, it could not be used in the assessment of likeness of products. The Appellate Body disagreed with this finding and indicated that health risks may be taken into account when determining likeness as long as this distinction has commercial or competitive implications.⁶⁶ It is plausible that this approach would also apply in instances where the associated risk was to animal or plant health, which is more relevant to the issue of ecolabelling.

While the Shrimp-Turtle case removed the barrier to PPMs-related trade measures, the EU-Asbestos case for the first time ignored the history of considering only direct product-related impacts, with important implications for the inclusion of environmental or human health concerns into the assessment of like product. This made it likely that in any future PPMs cases both Articles XX and III would have to be considered.⁶⁷ Several independent experts on trade law have also suggested that there is nothing within the WTO Agreements to support the view that nprPPMs should be treated any differently than other types of requirements.⁶⁸ However, the debate on nprPPMs will not be resolved through trade law analysis alone: it is also a political issue. Many developing countries currently do not have the capacity to implement their TBT Agreement obligations. They also lack the institutional infrastructure needed to benefit from their rights under the TBT Agreement. Why, then, would they agree to extend the scope of the Agreement to a whole new range of issues? This question will only be resolved slowly over time, both through the adjudication process (as more cases involving nprPPMs come before Dispute Resolution Panels) and as developing countries increase their capacity to implement and benefit from the TBT Agreement.

Are ecolabels the least trade-restrictive measure available?

Some WTO members have claimed that labelling may not be the least trade-restrictive way to provide information to consumers. Canada, among other countries, has suggested that toll-free hotlines and informational brochures might achieve the same objective with fewer trade impacts. Although members have not yet formally debated the effectiveness of ecolabelling measures, this issue is of fundamental importance to the debate on the future of ecolabelling inside and outside the WTO. This issue will be discussed in greater

⁶⁴ These first three tests were established in the Report of the Working Party on Border Tax Adjustments (1970) and have been repeated in other cases including Japan - Taxes on Alcoholic Beverages, EEC - Measures on Animal Feed Proteins, Japan - Customs Duties, Taxes and Labelling Practices on Imported Wines and Alcoholic Beverages, and United States - Standards for Reformulated and Conventional Gasoline.

⁶⁵ This fourth test was established in the Panel and the Appellate Body in Japan - Alcoholic Beverages (1987).

⁶⁶ For more on the implications of the Asbestos Case ruling, see S. Zarrilli and I. Musselli: 'Non-Trade Concerns and the WTO Jurisprudence in the Asbestos Case - Possible Relevance for International Trade in Genetically Modified Organisms,' *The Journal of World Intellectual Property*, Vol. 5, No. 3, May 2002, pp. 373-393.

⁶⁷ *Ibid.*

⁶⁸ See Robert Howse, 2000: 'The Product/Process Distinction - An Illusory Basis for Disciplining "Unilateralism" in Trade Policy,' *European Journal of International Law*, Vol. 11, No. 2, 2000; and Steve Charnovitz, 2000: *Solving the Production and Processing Methods Puzzle*, WTO Series No. 5, Occasional Paper of the Program for the Study of International Organizations, Graduate Institute of International Studies, Geneva.

detail in the following section. If we cannot define or measure what the trade impacts of ecolabels are, we cannot say whether they are more or less trade restrictive than any other trade measures. However, if it is possible to demonstrate that trade impacts are associated with an ecolabel, but there is no accompanying evidence that the ecolabel is an effective environmental policy tool, it is quite likely that a dispute panel would be inclined to strike the measure down.

A subtler example of this issue arises if there are competing standards, but no evidence that one ecolabel is more effective than another. The absence of research in this area means that it is currently unclear whether any ecolabels could credibly claim to be more effective in achieving their objectives than the competitors.

Summary: What do governments hope to achieve within the WTO?

There are a number of short-term obstacles to addressing ecolabels through the WTO. Most importantly, there is an underlying conflict between (and even within) some WTO members. On one hand, most members accept that nprPPMs-based measures are covered under the TBT Agreement but assert that the disciplines are not adequate to address the complex issues arising out of their use. On the other hand, there is concern about the systemic implications of blurring the distinction between ‘like products’ and the perceived danger of a gradual shift towards more frequent use of mandatory rather than voluntary labelling measures.

Complicating this issue is the fact that any shift towards the acceptance of nprPPMs in the area of environmental issues would almost certainly be seen by developing countries as increasing the likelihood that labour standards could become the basis for labelling or other types of trade-related measures. Until developing countries have the institutional capacity to benefit from the TBT Agreement, or until ecolabels become such a pervasive barrier to trade that there are greater benefits than costs to bringing them within the scope of the TBT Agreement,⁶⁹ it is unlikely that discussions in the CTE will lead anywhere.

Even if WTO members agreed to address the nprPPMs issue, there are other reasons to doubt that there can be any short-term progress. First, none of the members has any desire to open the TBT Agreement to renegotiation. Second, the CTBT has already completed its 3rd Triennial Review of the TBT Agreement, which included discussions on labelling in general. Until there is compelling evidence that ecolabels deserve special treatment, it is unlikely that they will be addressed in discussions leading up to the Report and Recommendations of the 4th Triennial Review. Even if this issue did creep into the 4th Triennial Review, the TBT Agreement has no mechanism for imposing obligations on non-governmental standards bodies.

The WTO is unlikely to be able to take any actions on this issue, given its politicization in the organization, the structural obstacles to addressing the issue noted above, the fact that the evidence does not support proposals that ecolabels be treated differently in WTO rules from other types of standards, and the fact that WTO provisions impose requirements only on governments. This in itself is a compelling reason to look for another forum in which to try to address the many information gaps, and also to seek solutions to specific problems.

The important point here is not that ecolabels are ineffective – they certainly are effective in some circumstances, and to some degree – but that information related to assessments of their effectiveness currently does not exist. This information must be obtained through collaboration between (and research in) a number of countries and organizations. It is not the WTO’s mandate to provide a forum for this research and collaboration. Furthermore, in the absence of any clear evidence that ecolabelling is an effective policy tool, it

⁶⁹ Discussions with some developing country delegates suggest that some, at least, are beginning to accept that the benefit of having a consistent legal framework in which to address ecolabels may more than offset concerns over the use of environmental requirements in trade policy.

is hard to see why governments would expend any political capital on this issue within the WTO at all. To address the issue within the WTO, members would not only have to be convinced that problems arising from the use of ecolabelling are a priority concern, but also that ecolabels actually fall under the terms of the WTO Agreements. This is something to which developing countries in particular are hesitant to agree. While other forums or organizations would also have to consider the urgency of this issue within their broader mandates, they would not have to reach such a difficult consensus on whether ecolabelling can be formally discussed at all.

6. Future Trends in Ecolabelling

It was suggested earlier in this report that ecolabelling should often be seen as a tool that facilitates the development of a commercial relationship between parties that want to purchase products or services with specific environment-related characteristics and parties that are able to supply these products. As suggested above, the purchaser wanting to buy a product or service is not always the final consumer. Retailers and governments are also important purchasers. The market for certified forest products has shown that retailers do not require an ecolabel. They are often content with a supplier's declaration of conformity, a second-party audit or a third-party audit that does not lead to the application of an ecolabel. In the context of future trends, this is an extremely important point. Are ecolabels necessarily the only communication tool that purchasers will accept? The answer is almost certainly no.

The need to actually apply a label depends on the nature of the relationship between the producer and the customer (either an individual consumer or a commercial buyer). The cases of the IFOAM and the FSC are instructive. In the case of organic agriculture, where the customer is the individual consumer, a mass market is being supplied by an entity with which the vast majority of consumers have very little direct relationship. The consumer is also unlikely to have the capacity to undertake tests to ensure that the product is in fact organic, and probably has very minimal ability to sanction the producer if it is found that the producer is dishonest. Thus, a physical label is needed in order to overcome a lack of trust between producer and consumer.

In the case of the FSC, the relationship is between the producer and a relatively limited number of buyers. It is quite likely that the producer and buyer have maintained a relationship over a number of years, and so understand and trust each other. It is true that the purchaser of CFPs does not have much capacity to determine whether a product is actually from a sustainably managed forest, but the purchaser has considerable ability to sanction a dishonest producer by denying them future supply contracts. Given the market power of retailers like IKEA, Home Depot and B&Q, this is not something most producers would risk lightly.

The lesson here is that the physical application of a label is not always important to the effectiveness of a market-based initiative to promote sustainable production. Labels are likely to be important where initiatives promote sustainable consumption, but only if the customer is the individual consumer. Sustainable procurement policy is a very important driver for change. It is not obvious that all relationships between producers and public or private buyers need to be facilitated through the use of a physical label fixed to the product. This is extremely important in the context of two other trends.

First, there has been a gradual shift in the focus of environmental requirements from the physical characteristics of a single product or product line (e.g. Blue Angel) to the management of a whole production facility (e.g. the FSC and MSC, Max Havelaar,⁷⁰ the IFOAM) and – in the form of corporate codes of conduct and policy statements – to the overall activities and impact of entire companies (e.g. the Global Compact). No longer are companies concentrating solely on producing a few green product lines. Their entire corporate policy considers

⁷⁰ Max Havelaar is one of the initially separate programmes that established the Fairtrade Labelling Organizations International (FLO).

environmental and social responsibility. Increasing attention to supply chain responsibility has accelerated this evolution.

Second, consumers are increasingly focused on a complex range of environmental and social issues. They understand that sustainability (or responsibility) requires a fine balance between these concerns, something that they might not have the time or ability to comprehend. Consequently, the public is turning to what they perceive to be responsible organizations that can do the research and recommend responsible products and services. In many respects, this is the role played by the FSC. Its association with the NGO movement and WWF, in particular, has made it an unimpeachable source of good advice in the eyes of the public. Companies adopting the FSC label are, in effect, co-branding their products and benefiting from the positive associations associated with FSC and its supporters. As mentioned, the most frequent reason given for companies' support of the FSC is not the environmental effectiveness of the standard, but the fact that it has been developed in a multi-stakeholder forum.

Why is this important? In the context of this report, it is important to the extent that such an evolution will also change the nature of relationships, and hence the need for physically applied ecolabels. An informal survey of senior executives responsible for sustainable development policy at 20 major European companies identified the major drivers for voluntary actions by companies.⁷¹ The main drivers for sustainability were employee concerns, access to capital and reputational risk management, or protecting the 'license to operate'. While these issues concern a large share of the general public (i.e. anyone who is an employee, investor or voter), they are not directly linked to consumption.

One of the most important outcomes of these trends towards holistic corporate social responsibility, and away from a focus on product lines alone, is that commercial policy is becoming a much more important factor in spreading environmental requirements than formal trade policy – at least for some types of ecolabels. While the WTO's TBT and SPS Agreements provide a framework for addressing these issues when they are integrated into trade policy (however imperfectly), there is no framework for ensuring that supply chain requirements are developed, adopted and implemented in a way that does not create unnecessary barriers to market access. This is something that deserves a great deal of attention and could well represent some of the concerns about environmental requirements and market access expressed by developing countries.⁷² Environmental standards, whether technical regulations imposed by WTO members or supply chain requirements imposed by buyers, require the same basic institutional infrastructure and technical assistance.

The fact that the TBT and SPS Agreements contain many of the elements that might usefully be applied to supply chain requirements does not imply that the WTO is a good place for further discussions. As mentioned in the preceding section, there are a number of political and logistical obstacles to addressing these issues within the WTO. Furthermore, the WTO is a forum for negotiating the rights and obligations of countries, not of the private bodies developing ecolabels or companies applying ecolabels through purchasing policies.

Given the increasing pressure on companies (from the public, regulators, financial markets or buyers) to demonstrate corporate social responsibility, it is very likely that environmental requirements in the short to medium term will increasingly spread through the supply chain and private procurement policies rather than through consumer demand or formal trade policy. With the massive industry concentration that has occurred in

⁷¹ Study undertaken by the author for the Centre for the Management of Environmental Resources (CMER), INSEAD, France. Confidential data on file with the author.

⁷² In the author's experience, very few developing country officials or exporters make clear distinctions between environmental requirements that arise due to formal trade policy and those that arise due to supply chain requirements. Both are barriers to market access and both are viewed as unfair. The only forum in which to discuss this has consistently been the CTE and CTBT.

the past 15 years, this has the potential to do either great good or serious harm. If supply chain requirements – communicated through standards if not necessarily through ecolabelling – are effective, this is more likely to be a positive influence. There can also be negative impacts, including the imposition of inappropriate standards on developing countries (‘standards takers’) and the use of supply chain requirements for competitive reasons alone, such as gaining leverage over the supply chain. The problem is that there is not enough data on which to base assessments of the effectiveness of these tools. There are not even recognized methodologies for conducting assessments. If these are not prepared and used with the strong backing of national governments, it is unclear why present practices would change.

Perhaps the most significant trend, and one in which it is easy to see the relationship between ecolabels and the larger CSR agenda, is the increasing demand by a significant number of market actors for proof of compliance with environmental, social and ethical norms and principles. In this light, the most significant characteristic of ecolabelling or certification programmes is that they provide proof of compliance. Market actors are also increasingly prepared to reward companies that provide this proof. This trend is spreading to governments and intergovernmental bodies and their norms.

7. Conclusions: Lessons Learned and Strategic Implications

Basically, an ecolabel is just a means of communicating information. For a long time the only target for that information was assumed to be the final consumer: ecolabelling was a tool to help customers act in a manner that was consistent with their personal preferences. However, consumers are not the only market actors, and environmental concern is not the only motivating preference. Energy efficiency labels that provide information on home appliances have been among the most successful ecolabels. It is perhaps no coincidence that these labels also entail long-term financial benefits in the form of reduced energy costs.

Interactions between labels, markets and public policies

While it is possible that some ecolabels will survive on the basis of their attractiveness to environmentally conscious consumers alone, evidence suggests that ecolabelling is most useful when it is developed in conjunction with complementary policy initiatives. The uptake of the Blue Angel label for reduced-noise construction machinery, for example, was linked to the enactment of regulations that permitted the use of this machinery near hospitals and other sensitive sites, and at specific times of the day. Supportive government procurement criteria have also played an important role in the spread of the FSC label in Germany, the Energy Star label in the US, and others.

What these examples have in common is the existence of an economic incentive. But a range of incentives and incentive mechanisms are possible. In some cases incentives are derived from a price premium; in others they are derived from the predictability of future revenues or market access. Sometimes the incentive is provided by consumers, at other times by private companies and often by government policy. The benefits of the incentive may accrue to producers, middlemen or (frequently) the final retailer. Depending on specific market characteristics and on the ecolabel, all these incentives are potentially important.

Some ecolabels (e.g. fair trade) provide a direct benefit to the producer. Others (e.g. organics) may provide a benefit to retailers that increases product mark-up. From this perspective, evidence suggesting that price premia are an important incentive for producers is actually misleading. What is important is not that consumers are willing to pay more for ecolabelled products, but simply that one of the market actors in the value chain has a financial incentive to promote ecolabelling.

It is instructive to consider the limitations of a focus on individual consumers alone. While companies and government agencies can provide a wide range of incentives (and can do so formally and predictably), consumers are more limited. For example, there are no mechanisms whereby consumers commit to purchase sustainably produced goods for X years into the future. If incentives are important to the adoption of ecolabels, as they most certainly are, it is important to recognize that other market actors have a greater arsenal at their disposal, including providing access to long-term supply contracts, preferred supplier agreements, prime shelf space, etc., all of which help to improve profitability. Governments in particular can use a full range of policy measures to

provide incentives to ecolabel products (e.g. variable sales tax, depreciation of investments in clean technology, streamlined licensing).

It is perhaps unlikely that consumers will remain the primary focus of ecolabelling in the future, in view of evidence that private and public procurement policies have been important elements in the success of many ecolabelling programmes, as well as the fact that other market actors can provide more consistent and more diverse incentives for producers. From a logistical perspective, the argument that the consumer may not continue to be the main focus of ecolabelling is also compelling: by negotiating with the five main coffee buyers, it is possible to interact with 50% of the total coffee market.⁷³ A single supermarket chain, Tesco, represents one-eighth of all consumer retail spending in the UK.⁷⁴

A framework for understanding ecolabels

Extrapolating policy guidance from randomly connected data sets is very easy, of course. This is the current danger: there is just not enough information on which to base sound assessments of the environmental effectiveness of different programmes. In fact, there is not even enough information to enable us to distinguish between different types of ecolabels except on the most superficial level (i.e. ISO Type I, II and III labels). It is unlikely that an inclusive sustainable fisheries label and an exclusive energy efficiency label would be equally successful if they targeted the same market actors with the same types of incentives. Energy efficient products are a direct economic benefit to consumers in themselves, while sustainably harvested fish are not. Yet we casually refer to each of these two labels as an ecolabel.

The first step towards making ecolabels more effective – and finding ways to reduce their negative impacts – must be to develop a consistent methodological framework to guide the categorization of ecolabels into more distinct sets. In the same way that the study of species was catalyzed by Linnaeus' classification framework, a classification framework for ecolabels would also catalyze our understanding of them. It is time to shift the discussion away from ecolabels generally and towards their specific characteristics.

This categorization should distinguish between ecolabels that are, among other things:

- voluntary or mandatory;
- targeted at individual consumers, industrial customers, investors, government agencies or other drivers;
- addressing single or multiple issues;
- impacts related to consumption, production or entire life cycle;
- single or multiple sectors;
- approaches to criteria-setting based on leadership, rating or information;
- criteria for management processes, performance outcomes or both;
- criteria or scope defined locally, regionally or internationally;
- declarations of conformity by second parties or third parties, or self-declarations;
- impacts of single product, range of activities or defined manufacturing site; and
- environmental, social or economic issues or a combination of these.

⁷³ Ponte, *op. cit.*

⁷⁴ Personal communication: Tesco headquarters, London.

There is also a need to consider more detailed information, such as:

- objective and means (e.g. an objective could be to promote sustainable consumption of sugar; the means could focus on a retail market, industrial market or both);
- organizational level targeted (e.g. global, corporate, business unit, production facility, product line, individual product/service);
- flexibility built into criteria and level at which specifications are set (e.g. 75% of criteria defined as performance requirements at site level);
- whether a label is important in achieving an objective (e.g. communication to consumer determines net influence) or important in establishing market-based or other incentives to adopt the ecolabel (e.g. need for a communication tool but not necessarily an ecolabel);
- provisions for harmonization with other labels (e.g. technical equivalence or mutual recognition framework);
- basis for prioritization of issues and development of criteria (e.g. science, consumer surveys, none).

Only if a consistent and detailed categorization methodology is in place will it be possible to conduct meaningful research into the characteristics of ecolabels. The bodies that are developing ecolabels are not best placed to carry out much of this research, including assessments of effectiveness, but they should be actively included in the design of research methodologies and data collection. While most of these organizations do not have the resources to undertake research, they seem to recognize its importance. Broad data collection might most easily be integrated into the conformity assessment process, as long as means can be found to limit the impact of conflicts of interest.

Research on ecolabelling should focus on three progressively more complicated areas.

First, there is a need to better understand why different types of ecolabels work or fail. Is this due to environmental criteria and consumer preferences, or to other market forces (e.g. competition, corporate social responsibility, health concerns, economic factors)? These studies should include a specific component concerned with the structure of the industry and the roles of different actors in the supply chain, as well as economic factors including price premia and preferential supply contracts. To be of value, the studies would need to be long-term since it is unlikely that existing data sets would be suitable for the assessment of historical trends.

Second, there is a need to consider the best way to provide incentives to relevant actors along the value chain to ensure that the ecolabel is adopted. This will almost certainly require a complete assessment of marketing strategies, the value chain and the nature of relationships among different actors along this chain,⁷⁵ as well as consideration of when labels are needed in order to achieve stated objectives.

Third, there is a need to begin to develop a set of assessment tools to monitor the effectiveness of ecolabels in achieving their intended objectives and to monitor their collateral effects, including those on close substitutes and trade impacts. A standardized methodology for assessing the effectiveness of ecolabels could be developed. This would help to ensure that studies on ecolabels are undertaken in such a way as to enable comparison across different studies.

⁷⁵ For example, it is not obvious that 'social' criteria can be driven in the same way as environmental criteria. As many companies have discovered, improving environmental management actually pays for itself through, for example, reduced resource inputs, more efficient production, fewer waste-related costs and regulatory compliance. Thus, labels that require improvements in environmental management bring internal benefits on top of the associated 'external' market benefits. This is not necessarily the case with, for example, labour rights, where compliance with social requirements may imply a net output of resources.

It would be irresponsible to suggest that the impact of ecolabels on trade flows deserves priority treatment. To date, the trade effects are assumed but unproven. We do need to ensure that ecolabelling remains a potentially effective tool for environmentally responsible public and private actors, and not simply a prime target for trade regulations. That said, a careful examination of accusations that ecolabels constitute unjustified barriers to trade remains to be carried out. In part, this needs to be done because the trade regime is constructed to deal with disputes in a way that the environmental and sustainable development regimes are not; thus, ultimately, judgements on ecolabelling may well be made in trade courts according to trade policy rules.

Just as in the case of the environmental impacts of ecolabels, the first priority vis-à-vis trade impacts is to obtain more information. It is surprising that the German Federal Environment Ministry does not have access to independent sources of information on the trade impacts of the various Blue Angel labels. It is equally surprising that the UNECE cannot obtain credible information on the market share of certified forest products in different European countries. While it is understandable that the FSC, for example, does not have the financial or human resources to obtain trade-related data, governments that support the FSC (or sustainable forest management in general) should assist such programmes in understanding and addressing trade concerns. This needs to be done concurrently across a range of all major ecolabels for a product category. To undertake an assessment of FSC, without also assessing the PEFC, SFI, CSA and others, would be misleading and irresponsible. Some developing countries are in the process of establishing market information services to gather information on ecolabels,⁷⁶ so that a framework will soon be available within which such research can take place.

Appropriate and effective forums and tools for analysis and policy-making

As described in the penultimate section of this report, discussions on ecolabelling within the WTO have advanced as far as can be expected in the short term. CTE and CTBT members have reached agreement on a whole range of issues, but they are unable to implement the decisions themselves. These issues, which include technical assistance, technical equivalence, mutual recognition and information-sharing, can only be addressed through discussions among a broader range of intergovernmental, standards and ecolabelling bodies, as well as development agencies and environment and trade ministries. There is currently no benefit or imperative related to holding these discussions within the WTO; they belong outside it.⁷⁷ That any of the more intractable political issues will be resolved within the WTO is unlikely until there has been progress in those areas where there is already general understanding and agreement.

Given the influence of industry sectors and supply chains on the development and spreading of many new ecolabels, there is a need to consider how to ensure that environmental and other types of requirements used by supply chains are also prepared, adopted and applied in such a way that they do not become unjustified barriers to market access and are consistent with Principle 11 of the Rio Declaration.⁷⁸ There may, in fact, be a need for guidelines on supply chain requirements along the lines of the Standards Code. Such guidelines could help to ensure, for example, that the requirements are appropriate to the context within which they are applied, are based on sound science, are developed in a transparent and participatory manner and are notified.⁷⁹

⁷⁶ Personal communication: experts in Brazil, South Africa and Costa Rica.

⁷⁷ The TBT Agreement is between governments. It has no direct influence on non-governmental bodies that develop standards.

⁷⁸ Principle 11 of the Rio Declaration states: '(...) Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries. See http://www.sdiinfo.gc.ca/docs/en/rio/rio_11.cfm.

⁷⁹ For more information on this idea, see RING, 2003: 'The Development Dimensions of the Global Compact'; available at http://www.ring-alliance.org/ring_pdf/global_compact.pdf.

Ultimately, there is a need for a new forum (or forums) in which discussions can proceed on how to reduce the barriers to trade related to ecolabelling. No single organization or forum is suited or able to address the full range of issues on the table. Because success will ultimately rely on coalition building, it would be appropriate to begin with informal discussions to assess common interests and then, over time, to define short-term work plans and select an appropriate forum for more formal collaboration. A range of organizations should be involved in the initial discussions, including the Global Ecolabelling Network (GEN), the International Social and Environmental Accreditation and Labelling (ISEAL) Alliance, UNCTAD, the OECD, UNEP, UNIDO, ISO, and trade ministries, environment ministries and national standards bodies from key developed and developing countries. Given the important role played in this area by many NGOs, any long-term discussions on the subject should also be open to broader participation.

While the WTO has no influence over the development of ecolabels by NGOs, or any influence over the way that private companies integrate ecolabelling into their purchasing or investment decisions, the Agreement on Technical Barriers to Trade does provide a detailed policy framework that might be used to develop guidance in these other areas. Since supply chains are the main driver for many types of environmental standards and ecolabels, it would be appropriate to consider how to ensure that this practice does not lead to negative consequences. Even if guidance were provided in the form of recommendations or guidelines, it could have a significant impact on how private companies use ecolabels, and could therefore help to mitigate some of the negative impacts. This guidance should include practical advice on the development, adoption and implementation of voluntary standards and conformity assessment provisions, as well as on approaches to the technical equivalence of different standards and mutual recognition of different conformity assessment procedures. UNEP, in particular, is well-placed to initiate a process to develop such guidance.

Balancing environmental and trade policy concerns

There has been a failure to recognize that trade and environmental policies are means to an end. The underlying objective of both policy agendas must be the pursuit of balanced and sustainable development. Some barriers to trade that promote environmental protection should not necessarily be removed: not because environmental policy is more important than trade policy, but because sustainable development requires a balance between overlapping interests and, *in some circumstances*, environmental issues must take precedence over economic growth. Some ecolabels that protect the environment at the expense of market access should not necessarily be developed: not because trade policy is more important than environmental policy, but because sustainable development requires a balance between overlapping interests and, *in some circumstances*, economic growth must take precedence over environmental protection.

Ultimately, resolving issues related to ecolabelling and trade will require agreement between the trade policy and environmental policy communities on what constitutes the *some circumstances* under which environmental policy will take precedence, and the *some circumstances* under which trade policy will take precedence. This will not necessarily be a zero-sum game, of course. Just because trade-offs may be required does not mean that there are not also Pareto optimal outcomes that benefit all interests. However, as long as discussions on ecolabelling take place exclusively within the WTO, a trade policy perspective will bias these discussions. If for no other reason, this is a compelling reason to initiate concrete discussions in another forum – to develop a complete understanding of the environmental, social or sustainable development implications before engaging within the WTO. This is not to avoid the need to engage within the WTO at some point, as the issue must be resolved there, too, given its robust legal structure and dispute settlement mechanisms.

The need for governments to take actions to promote sustainable production and consumption, while also paying attention to the risks of trade barriers, is highlighted in both the WSSD Plan of Implementation and the

emerging Marrakech ten-year framework of programmes on SCP. Ecolabelling is currently one of the main consumer information tools that exist in markets around the world. They can, and in some cases already do, provide information to any actor making purchasing decisions on the basis of environmental characteristics, including private companies and governments. For these pragmatic reasons alone, it is worth pursuing further this investigation of the design and effects of ecolabels.

Annex 1

Sales Figures: Selected Commodities⁸⁰

FLO sugar sales volume in MT (1997-2002)

| Year | MT | % change | Global exports (MT) |
|------|-------|----------|---------------------|
| 1997 | 281 | | 35,800,000 |
| 1998 | 281.9 | +0,3% | 35,400,000 |
| 1999 | 298,8 | + 6% | 36,100,000 |
| 2000 | 357 | +19,5% | 39,500,000 |
| 2001 | 468 | +31,1% | 36,500,000 |
| 2002 | 649.9 | +38,8% | 34,500,000 |

FLO banana sales volume in MT 1997-2002

| Year | MT | % change | Global exports (MT) |
|------|--------|----------|---------------------|
| 1997 | 12,296 | | 12,147,000 |
| 1998 | 14,656 | 19.2 % | 11,671,000 |
| 1999 | 18,191 | 24.1 % | 11,718,000 |
| 2000 | 22,819 | 25.4 % | 11,070,000 |
| 2001 | 29,072 | 27.4 % | |
| 2002 | 36,610 | 25.9 % | |

FLO orange juice sales 1999-2002 (unit of measurement not provided)

| | | |
|------|--------|------|
| 1999 | 522.5 | |
| 2000 | 711.3 | +36% |
| 2001 | 943.9 | +33% |
| 2002 | 1386.6 | +47% |

FLO cocoa sales volume in MT (1997-2002)

| Year | MT | % change | Global exports (MT) |
|------|--------|----------|---------------------|
| 1997 | 708.2 | | 1,818,000 |
| 1998 | 818.1 | +15,5% | 2,514,000 |
| 1999 | 921.4 | +12,6% | 2,067,000 |
| 2000 | 1152.6 | +25,1% | 2,139,000 |
| 2001 | 1421.9 | +23,4% | 2,406,000 |
| 2002 | 1618.1 | +13,8% | 2,523,000 |

FLO honey sales (1997-2002) (unit of measurement not provided)

| | | |
|------|--------|--------|
| 1997 | 731.8 | |
| 1998 | 838.4 | +12,7% |
| 1999 | 883 | + 5,1% |
| 2000 | 866.4 | - 1,9% |
| 2001 | 1071.3 | +19,1% |
| 2002 | 1038.4 | - 3% |

⁸⁰ Sources: FLO website; UNCTAD, 2003; World Commodity Survey.

Annex 2

Sales and Market Share of Organic Agriculture

Overview of World Markets for Organic Food and Beverages (forecast)

Source: compiled by International Trade Centre (ITC), December 2002⁸¹

| Markets | Retail sales, 2003 (million US\$/€) | % of total food sales (estimates) | Annual growth 2003-2005 (%) | Retail sales, 2005 (million US\$/€) |
|----------------|--|--------------------------------------|--------------------------------|--|
| Germany | 2800-3100 | 1.7-2.2 | 5-10 | - |
| UK | 1550-1750 | 1.5-2.0 | 10-15 | - |
| Italy | 1250-1400 | 1.0-1.5 | 5-15 | - |
| France | 1200-1300 | 1.0-1.5 | 5-10 | - |
| Switzerland | 725-775 | 3.2-3.7 | 5-15 | - |
| Netherlands | 425-475 | 1.0-1.5 | 5-10 | - |
| Sweden | 350-400 | 1.5-2.0 | 10-15 | - |
| Denmark | 325-375 | 2.2-2.7 | 0-5 | - |
| Austria | 325-375 | 2.0-2.5 | 5-10 | - |
| Belgium | 200-250 | 1.0-1.5 | 5-10 | - |
| Ireland | 40-50 | <0.5 | 10-20 | - |
| Other Europe* | 750-850 | | - | - |
| Total (Europe) | 10,000-11,000 | | - | - |
| USA | 11,000-13,000 | 2.0-2.5 | 15-20 | - |
| Canada | 850-1000 | 1.5-2.0 | 10-20 | - |
| Japan | 350-450 | <0.5 | - | - |
| Oceania | 75-100 | <0.5 | - | - |
| Total | 23,000-25,000 | - | - | 29,000-31,000 |

| Value and shares of organic markets (2000) (figures rounded) | | | | |
|--|---|---|---|--|
| | Value of total organic sales (US\$ million)* (estimates) | Estimated share of organics in in total food sales (%) | Value of organic fruit & vegetable sales (US\$ million)* (estimates) | Estimated share of organic in total fruit (F) and vegetable (V) sales (%) |
| UK | 986 | 1 | 300 | 5-10 |
| Germany | 2128 | 1.25-1.5** | 378 | 2.6 |
| Italy | 978 | 1** | 264 | 2 |
| France | 846 | 1 | 169 | - |
| Netherlands | 210 | 1.2 | - | - |
| Belgium | 138 | 1 | 34 | - |
| Austria | 195 | 1.8 | 29 | 3 F, 5 V |
| Switzerland | 457 | 2 | - | 5 F, 10 V |
| Denmark | 372 | 2.5 - 3 | - | - |
| Sweden | 175 | 0.9 | 31 | 1.7 |
| USA | 8000 | 1.5** | 1450 | - |
| Japan | 350*** | - | - | - |

* Based on average exchange rate 2000.
 ** Source: ITC (2001)
 *** US\$2.5 billion for 'green' labelled products.

⁸¹ Both tables are quoted in Minou Youssefi and Helga Willer, *op. cit.*