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Eco-labelling: to be or not to be?

Desirability of eco-labels from an environmental and poverty perspective

Report

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Preface

Originally, this study was published as a traineeship report for the Ministry of Foreign Affairs in The Hague, Department for Environment and Water. It covers a real-life policy problem.

The reception of my analysis and policy advice was so good, that the report is published as a CE report as well. Currently, I work at CE Delft as an economist.

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Executive summary

Over the years, eco-labelling has been widely applied in order to bring about greater sustainability of human consumption and production patterns. It has been promoted by the international community and many national governments. At the same time, however, the application of labelling is controversial. Concerns have been raised on its actual environmental effectiveness and on its impact on growth and poverty alleviation in developing countries. The fear is that eco-labels act as barriers to trade.

As a player in the field of both environmental management and poverty alleviation, the Dutch Ministry of Foreign Affairs needs to take a position in the debate on 'eco-labelling; to be or not to be?'. In order to help define this position, my report captures the research question 'to what extent is eco-labelling a desirable means to promote sustainability in consumption and production patterns?', which is approached from an environmental and poverty perspective.

The answer to this question depends on the actual performance of eco-labels. A theoretical framework with key indicators of labelling impacts is developed. Subsequently, it is used to evaluate two existing labelling schemes; the Forest Stewardship Council (FSC) label on forestry products and the Marine Stewardship Council (MSC) label on fishery products. Both case studies are based on available evidence. They revealed that:

- The total demand for and supply of eco-labelled products has been disappointing so far.
- The current interest in eco-labelling is geographically unevenly distributed. Eco-labelling proved to be mainly a 'western' phenomenon. The developing world hardly participates, either due to lack of incentive or lack of access to the labels. The schemes are not suited for special circumstances in developing countries, those of local communities in particular.
- The size of marginal environmental improvements induced by compliance with eco-label standards is modest at best. There has been criticism on the appropriateness of criteria, the fact that only 'best producers' had been certified and that reported improvements might have taken place anyway.
- Eco-labels do not seem to be effective measures, because the main underlying causes of environmental problems are outside their direct scope of influence, i.e. international trade in targeted product categories and sectors.

These findings lead to the conclusion that:

- From an environmental perspective, the effectiveness of eco-labelling has indeed been limited. Not too much should be expected from it. This holds especially with regard to altering production processes in developing countries.
- From a poverty perspective, the impact of eco-labelling has not been as detrimental as regularly expressed. There is no evidence that it actually harmed exports from developing countries, despite their limited participation in labelling. However, its impact has not been beneficial either. No trade opportunities in 'green' goods have been created. Besides, the described trade impact only holds as long as markets for eco-labelled products are *small*. If the demand for eco-labelled products is sufficiently stimulated, trade concerns *do* arise as non-labelled exports will lose market access.

Unless the sketched situation changes, I am negative on the desirability of eco-labelling. When eco-labels grow to be successful, they become undesirable from a poverty perspective, whereas their ability to solve environmental problems remains uncertain. Consequently, the Ministry of Foreign Affairs is recommended to take a conservative position in the eco-labelling debate.

In order to let eco-labelling benefit both the environment and poverty alleviation, more efforts need to be undertaken to:

- Make sure that developing countries are able to participate in labelling. Options include offering technical and financial support, consulting representatives in the standard-setting process, harmonizing standards and making them more transparent.
- Work on the design of criteria and the certification process to improve marginal environmental benefits.
- Stimulate worldwide demand for eco-labelled products. It is crucial to reach rapid growing economies, China in particular, with eco-labelling. Otherwise, the effectiveness of labelling on a global scale is doomed to fail.

These are complex tasks. There is a potential role for the government here, but in my view the government should solely support eco-labelling in its role as market participant. As a regulator it should not be heavily involved in eco-labelling; leave these initiatives to the markets. There are too many bottlenecks to overcome with eco-labelling. Taxpayer's money might be better spend on the implementation of other policy measures, which is left for future research.

1 Introduction

In recent years, the need for more sustainable production and consumption patterns has become widely recognized. Eco-labelling is among the several initiatives that have been undertaken by consumers, private industry, civil society and governments to bring about greater sustainability of human activity. It means that products which meet specific environmental requirements, often also regarding their production process, are certified and labelled with a special symbol[1]. The goal is to change consumer behaviour by providing information on the environmental impact of a product[2]. Simultaneously, eco-labelling aims to offer a market incentive for (foreign) producers to meet environmental standards. Lots of product categories and sectors are currently covered by eco-labels, ranging from household cleaning goods to natural resource based products[3].

Figure 1 Some eco-labels

While many labelling schemes are private ones and involve self-steering of markets, public attention has been paid to eco-labelling since the late 1970s. Government involvement can take various forms. First, it may comprise the development of labels under public administration. The world's first eco-labelling program in policy-making was the 'Blue Angel', initiated by the German government in 1977 (Melser and Robertson, 2005)[4]. Second, there are options to encourage the adoption of particular standards by public policy measures. These may include subsidies to reinforce demand and supply of environmental goods, legislation outlining minimum requirements, information campaigns and financial support to private labels. Third, public procurement policies can include 'green' consumption.

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1 Strictly speaking, there is a difference between certification and eco-labelling. One could argue that certification is a form of communication between seller and buyer, whereas the label is a form of communication with the end consumer (Dankers, 2003). However, they are conceptually similar and certification forms the basis for labelling. Besides, eco-labelling can involve both business-to-business trade and business-to-consumer trade, whereby the term 'consumer' is not limited to private citizens but includes governments and large institutions seeking to incorporate environmental considerations into their procurement processes (EPA, 1998). Therefore, certification and eco-labelling are used as synonyms throughout this report. Eco-labels can also cover services but no further attention is paid to this.

2 A famous article on economics of information and problems associated with information asymmetries is written by George Akerlof. It handles the market for lemons (Akerlof, 1970).

3 Appendix A elaborates on the various types of eco-labels and their design features.

4 Since then, a number of national labelling systems have been set up, such as 'Environmental choice' (Canada), 'Green Seal' (USA) and 'Eco-mark' (Japan). 'Nordic Swan' and 'Euro-flower' are multi-country initiatives.

In principle, eco-labelling is increasingly perceived as one of the tools that can help improve environmental management through market-based instruments. It is explicitly endorsed by the international community, as illustrated by Agenda 21 of the UN Conference on Environment and Development held in Rio de Janeiro in 1992 in which governments agreed to 'encourage the expansion of environmental labelling and other environmentally related product information programmes designed to assist consumers to make informed choices' (UN, 1992: paragraph 4.21). Other official documents also provide a basis for labelling. For example, those of the World Summit of Sustainable Development held in Johannesburg in 2002[5] and EU legislation calling for availability of product information for consumers[6].

However, at the same time as it is promoted, the application of eco-labelling is often controversial. Aspects that provoke concern include:

- The environmental effectiveness of eco-labelling, relating among others to the attitude of consumers and producers towards eco-labelled products.
- The potential impact of labelling schemes on trade flows from developing countries. Eco-labels might act as barriers to trade when, for instant, these countries cannot comply with the strict environmental standards whereas their non-labelled exports are losing market access. Promoting environmental sustainability then seems to contradict economic growth and attempts to alleviate poverty in the developing world. The fear that eco-labels are used as disguised barriers to trade is often expressed by developing countries. A fourth type of public involvement in eco-labelling could namely be that labels are deliberately used for protectionist purposes[7]. This scepticism fuels the debate on whether there is a conflict between eco-labelling schemes and World Trade Organization (WTO) rules that foster trade liberalization and to what extent it is permissible under WTO agreements to support eco-labelling by public policy.

[5] It states: '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' (UN, 2002: paragraph III.15e).

[6] For instant, EU legislation requires exporters of fish and fishery products to label consignments or accompany them by a document, identifying the species name, production method and capture area (EU, 2001).

[7] Eco-labels might be combined with process-discriminatory trade policies, which have grown more popular (Engel, 2004). These policies attempt to discriminate against imports originating from environmentally damaging process and production methods (so-called PPMs), while encouraging environmental-friendly alternatives. An extreme case is the International Dolphin Conservation Act of 1992 that resulted in US import bans on tuna whose harvesting had not been identified as 'dolphin-safe'.

Both concerns are highly relevant for the Dutch Ministry of Foreign Affairs and especially for the Department for Environment and Water. The latter works in the field of environmental management and poverty reduction at the same time (BuZa, 2005). It faces a policy dilemma: what position to take in the debate on 'eco-labelling; to be or not to be?' This report intends to help the ministry with defining its position, taking into account above-mentioned concerns. It captures the research question 'to what extent is eco-labelling a desirable means to promote sustainability in consumption and production patterns?'[8], which is approached from an environmental and poverty perspective[9].

This report is not intended to provide a comprehensive overview of all aspects, but rather a rapid assessment that clarifies the key issues related to eco-labelling on the basis of two case studies; the Forest Stewardship Council (FSC) label on forestry products and the Marine Stewardship Council (MSC) label on fishery products. Based on its findings, it offers some policy recommendations.

The structure of the report is as follows. The next chapter introduces the research approach chosen. It contains the theoretical framework that is used for reviewing the performance of existing labels in the succeeding chapters 3 and 4. After that, chapter 5 forms the conclusion. Consequences for government policy are highlighted here too.

[8] In addition to the desirability question, it could have captured the close-related question 'how feasible is (government support of) eco-labelling, given WTO rules?' Given the jurisdictional nature of the WTO legitimacy debate and time constraints, only a relatively short overview of main issues and positions is provided in Appendix B. Besides, before giving an opinion on feasibility matters, one should first determine whether eco-labelling is desirable. Subsequently, the focus of this report lies on that question.

[9] The Ministry considers trade as an opportunity for development in developing countries, which would in turn be a necessary pre-condition for poverty alleviation. Therefore, the phrase 'poverty' is used in the remainder of this report, rather than 'development' (also see section 2.2.1).

2 Theoretical Framework

Before heading to the discussion of the actual performance of existing eco-labels, I will describe the methodology of my research and its justification. Then, I will outline the theoretical framework that is applied in the remainder of this report.

2.1 Methodology

During my literature review, it became apparent that there is a lack of hard, reliable evidence regarding (positive or negative) environmental and trade impacts of eco-labelling. This might either mean that there are no real impacts or that the studies under consideration, among which OECD (1997a) and UNEP (2005), were just not able to detect them. To some extent, the latter is likely to be the case since several sources pinpoint the methodological difficulties of conducting research on the actual impacts of eco-labelling[10]. Among these difficulties are:

- Data availability and reliability. Environmental information is often difficult to obtain, due to the complexity of gathering data and understanding causation. Economic data is frequently confidential and benefits of eco-labelling might be hard to quantify because of their intangible or long term nature. In addition, one could argue that, given the start of some labels, it is too early to search for clear empirical evidence. The data that is available often does not originate from independent and scientific sources.
- Difficulty in isolating the effects of labels from other economic, environmental and social factors and policies that affect the environment and trade flows. Eco-labelling is often part of a policy package. It complements to other measures, rather than substituting for them.
- Inappropriateness of generalizing outcomes. Eco-labelling schemes might differ significantly with respect to their design features, which makes their impact hardly comparable.
- Lucas critique on predicting effects of policies based on historical data (Landreth and Colander, 1994).

Subsequently, one could conclude that ‘considerable additional data collection and research needs to be undertaken if the effects of eco-labelling are to be understood and policy recommendations developed’ (UNEP, 2005:v). Strictly speaking and from a pure scientific perspective, this is true.

[10] These sources are OECD (1997a), Earley and Anderson (2003), GEN (2004), UNEP (2005), Hassell (2005) and Agnew et al. (2006). Note that it is a common difficulty to evaluate the effects of policies in the real world. Not only eco-labelling programs face measurement problems.

Nonetheless, environmental policy *in practice* requires some clues. The Ministry of Foreign Affairs needs to define its position regarding eco-labelling at present. Therefore, I developed a general framework with crucial (proxy) indicators of labelling impacts, which needs to be considered in order to judge whether a particular eco-label is desirable and should be supported. It reflects perceived opportunities and concerns raised in the eco-labelling debate[11]. Then, the framework is applied to two existing labels. Available (anecdotal) evidence is used to give an indication about their current performance.

The findings will give some insight in whether it is worthwhile to support existing eco-labelling initiatives or that time and taxpayers' money might be better directed at alternative policy measures[12]. Moreover, lessons can be drawn for future cases. Evidence might reveal bottlenecks that must be overcome before eco-labelling benefits the environment without harming poverty alleviation. The framework itself can also be used in other cases to evaluate the appropriateness of (developing) particular eco-labels in a structured manner[13].

In order to best illuminate the types of challenges that developing countries may face, the evaluated labelling programs must have been developed for products of export interest to these countries and have a global scope. Both the FSC and MSC label meet these criteria[14]. Practically, these labels are also suitable subjects of evaluation. They are among the most advanced eco-labelling programs to date (Gulbransen, 2005).

2.2 Framework

In the ideal situation, eco-labelling would result in greater environmental protection by answering the call for greater sustainability by consumers, whereas producers would have sufficient incentive and ability to meet environmental standards. This is the market mechanism on which the measure is based. Economic opportunities would also arise. Developing countries would benefit from trade in certified products and eco-labelling would be a means to alleviate poverty by providing additional employment and income. Nevertheless,

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[11] The framework is based on own ideas and integrates key issues brought up in the bewildering array of literature. The following works have been particularly useful: Vossenaar (1997), Jha and Zarrilli (1997), OECD (1997a), EPA (1998), Deere (1999), Vitalis (2002), OECD (2005), UNCTAD (2005), Wessells et al. (2001), Borregaard and Dufey (2005), UN (2004) and Melser and Robertson (2005). The findings of some studies, like OECD (1997a), have limited *direct* relevance as most products they cover are not very significant in developing countries' exports. However, they identified bottlenecks (lack of transparency, high costs of certification) that might be present in other labelling schemes. So, they provide ideas on where to look at in deciding on the desirability of a particular eco-label.

[12] Eco-labelling is not the only mechanism for promoting sustainable consumption and production, but whether it is actually better or worse than alternative policy instruments, such as taxation or legislation, is beyond the scope of this report. No comparison between different labelling schemes is made either.

[13] For example, the Dutch government is working on sustainability criteria that it wants to apply to biomass imports. The current energy transition tends to rely heavily on biomass use for energy supply and a certification scheme could be introduced in order to safeguard a sustainable production of biomass in tropical regions.

[14] They are private labels. Most national schemes cover product categories that are less of interest for developing countries' exports, such as household cleaning goods, personal health care products, etc. Therefore, they are not evaluated in this report.

numerous concerns have been raised on whether the actual net impacts on environment and poverty are so favourable. Which outcome occurs depends on several factors. These are summarized in Figure 2 on the next page. The following section outlines its structure, after which attention is paid to its application.

2.2.1 Structure

The framework has the form of a flowchart. Its building blocks and the relation between them are explained in turn.

Market impact
Performance evaluation starts with the market impact of eco-labelling because labelling directly targets the behaviour of market actors. An eco-label can become a market standard, i.e. widely accepted by consumers and the criteria embodied in the label have become the product norm[15], it can remain a market niche or might fail (CEC, 1999). What happens depends on the (growth of) demand for and supply of environmental-friendlier goods.

On the *demand* side of the market equation, there must be enough consumers choosing for the eco-labelled product. The behaviour of individual consumers depends on their preferences. In general, consumer choice seems to be highly depending on the price premium that must be paid for eco-labelled products (Swallow and Sedjo, 2003; Melser and Robertson, 2005). The moderate success with individual consumers seems to be due to cheap non-labelled alternatives (OECD, 1997a). This holds particularly when the environmental cost is not born by consumers themselves[16]. They might be more willing to paying a price premium out of direct self-interest, for instant when labelled products are superior in taste or perceived as better for human health, than out of care for the well-being of others[17]. In the latter cases, eco-labelling relies on moral persuasion of consumers.

Besides consumer preferences, there are some other key factors that influence the demand for eco-labelled goods. First, consumer awareness of the environmental problem and the existence of the eco-label. Second, confidence in labels. Several studies indicate greater scepticism by consumers regarding environmental claims on products[18]. It relates to the trustworthiness of certification processes. Third, the number and types of labels that appear in the marketplace. The trend towards increased application of eco-labelling might cause confusion among consumers (Consumers International, 1999). It can be one of the reasons for limited consumer acceptance of labels.

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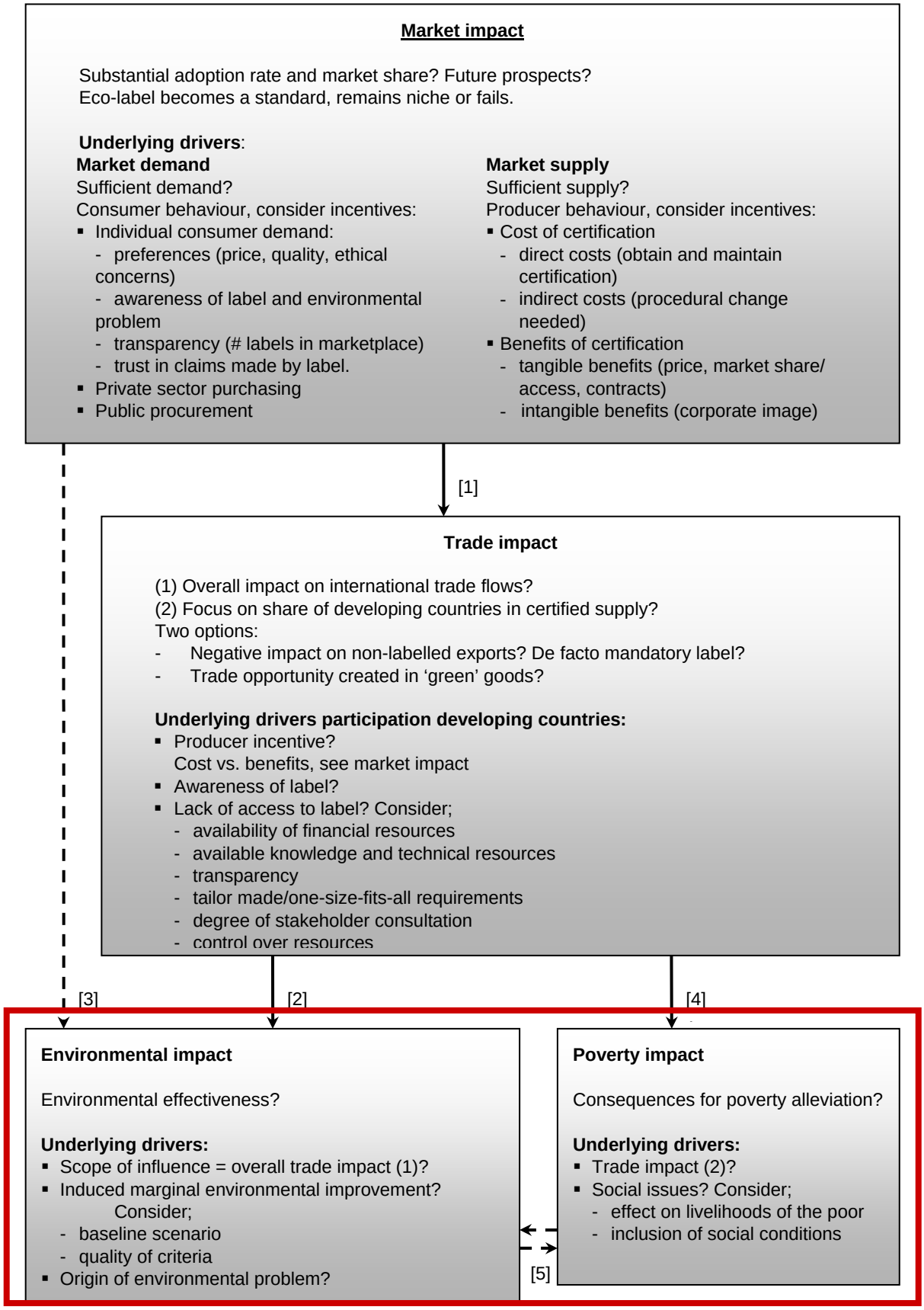
[15] Such a situation is characterized as more than 30% of eco-labelled products in marketplace (OECD, 1997a). Labelling has become the 'price of entry' for competition.

[16] There is a divergence between social and private environmental costs. Consumers only consider personal and not the external cost to environment borne by all consumers at buying decisions. It might lead to a so-called 'tragedy of the commons' (Hardin, 1968).

[17] For example, the case of organic meat (Korteland, 2006) and shade-grown coffee (CEC, 1999).

[18] See Wessells et al. (2001) for examples of research undertaken.

Figure 2 The framework: noticeable issues on the performance of eco-labels



For a long time, the focus of labelling programs was on the individual consumer. Nowadays, increasingly attention is paid to private companies and governments (OECD, 1997a; EPA, 1998; UNEP, 2005)[19]. It involves government and institutional purchasing as well as buying decisions of intermediate companies in products' supply chains. These professional purchasers might support eco-labelled products for strategic reasons.

Whether there is sufficient *supply* available depends on producer behaviour[20]. Unless labelling is mandatory by law, producers will only adopt eco-labels when perceived economic benefits outweigh the costs. On the cost side, there are direct costs of obtaining and maintaining certification (inspection and certification fees). Indirect costs comprise costs of changing production practices that are needed to qualify for the label. Their size depends on the gap between current and required performance[21]. On the benefit side, producers may face market opportunities, either by gaining access to new product markets, establishing stronger positions in existing ones or by earning higher profits. It is hotly debated whether price premiums on eco-labelled products exist and whether they are temporary or persistent over time[22]. Given this uncertainty, the willingness of producers to adopt an eco-label in order to gain long-term contracts with the private and public sector is emphasized (UNEP, 2005)[23]. They might also be driven by fears of losing market share in existing markets (OECD, 1997a). In addition to direct sales concerns, producers might want to enhance their image in order to gain access to financial resources (EPA, 1998) and avoid pressure from environmental groups. Employee satisfaction might also play a role, in 'western' companies.

Trade impact

The interaction of demand and supply in different parts of the world determines the trade impact **[1]**, which is the second one to consider. The scope of influence of a particular eco-label depends on the *overall impact on trade flows*. It includes all trade, thus among developed nations, developing nations and between developed and developing ones[24]. Given concerns on poverty, special attention is paid to the *share of developing countries in certified supply*. On the one hand, an eco-label might form a trade barrier to market entry for non-labelled exports. This happens when eco-labelling has become so important in world markets that demand for non-labelled products slows down significantly. Voluntary labels have

[19] Note that procurement policies are only relevant when eco-labelling is voluntary. If programs are mandatory, they lay a regulatory floor on products in the market (EPA, 1998).

[20] The supply side is formed by primary producers here. Retailers and wholesalers are actors on the demand side.

[21] Opportunity costs of resources that could have been used for other purposes (if certification had not been chosen) also fall under this heading.

[22] UNEP (2005) argues for example that the time lag between increases in demand and supply may result in short-term scarcity and thus higher prices for eco-labelled products. This is beneficial given short term transition costs. Yet, no profit benefits are expected in the longer run as supply would follow demand.

[23] Particularly in the EU, green public procurement policies have been important in providing incentives for producers to use eco-labels (Consumers International, 1999).

[24] A general definition of developing countries is used. It includes not only less developed countries (LDCs) but also (rapid) growing economies in Asia and Latin America.

become de facto mandatory then. Concerns especially arise when labels contain non-product related criteria. On the other hand, a trade opportunity in eco-labelled products might be created for developing countries when they have a comparative advantage there. Eco-labelling is used as a 'carrot' rather than a 'stick'.

Whether or not developing countries participate in labelling schemes depends on whether there is enough producer incentive (see market impact), whether producers are aware of the existence of the label and, more importantly, whether they have access to the label. The fear that producers in the developing world lack access to eco-labelling programs is frequently expressed. Several potential causes have been identified. First, they might not be able to afford expensive certification. Second, they might lack the knowledge and technical resources to comply with the standards set by the (foreign) label. Third, producers might not even have a clear overview of what is needed in order to comply due to a lack of transparency. One label can embody many requirements and several labels might be operating in the same marketplace. As mentioned, this may also lead to confusion and lower credibility among consumers. Fourth, the criteria might not fit the special, local circumstances in developing nations. When labels adopt a 'one-size-fits-all' approach, data requirements may be a constraint to certification, as well as the actual content of the criteria. It is crucial that standards are tailor-made, which brings me to the fifth factor: stakeholder consultation. Criticism on eco-labelling in general is that the adoption of criteria is not open to outside participation, especially to stakeholders from developing countries[25]. As a result, labelling might be biased towards domestic environmental priorities and economic and environmental conditions in industrial countries. The criteria might be irrelevant for the priorities of other countries and favour domestic over foreign producers (IISD/UNEP, 2005). Consequently, complaints on the recognition of the sovereignty of nation states might arise (Tallontire and Blowfield, 2000).

Environmental impact

After evaluating the market and trade impact of eco-labelling, it is time to see how they work out for the environment **[2]**. They determine the *scope of influence* of the eco-label. The market impact runs through the trade impact as eco-labels tend to affect international trade. In cases where eco-labels are primarily designed by countries to change domestic production patterns, the market impact directly runs towards the environmental impact **[3]** and determines the scope of influence. With respect to the environment, the higher the market/trade share of an eco-label the better. Producer adoption rates and market shares are frequently used as proxies for the environmental success of labelling schemes (UNEP, 2005).

[25] UNCTAD (2006) fosters developing countries to adopt a strategic, proactive approach to new requirements created by western governments or companies rather than a 'fire-fighting' approach, in order to overcome potential trade barriers and turn them into trade opportunities. One of the key elements is active participation in standard setting processes.

However, the environmental effectiveness of eco-labelling also depends on the *marginal environmental improvements* associated with compliance with the standards of the particular eco-label. In general, limited attention is paid to this. Most eco-labels do not even measure what they claim (Clay et al., 2005). It is probably argued that the trend towards more labelling means that eco-labels have a positive environmental effect. This might be not totally true. First, the ultimate objective of labelling is not necessarily to improve environmental performance in all cases[26]. It might also be protectionism[27]. Second, the marginal environmental improvements induced by the criteria that must be met by producers in order to achieve certification might be limited. Labels can reward the baseline scenario; changes that would have taken place anyway (UNEP, 2005). In addition, the quality of the criteria matters. Criteria should be relevant and significant in order to be catalysts for environmental change (Vossenaar, 1997). This means that they must fit the national, regional or local circumstances and be strict enough to fuel actual improvements. They should also be verifiable[28].

A final question to ask is whether eco-labels are effective measures to address the *environmental problem* they aim to solve. The underlying causes must be sufficient related to (international) trade in the products covered by eco-labelling. Otherwise, the capacity of eco-labels to resolve the particular problem is limited, even when they receive sufficient market support and marginal improvements are substantial.

Poverty impact

The impact that eco-labelling has on poverty depends on its market impact and derived *trade impact* for developing countries **[4]**. The bigger the market impact, the larger the potential trade impact. It might involve developing countries' exports.

Trade is generally perceived as an opportunity for development in developing countries, which in turn would help poverty alleviation. Yet, benefits to a country as a whole do not necessarily correspond to benefits to its poorest inhabitants. It might be the case that solely the relatively well-off people benefit from trade and development. This also holds vice versa, when trade slows down. This might negatively affect large producers and their employees, but have no *direct* impact on the livelihoods of the poorest people since their activities are not export oriented. Nevertheless, economic growth is regularly considered as a necessary (although not sufficient) pre-condition for poverty alleviation. Accordingly, it is assumed here that *all* trade is important for bringing about higher living standards in developing countries. Thus, when trade is harmed (fostered) by eco-labelling it is perceived as undesirable (desirable) from a poverty perspective.

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[26] Which is unjustly claimed in UNEP (2005).

[27] For example, the EU promotion of organic agriculture (and recent initiatives of higher animal welfare standards) might be attempts of product differentiation borne out of self-interest. Their farmers are facing increased international competition whereas protection of the Common Agriculture Policy is lowered due to WTO and budgetary pressure. If a 'hidden agenda' is suspected, extra attention must also be paid to the ability of developing countries to take part in eco-labelling in order to avoid negative trade impacts.

[28] Subsequently, the importance of eco-labelling to be based on scientific evidence is emphasized (FAO, 1999).

The direct impact on the livelihood of the poor is placed under the *social issues* heading. The identified trade effects on poor communities are summarized here. The consequences of eco-labelling on local economies and cultural values can be evaluated as well. Another point of attention is that the scope of eco-labelling programs might be broadened to include non-environmental criteria, such as worker rights and basic living conditions.

If effective, eco-labelling helps the poorest people by protecting the environmental quality of their livelihoods through 'greening' trade. It is relevant to realize that poverty and environmental degradation interact **[5]**, although this relationship is not further explored[29].

2.2.2 Application

In the next two chapters, the framework is put into practice. Results are summarized in a table that has the structure of the red box in Figure 2. They are also explained as such[30].

This set-up is chosen to enhance the readability of the case studies; the environmental and poverty impacts ultimately count. Both market and trade impacts are means to an end. They have been included in the 'environment impact' and 'poverty impact' blocks and are thus discussed under those headings (backward reasoning)[31].

[29] Given its complexity, this is considered beyond the scope of this report. See PEP (2006) for more information on the link between environmental management and poverty reduction.

[30] Some issues are cross-cutting and I realize that the division will be somewhat arbitrarily. Some overlap could not be avoided.

[31] Recall that the environmental impact depends on the scope of the label, determined by the overall trade impact, which in turn depends on market demand and supply. The poverty impact depends on the trade impact for developing countries, thus the share of developing countries in certified supply.

3 Forestry and FSC labelling

This chapter presents the case of Forest Stewardship Council (FSC) labelling and starts with some background information. After that, the framework developed in the former chapter is used to analyze the performance of FSC with regard to the environment and the well-being of developing countries. Table 4 on page 37 gives a structured overview of the findings. References to this table are made between brackets.

3.1 Background

Concerns on the rapid rate of worldwide deforestation, which threatens biodiversity, the global climate and the people who live in them, underlie the development of the Forest Stewardship Council. This international non-governmental organization was launched in 1993 by a group of timber users, traders and representatives of environmental and human-rights organization with the goal to identify well-managed forests as acceptable sources of forest products. It aims to support 'environmentally appropriate, socially beneficial and economically viable management of the world's forests' (FSC, 2006a:1).

Subsequently, it developed 10 global principles and 56 criteria that apply to all tropical, temperate and boreal forest, including plantations. They cover several aspects of forestry, as shown in Table 1. With respect to environmental criteria, there are standards on pesticide use, harvesting methods, biodiversity conservation zones and rules on forest conversion[32].

Table 1 FSC Principles

10 Principles for Forest Stewardship
#1 Compliance with laws and FSC principles
#2 Tenure and use rights and responsibilities
#3 Indigenous peoples' rights
#4 Community relations and worker's rights
#5 Benefits from the forest
#6 Environmental impact
#7 Management plan
#8 Monitoring and assessment
#9 Maintenance of high conservation value forests
#10 Responsible management of plantations

Source: Adapted from FSC (2004).

[32] A full and original description of FSC's Principles and Criteria is provided in Appendix C.

FSC is a global scheme that targets international trade. It has branches in various countries and accredited several independent certification bodies (such as the Rainforest Alliance/Smart Wood and SGS) that certify timber and timber products made from FSC certified wood on a voluntary basis[33]. If forests operations are found to be in conformity with FSC forest management standards, a certificate is handed out. This enables the landowner to market his product as certified wood and to use the FSC logo. A chain of custody certificate is issued for the labelling of wood products. The wood is followed during the whole supply chain in order to make sure that certified and non-certified wood are not intertwined. It involves processing, wholesale and retail phases.

For years, FSC had a monopolistic position, when all certified forests were registered under its scheme. Nowadays, it has competition of 4 international programs (FAO, 2005). Its certification market share is 23%, falling behind the industry-based Pan-European Forest Council (38%) (Eba'a Atyi and Simula, 2002). Nevertheless, FSC is the only global scheme that operates in developing countries and about 94% of eco-labelled forest products have been FSC certified. Until recently, other programs did not have a chain of custody process so that their products could not be eco-labelled (UNEP, 2005).

3.2 Environmental impact

As indicated by the framework, the environmental effectiveness of FSC labelling depends on its impact on trade flows, its marginal benefits and on whether the environmental problem is sufficiently trade-related. Each aspect is considered in turn.

3.2.1 Overall trade impact

The scope of FSC has expanded substantially over the years**.** In 2005, the global market for FSC-certified wood and paper products was in excess of US$ 5 billion, compared to US$ 3.1 billion in 2002. This is a growth of 67% (FSC, 2005; 2006b). Certification has also risen steadily. Chain of custody certification increased 25% in two years and, to date, the forest management certification program covers about 74 million hectares (FSC, 2006c), compared to about 40 million hectares in 2004 (FERN, 2004).

However, it represents only about 3% of the total value of international trade in wood and wood products and a minor share (1.7%) of all remaining forest[34]. It has been estimated that, only less than 4% of the world's forests, i.e. 176 million

[33] The label is also found on non-wood forest products, but given the scope of this report no attention is paid to this.

[34] Trade includes round wood, sawn wood, paper products etc. The value of international trade in wood and wood products was US$150 billion in 2003 (FAO, 2004a). More recent data is not available to the author. Note that the market for certified forest products will be larger than the volume of eco-labelled products, because some buyers only require that the origin of products is from certified forest areas, not that they are labelled (UNEP, 2005; Earley and Anderson, 2003). The total volume of timber available on the market from certified areas has not been reliably estimated (ITTO, 2002).

hectares, has been certified by the various national and international schemes around the globe (FAO, 2005).

These figures reveal that the impact of FSC is growing, but still remains limited on a global scale **(A1)**. Besides, it is crucial in this case to notice that both demand and supply are geographically skewed towards northern countries while needed the most in the South. Issues related to consumer acceptance and supply availability are considered hereafter.

Market demand

There are some major markets in developed countries where relatively many buyers are committed to certification. They are located in the EU and North America. The average market share in the EU is less than 5% as of mid 2002, but market penetration in the UK, the Netherlands, Switzerland and Belgium has been higher (Eba'a Atyi and Simula, 2002; Ozinga, 2004; UNEP, 2005). Currently, FSC certified products account for 12% on the Dutch market (FSC, 2006b)[35]. Their share increased from 7% in 2001 and 4% in 1999 (Kriesch, 2004)[36]. In Canada, the estimated market share is over 5% of wood and paper products (UNEP, 2005).

These niche markets are characterized as eco-conscious, in which active environmental groups are operating and large retailers and firms are supporting FSC. The WWF Global Forest and Timber Network (GFTN) plays a significant role in this regard as associated buyers account for more than half of the demand (Eba'a Atyi and Simula, 2002). Examples are Kwantum, IKEA and B&Q[37]. Accordingly, it is perceived that the most important market for certified forest products consists in retailers and other corporate buyers, who are driven by marketing factors (Bourke, 1998; UNEP, 2005). In addition, public purchasing is a source of demand. In the UK, Denmark, the Netherlands, Belgium, Austria and several states of the USA, government administrations have introduced 'green' procurement policies covering wood and paper products (Eba'a Atyi and Simula, 2002).

The general perception is that demand exceeds supply in aforementioned markets, so that supply is considered as the constraining factor of further market development (Earley and Anderson, 2003; FERN, 2004). This holds particularly for tropical hardwood (FSC, 2006b).

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[35] Research on consumer awareness of the FSC Logo in the Netherlands reveals that unprompted recognition among the general public was 33%. Among people between 18 and 35 years old, recognition was even 42% (FSC, 2005).

[36] This growth is desirable, but note that still 88% of the wood is illegal or originates from unsustainably managed forests.

[37] With respect to B&Q, about 95% of their products sold are certified, of which the vast majority is covered by FSC (Roberts, 2000). This percentage is 100% for Kwantum. Other Dutch retailers, such as Gamma, have not met their own targets. In addition, they would give false consumer information about the origin of their garden furniture (Milieudefensie, 2006a). For more information on GFTN, see WWF (2006).

Nevertheless, there is also room for improvement on the demand side in these markets:

- Price premiums are currently reported, but they are modest, appear only in some market segments and seem to be due to the current scarcity of certified products in these markets (Vitalis, 2002; FAO, 2005). They are not expected to last in the longer turn when supply increases. According to some opinion polls, individual consumers in the EU and the USA are willing to pay a premium for sustainable wood products, but these are expected to be relatively small[38]. Besides, there is a well-known gap between stated preferences and actual buying decisions. This might relate to fact that consumers do not directly bear the environmental cost of forest degradation in other parts of the world.
- A lack of transparency exists. The increasing number of operating labels, with each a different meaning, might cause consumer confusion and affect the credibility of labelling. FSC faces increased competition in the marketplace from other labels[39]. Moreover, there is also diversity within the FSC scheme, since requirements vary per country and over time[40]. For example, there has been a downward revision in the percentage of FSC wood required for the labelling of wood products in response to excess demand for eco-labelled products in some markets (Earley and Anderson, 2003). This reduces the environmental-friendly meaning of the label and reflects economic (sales) interests (see section 3.2.2.).
- Some consumers actually mistrust the FSC label, because claims of corruption have been made (see next part on market supply)(OECD, 2005).
- 'Green' public purchasing seems to be disappointing in practice. For instant, recent investigation of wood use in Dutch public projects revealed that the official commitment of the central government to buy sustainable wood has been little more than lip-service (Milieudefensie, 2006b)[41].

Worldwide, the demand for eco-labelled wood products seems negligible **(A1.1)**. In addition to above-mentioned limiting factors, the overriding reason for a lack of buying incentive is that price and quality are more of interest to consumers than certification (Earley and Anderson, 2003). Of particular concern is the fact that Asian markets reveal little environmental consciousness and are thus presumably unaffected by FSC certification. They are major importers of tropical

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[38] Some argue that sustainable wood attracts a 4-5% price premium among US consumers (Vitalis, 2002), others estimated a price advantage of 5-15% (see Crossley, 1993; FAO, 1999).

[39] Besides the use of other labels, there is a tendency for intermediates to prefer ISO-certified sources. ISO 14001 is indeed a competitor on the market (Earley and Anderson, 2003; Pons Ráfols and Sánchez, 2004). However, from a forest management perspective both should be complements (Tallontire and Blowfield, 2000). ISO considers management processes, whereas FSC certifies areas. It sets actual performance standards on both process and output.

[40] And even within countries, different approaches might be followed by different groups (large owners vs. small ones) (Bourke, 1998; Pons Ráfols and Sánchez, 2004).

[41] For years, the government has promoted the use of sustainable wood by market actors, see for instant VROM (2001). Since 2004, it claims to buy as much sustainable wood as possible itself, with the goal of reaching 100% in 2010 (Koopmans and De Krom, 2005). The disappointing public performance so far seems partly due to a lack of interest (the government did not ask explicitly for FSC certified wood) and partly due to a lack of monitoring capacity (afterwards it became clear that non-labelled timber had been used, see Bergwerff, 2006).

timber and significant future demand is expected to originate from such rapid growing economies (FAO, 2004a)[42]. In addition, the lack of demand in developing countries is vital as much timber is domestically used for fuel wood (see section 3.2.3.).

Finally, it is worth pointing out that some (theoretical) models predict that certified wood products might attract demand from consumers of non timber substitutes, leading to over-consumption (Mattoo and Singh, 1994; Bougherara et al., 2005). This would increase the overall pressure on timber resources[43].

Market supply

Although there is a lack of supply in some major markets, it was mentioned earlier that both the amount of certified forests and the number of chain of custody certificates are on the rise. This indicates some producer incentives for adopting eco-labelling. However, the success of growing certification can be misleading. The number of certificates does not necessarily show the environmental effectiveness as it is highly important who receives certificates (Vitalis, 2002). The increase in certification activities has not been accompanied by improving forest management where deforestation is greatest: in tropical forests in developing countries **(A1.2)**. The destruction of these forests continues on a large scale; 13 million hectares disappear annually (FAO, 2005). While in 1996 more developing than developed counties' forests were certified (Eba'a Atyi and Simula, 2002), this relative share changed dramatically. Nowadays, the fast majority of all certified forests, almost 90%, are temperate or boreal forests situated in developed countries (FAO, 2005)[44].

Figure 3 reveals that FSC has also more success in certifying forest land in these areas, with Europe and North America representing 82% of FSC certified forests. FSC has only marginal certification in developing countries, less than 18%, even though it is the most active certification body in these areas. In tropical regions, certification has increased over time and reached timber producing countries like Brazil, Indonesia, Malaysia and Thailand, but the certified area is still limited to only 8 million hectares (FSC, 2006d)[45]. This is despite the fact that FSC was originally introduced in order to promote sustainable management of tropical forests (Pons Ráfols and Sánchez, 2004; Richards, 2004)[46]. Besides, a large share of these FSC certified forests is plantation, instead of natural tropical forest land (FAO, 2004a)[47].

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[42] China and Japan together account for nearly 75% of tropical roundwood imports and 40% of tropical sawnwood imports. The EU is also a large importer, representing 20% respectively 45% (FAO, 2004a).

[43] An indication of this mechanism might be the current 'wood' trends in home and garden furniture.

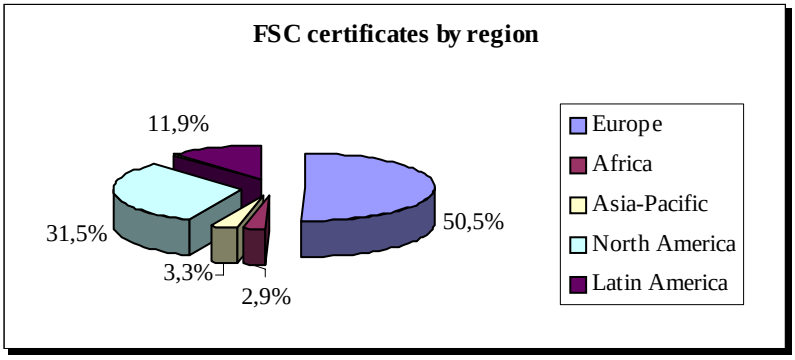
[44] In several forest-rich developed countries, for example Sweden, Norway and Finland, more than half of the forest land is covered by a certification scheme (Stokke, 2004).

[45] In 2001, the covered area was 4 million ha (FSC, 2006d).

[46] Initially the scope was restricted to tropical timber but this was subsequently expanded to include temperate and boreal forest products (Gardiner and Viswanathan, 2004).

[47] About 45% of all FSC certified land involves plantations and mixed forests (UNEP et al., 2006) and in some cases the portion is even higher. For example 73% of Brazilian FSC certified forests is plantation (Eba'a Atyi and Simula, 2002).

Figure 3 FSC certificates by region



Source: FSC, 2006c.

Beyond the FSC program, national schemes have been established in some developing countries, such as those operated by the Indonesian Ecolabelling Institute and the Malaysian Timber Certification Council[48]. These are the countries whose main export markets were European (Bourke, 1998). All considered, however, only some 10% of forest land certified worldwide is located in developing countries (Rametsteiner and Simula, 2003).

This brings me to reasons for producers to voluntarily adopt certification. Market access and market share are main reasons for seeking certification (Eba'a Atyi and Simula, 2002; UNEP, 2005). Some tropical timber producers have been able to enter new markets in the UK, the Netherlands, Germany and the USA. Others have been able to protect markets which would otherwise be lost[49]. Besides, FSC certification gives a timber product company access to the 'members only' FSC procurement club (UNEP, 2005). Public and private purchasing proved to be important in the sustainable timber trade. The least important reason is gaining price premiums (UNEP, 2005). As mentioned in the former section, there is limited scope for financial benefits in the form of price premiums on labelled wood and wood products, especially in the longer run. Besides, even when higher prices would result, these are not likely to be passed on to forest owners (Eba'a Atyi and Simula, 2002).

In addition, the high costs of certification might limit profits. Research on the costs of adjusting the production process to qualify for timber certification indicates that they can be large, but there is no conclusive evidence due to different definitions. The direct costs of obtaining certification are estimated at 5-10% of existing logging costs, although some estimates are higher (Vitalis, 2002). In addition, some report 100% increase in production costs (Zarrilli et al., 1997), while others mention economic costs of 10-20% of the international price for traded timber (Vitalis, 2002). It depends on whether a company is close or far away from 'good' forest stewardship.

[48] Since national certified forest can be registered under FSC, there might be some overlap.

[49] Partly due to bans on tropical timber and other non-tariff barriers, exports have decreased in the tropics (Crossley et al., 1997; FAO, 2005).

The fact that costs tend to fall more heavily on primary producers while the benefits tend to be realized by actors further down the supply chain has some consequences:

- Sustainable forestry not only faces competition from unsustainable logging but also from alternative land uses that offer high short-term profits to producers. The conversion of forests to agricultural land continues at an alarming high rate (FAO, 2006a). The cleared land is used to grow 'cash crops' for export, such as palm oil and soybeans[50]. It should not be forgotten that such forest depletion is both environmentally and economically an unviable option in the longer term. However, especially developing countries are often more short term oriented.
- The incremental impact of certification on sustainable forest management is generally perceived to be limited as only those who could receive certification at relatively low marginal cost applied for it. Currently certified forests in developed and developing countries were expected to have good respectively better-than-average forest management before certification took place (FAO, 2004a; Pons Ráfols and Sánchez, 2004). Yet, certification is intended as a catalyst for change, rather than a means of rewarding operation that were already taking place (see section 3.2.2.). There might be several reasons why many forest owners in developing countries have not been certified yet. These are handled in section 3.3.1.
- It proved to be tempting for producers to market products as eco-labelled when in fact they are not. They attempt to obtain some benefits without bearing the cost of certification and adapting forest management. Reliable chain of custody procedures must ensure the integrity of the products that reach the marketplace (FAO, 2005).

With respect to chain of custody certificates, it is crucial to better reach Asian markets. They play an important role in the persisting problems with unsustainable and illegal tropical timber trade. To date, substantial illegal logging and smuggling takes place in developing countries[51]. China is a key actor in the processing of such wood as a re-exporter in the form of wood products (FAO, 2004a; Economist, 2006; de Vreede, 2006).

Yet, the FSC label has not been without controversy. There seem to be flaws in the certification system (Earley and Anderson, 2003). FSC authorized auditors have been accused of corruption, in the sense that they would have vested commercial interest in certifying timber companies, regardless of whether or not they actually comply with FSC's requirements (Rainforest Foundation, 2002).

[50] For instant, deforestation in South America is stimulated by land clearings for soybean production. Soy is exported for, among other, use in animal fodder (Dros and Van Gelder, 2005). In Indonesia, the rapid spread of palm oil plantations threatens natural forests.

[51] It is estimated that half of the imported wood in EU is illegal, mainly originating from Indonesia, Central Africa and Brazil. Some illegal wood also originates from the Baltic States and Russia (WWF, 2005). The EU is currently developing a policy plan 'FLEGT' to reduce the inflow of illegal wood, see EC (2006b).

3.2.2 Marginal environmental impact

There is a lack of quantitative evidence revealing that compliance with FSC standards on which certification is based actually improves forest management[52]. Only a few examples indicate that certification has had some positive impact[53]. As stated, solely the best performing forestry companies have been reached, often involving plantations, and 'fake' FSC might be on the market.

What can be said about the quality of the standards is that they are tailor-made. Global FSC principles and criteria form the basic structure of the scheme, but standards are refined to suite national or sub-national circumstances (FSC, 2004). Given the heterogeneity of forests, such an approach is favourable. Besides, FSC primarily uses performance-based standards, which specify a minimum level of performance that must be achieved. It would be good for the verifiability of claims for consumers[54].

However, all standards are (semi-) qualitative in nature. FSC has been criticized on using vague conditions in their certification process. For instant, those related to biodiversity conservation, minimizing clear cutting of forest, reducing the use of chemicals and preservation of old growth forests (Consumers Union, 2006; Bennett, 2000; ITTO, 2002). They would also use a blurred distinction between a plantation and a natural forest, potentially countenancing the clearing of natural forests for plantations (Earley and Anderson, 2003).

These complaints might have to do with the fact that FSC standards are the result of stakeholder negotiations and are value based rather than science based (Tallontire and Blowfield, 2000). Social, environmental and economic interests are equally represented within the FSC, but forest industry power has become more prevalent in practice (also see sections 3.2.1 and 3.3.1.)[55]. FSC might have adopted a 'fast growth strategy' (Taylor, 2005). The downwards revision of requirements and corruption claims have already been mentioned. All considered, the effectiveness of the criteria an sich to improve environmental quality is questionable **(A2)**.

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[52] This might be due to inappropriate standards, but also due to afore-mentioned methodological difficulties. Besides, it is mentioned that sustainability issues are difficult to define and monitor in complex forestry eco-systems (UNEP, 2005). FSC itself refers to the number of certifications and the total area of certified land as indicators for environmental effectiveness.

[53] In the UK and Brazil (see Garforth and Thorner, 2002; May, 2004), but the impact is not substantial and excludes small forest enterprises (Ozinga; 2004; FAO, 2004a: ITTO 2002). I will come back to the latter later on.

[54] Other schemes use process-based standards, which focus on management processes alone. These offer less clear assurance to consumers, i.e. less verifiable claims (FERN, 2004; FAO, 2004a).

[55] The forest industry has mistrusted FSC because environmental NGOs were heavily involved in the creation of FSC. In response they started their own labels, with less stringent requirements. Over the years, FSC regulations have become more flexible to accommodate the needs of business (Gulbransen, 2005).

3.2.3 Origin environmental problem

Since FSC is an export oriented scheme that targets international trade in wood and wood products, its capacity to solve deforestation problems in the developing world is limited. Unsustainable consumption of timber in developed countries is namely not the main underlying problem of deforestation in tropical areas. It is rather:

- Domestic demand for forest products like fuel wood (Vitalis, 2002; ITTO, 2002).
- About 80% of the wood harvested in Africa, Asia and South America is consumed as fuel[56]. Only a small portion of the harvested logs eventually enters international trade (FAO, 2004a)[57]. Timber trade is mainly between developed countries (Pons Ráfols and Sánchez, 2004; FAO, 2004a)[58].
- The clear cutting of forests for alternative land use (Vitalis, 2002). The attractiveness of producing 'cash crops' has already been mentioned (see section 3.2.1)[59].

FSC has been unable to address both issues (Vitalis, 2002: Pons Ráfols and Sánchez, 2004)[60]. Subsequently, it can only partly contribute to better forest management. Its actual impact in a global sense seems to be limited **(A3)**.

3.3 Poverty impact

As shown by the framework, the poverty impact of FSC labelling depends on its impact on trade flows from developing countries and its social consequences. Both are discussed in turn.

3.3.1 Trade impact developing countries

The relatively limited developing country participation in FSC certification raises some questions on the appropriateness of such schemes for the circumstances of these countries[61]. It might form a basis for protectionism accusations (Tallontire and Blowfield, 2000). At the moment, however, there is no evidence that labelling acts as a barrier to trade for less developed countries **(A4)**. Former

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[56] In Europe and North and Central America, harvesting is mainly for industrial roundwood (FAO, 2006a).

[57] The proportion of timber from tropical countries in general that appears in international trade is only about 5% of roundwood harvested. In a number of countries such as Indonesia, Malaysia and Cameroon the proportion traded is higher; about 25% of industrial roundwood is exported (FAO, 2004a). But as mentioned, harvesting is more for fuel wood than for the production of industrial roundwood.

[58] Since the 1990s, temperate and boreal logs have substituted for tropical logs. Nowadays, less than 50% of trade in hardwood logs is tropical (FAO, 2004a).

[59] Especially when FSC becomes so successful that the value of unsustainable-managed forests are so much reduced that alternative use becomes more profitable (Varangis et al., 1993). Labelling then encourages rather than discourages deforestation.

[60] National schemes have been set up but probably not with the intention to protect the environment through domestic market forces. Rather to assist those domestic producers that export to markets where eco-labelled timber is available.

[61] The share of developing countries in eco-labelled trade is not known, but given certification areas it is expected to be low.

section revealed that the market for labelled wood and wood products is small on world level and even in the major markets it remains a niche. Only when eco-labelling is so successful that it becomes a standard in certain markets, developing countries will have problems with selling their export if labelling conditions are not met. But even then, alternative markets in Asia or domestically might still be available.

Yet, even though a negative trade impact is not identified, the opposite is also true. Eco-labelling can offer positive opportunities of trade expansion via access to new markets (while at same time improving the environment). As mentioned, there even appears to be excess demand in some European and American markets. These chances are, however, not utilized by the majority of developing countries, despite the fact they are in need for economic growth **(A4)**.

This might have to do with a lack of producer incentive **(A4.1)**. Market benefits derived from certification are distant and uncertain. As mentioned, price premiums are low, if they exist at all, and producers know that not everyone can fill up the current excess demand. Consequently, some countries seem to find it advantageous to pursue less environmentally sensitive markets rather than incurring the costs of certifying their timber (ITTO, 2002). The profitable alternative of 'cash crop' production also plays a role here.

Other possibilities are that producers are not aware of FSC **(A4.2)** (Earley and Anderson, 2003) or that they try to get involved but have severe difficulties with qualifying for the label **(A4.3)**. Their lack of access to the label might have to do with several constraining factors*:*

- Certification is not affordable for small-landowners that lack the financial resources and offer only limited amounts of timber. Research indicates that economies of scale exist in both the certification process itself and operational changes, thereby favouring large forest-owners and timber companies (Stevens and Tsigas, 1997). The focus of FSC has largely been on these actors, despite the fact that a quarter of the world's forests are community-owned or managed (Molnar, 2003). In 2002, more than 90% of the FSC-certified area was covered by 86 certificates only (Eba'a Atyi and Simula, 2002).
- Lack of knowledge and technical resources (Tallontire and Blowfield, 2000). FSC uses substantive performance criteria and indicators (see section 3.1.). Rules that must be complied with are elaborate (Stokke, 2004). Producers find it difficult to meet the requirements of FSC. The gap between current forest management and sustainable forestry seems to be too large, despite the fact that standards are supposed to be tailor-made to local circumstances.
- Difficulty of achieving effective stakeholder consultation, revealed by both abovementioned issues. 'It is easy to incorporate the concept [on paper] but difficult to do well (in practice)' (ISEAL, 2005:1). FSC is broadly praised for its three chambers in which economic, social and environmental interests are represented (UNEP, 2005). However, the problems of poor, local communities have been ignored for a long period of time. Complaints on industry dominance have already been brought up.

- The existence of various parallel labelling schemes does not simplify the task of compliance. Timber suppliers may be called on to acquire more than one certificate for the same product in order to satisfy different groups of customers. This leads to fragmentation, overlap and even conflict (Baharuddin, 1995). There is a need for greater transparency and harmonization.
- There is a lack of property rights. Forest concession holders have, in some cases, limited control over forest resources (Wibowo, 2002; Earley and Anderson, 2003). There are conflicts over land tenure and illegal logging, probably partly due to weak legal infrastructure and law enforcement. Most of the world's forests remain under public ownership, particularly in developing countries (FAO, 2006a). However, the ability and interest of governments to manage forests effectively and sustainably is often limited. In several countries, such as Indonesia and Brazil, the corruption of politicians and business elite forms a huge problem. Formally, national governments would have shown interest in supporting sustainable forest management and eco-labelling (FAO, 2005), but in practice public officials still seem to favour the revenue of forestry and other sectors that exploit the forests[62].

In response to criticism, attempts have been made to adapt the FSC label to the special circumstances of small-holdings. It involves initiatives for group certification (FAO, 2005)[63]. In addition, FSC introduced a stepwise approach to forest certification (FSC, 2006d). Producers have more time to adapt to the standard levels set by 'western' countries. The avoidance of 'one-size-fits-all' types of conditions is appraisable. However, gradual improvements in performance must be secured to avoid that the eco-credibility of the FSC label is jeopardized (Stokke, 2004). Besides, the fact that developing country participation grows but remains small indicates only modest success so far.

3.3.2 Social issues

Forests are essential to the lives and livelihoods of over 90% of the 1.2 billion people who live in extreme poverty around the world (World Bank, 2006). It is estimated that 350 million of them are directly dependent on forest resources for subsistence or income (FAO, 2004a).

Poor, local communities face difficulties in benefiting from FSC labelling. Former section revealed that especially less-resources groups lack access to the label. FSC is working on resolving some bottlenecks, but the ability of alleviating poverty directly through eco-labelling is inadequate at the moment **(A5)**.

Social issues are also addressed by FSC, but in a qualitative fashion. For instant, workers have the right to organize, but no minimum health and safety standards are in place. It is claimed that working conditions have been improved in developing countries due to certification (Molnar, 2003; Richards, 2004: Newsom

[62] See for example EIA (2000), May (2004) and the Economist (2006).
[63] According to FSC, savings of 40% on certification costs would have been achieved (FSC, 2006d).

and Hewitt, 2005), but changes would not have been substantial (Ozinga, 2004) and solely took place in larger companies (Molnar, 2003; Richards, 2004) **(A5)**.

3.4 Conclusion

The ability of FSC labelling to stop deforestation has been limited, due to possibly ineffective criteria and because of several demand and supply constraints. Its market impact is growing but not large on a global scale. There is excess demand in some EU and US markets, primarily through corporate and public purchasing, but rapid growing economies and developing countries lack environmental concern. Besides, the overall willingness to pay for 'green' timber and timber products is uncertain, whereas costs of certification are perceived as high. The certification that has taken place is mainly in developed countries, while the major environmental problems lie in tropical regions. Sustainable forestry faces competition from profitable alternative land uses there.

Given the fact that the market for certified products has only become a niche in certain countries, there is no indication that eco-labelling harms or has harmed the exports of developing countries. At the same time however, developing countries did miss an opportunity to earn income with sustainable forest management. This would have been particularly welcome for poor, local communities. Unfortunately, FSC labelling programs have not been suitable for their special circumstances. Thus, even if the demand for environmental-friendly produced wood (products) would expand significantly, they might not benefit as they have not been able to take part in this field. It might only erode countries' trade in uncertified timber then. In sum, FSCs performance is marginal both from an environmental and poverty perspective. It is hardly present in developing countries; it is not there where needed the most.

4 Fishery and MSC labelling

This chapter presents the case of Marine Stewardship Council (MSC) labelling on fish and fishery products and starts with some background information. Then, the framework developed in chapter 2 is applied in order to evaluate the performance of MSC concerning the environment and poverty alleviation in developing countries. Table 4 on page 37 gives a structured overview of the findings. References to this table are made between brackets.

4.1 Background

Concerns on the fast declining global catches of fish gave rise to the creation of the Marine Stewardship Council (MSC)[64]. It is founded in 1997 by the World Wide Fund for Nature (WWF) and Unilever with the goal to safeguard future supplies of fish, although for different reasons. As a nature conservation organisation, WWF wanted to protect marine eco-systems, whereas Unilever, one of the world's largest seafood buyers, desired to preserve its future business. Since 1999, MSC operates as an independent organisation, though its founders are still among the financial contributors. It aims to 'safeguard the world's seafood supply by promoting the best environmental choice, (MSC, 2006a:1).

MSC has, in collaboration with a selected group of parties, established a set of principles and criteria for sustainable fishing. The principles cover three main areas, as shown in Table 2. They are backed by 23 criteria[65].

Table 2 MSC Principles

3 Principles for Sustainable Fishing	
#1	Status of the fish stock: maintenance and re-establishment of healthy populations of targeted species.
#2	Impact of fishing on eco-system health: maintenance of the structure, productivity, function and diversity of the eco-system on which the fishery depends.
#3	Management plan: development and maintenance of effective fisheries management systems.

Source: Adapted from MSC (2002).

[64] In 1996, 60% of the world's fish stocks were in urgent need of more effective management (FAO, 1996).
[65] A full and original description of MSC's Principles and Criteria is provided in Appendix D.

Fisheries meeting these standards will be eligible for certification by independent bodies accredited by MSC. Awarded certificates give the right to use the MSC label on containers of fish. After chain of custody requirements are met, the eco-label can be used on fish products in the marketplace in order to differentiate them from those coming from non-certified fisheries. Without this traceability process as well, certified and uncertified products could be blended.

To date, MSC faces no effective competition from other labels. It remains the most comprehensive and only operating, third party eco-labelling scheme for marine fish that is global in scope (May et al., 2003). Other eco-labelling schemes have emerged, but these are generally related to specific aspects of the fishery and limited in geographical scope. Many are based on first-party assessments, i.e. self declared labels (OECD, 2005). An example is the Dolphin safe label issued by US producers. MSC chose not to deal with farm raised seafood, which limits its mandate since aquaculture is becoming increasingly important (May et al., 2003; OECD, 2005). Currently, the Global Aquaculture Alliance (GAA) covers this industry (Wessells et al., 2001).

4.2 Environmental impact

As indicated by the framework, the environmental effectiveness of MSC labelling depends on its impact on trade flows, its marginal benefits and on whether the environmental problem is sufficiently trade-related. Each factor is considered in turn.

4.2.1 Overall trade impact

Certification has risen over the years. In 2004, MSC certified fisheries accounted for an annual output of about 1.8 million tonnes, compared to slightly more than 0.5 million tonnes in 2002 (MSC, 2005; Vitalis, 2002). Nevertheless, it represents only 1.9% of total marine capture fisheries production, which is 95 million tonnes (FAO, 2006b)[66]. It shows that MSCs global impact on fishing remains limited **(B1)**.

No data is available on the volume of the market for MSC products or, more generally, the market for sustainably produced fish (UNEP, 2005)[67]. The general perception is though that MSC has had little market impact on the international level (Kuntzsch, 2003; Vitalis, 2003). Issues related to demand for and supply of eco-labelled fish and fish products are considered hereafter.

[66] Including aquaculture production, total production was 140 million tonnes in 2004 (FAO, 2006b).

[67] Available data, such as 'there were a total of 223 products carrying the MSC label being sold in 24 countries around the world (MSC, 2005)' does not indicate market penetration of the label in my view since there is no benchmark.

Market demand

Interest in MSC certified products has been low, even in eco-conscious markets in the EU and the USA **(B1.1)**. With respect to the EU, MSC only receives large support of supermarket retailers and restaurants in the UK and Switzerland. In other parts of Europe, just a few Unilever brands have taken up MSC. With respect to the USA, only one retailer (Whole Foods Markets) stocks MSC-labelled products (May et al., 2003)[68].

The existing market demand for sustainable seafood is more driven by retailers, fish processing and wholesaling buyers than by final consumers (Earley and Anderson, 2003; OECD, 2005). Companies are looking for ways to demonstrate a sense of corporate responsibility to shareholders and critics (OECD, 2005), but do not seem to respond to individual consumer demand for products from MSC certified sources (demand pull). Several bottlenecks arise with respect to individual consumer demand in these markets:

- There is little consumer recognition of the problems associated with unsustainable fishing. Several attempts are being made, by for instant WWF and Greenpeace, to improve consumer awareness in this field.
- Consumers' willingness to pay a higher price for sustainable seafood is uncertain, even when they are informed about the label and sustainability issues. Some fisheries reported higher fish prices, but the relation with obtaining MSC certification is questioned and whether other certified fish or fish products can yield such price differentials continues to be hotly debated (May et al., 2003; OECD, 2005)[69]. Ex-ante surveys indicate that US consumers, and Norwegian ones to a lesser extent, prefer eco-labelled seafood above non-labelled seafood with the same product characteristics, but also that this choice is less likely to be made when the size of the price premium grows (Johnston et al., 2001)[70]. Also note that these studies reflect stated preferences and do not measure actual behaviour.
- There is a risk that the evolving number of labels with a wide variety of claims, whose credibility is not easily verified (EC, 2005), confuses consumers and jeopardises their confidence in certification and eco-labelling[71].

The limited demand in the EU and the USA severely limits the impact of eco-labelling, because they are large fish consuming and importing regions[72]. Japan is the largest importer of fish, but its inhabitants presently seem not very responsive to eco-labelling of fish and fishery products either. This also holds for

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[68] Although a second US retailer (Walmart) recently announced its intention to sell MSC products within 3 to 5 years (Roheim and Sutinen, 2006).

[69] Environmental labelling in fisheries is probably too recent to conduct ex-post economic analysis of whether a price differential is present (May et al., 2003).

[70] Thus no difference in freshness or safety of consumption.

[71] The focus of claims can range from not over-fished, to no marine mammal by-catch and not over-fished, to no by-catch of any sort and not over-fished, to ecosystem friendly where the entire ecosystem with its complicated food chain is not harmed (Wessells et al., 2001).

[72] The USA is the second-largest importer (US$ 12 billion or 16% of total imports), followed by Spain (US$ 5.2 billion), France (US$ 4.2 billion) and some other European countries. The largest importer is Japan with US$ 14.6 billion worth of imports, accounting for about 19.5% (FAO, 2006b).

other countries in Asia, Latin America and Africa, from which expected future growth in fish demand will originate[73]. The extent to which eco-labelling can serve as a tool for achieving sustainable fisheries on an international scale may thus be limited. Yet, demand is not the single limiting factor of MSCs scope. There is also a small volume of supply.

Market supply

Interest in certification under MSC standards has been expressed by both developed and developing-country fisheries (Earley and Anderson, 2003), but this has been limited in magnitude **(B1.2)**. To date, only the 19 fisheries exposed in Table 3 are certified to use the MSC logo, 17 others are undergoing full assessment (MSC, 2006b).

The overwhelming majority of them is based in developed countries. This is beneficial as many developed country fisheries cover fishing areas that are overexploited. According to MSC, several fish populations characterised as fully exploited by the Food and Agriculture Organization of the United Nations (FAO) have been addressed by its labelling scheme so that they can be sustainably managed in the future (MSC, 2005).

Table 3 MSC certified fisheries

MSC certified fisheries	Country
Alaska Pollock – Bering Sea and A. Islands	USA
Alaska Pollock – Gulf of Alaska	USA
Alaska Salmon	USA
Australian Mackerel Icefish	Australia
BSAI Pacific Cod Freezer Longline	USA
Burry Inlet Cockles	UK
Hastings Fleet Dover Sole Fishery	UK
Hastings Fleet Pelagic Fishery	UK
Loch Torridon Nephrops	UK
Mexican Baja California Red Rock Lobster	Mexico
New Zealand Hoki	New Zealand
North Sea Herring	Netherlands
South African Hake	South Africa
South Georgia Toothfish	Falkland Islands
South West Mackerel Handline	UK
Thames Herring	UK
US North Pacific Halibut	USA
US North Pacific Sablefish	USA
Western Australian Rock Lobster	Australia

Source: Adapted from MSC, 2006b.

[73] China has its own huge and diverse domestic market in which eco-labelled products may find it difficult to make a foothold (Gardiner and Viswanathan, 2004).

However, only low cost certification has generally been chosen, in the sense that certification was sought on the basis of existing management regimes rather than to improve fisheries management per se (see section 4.2.2.) (Gardiner and Viswanathan, 2004). Latest estimates show little improvement on past trends in the exploitation of fish stocks (FAO, 2005)[74].

It seems that the costs of changing fishery management are high compared to the perceived benefits of certification. The reasons for fisheries to obtain MSC are to raise exports and to increase their market share of niche market commodities (Gardiner and Viswanathan, 2004). The fear of losing market share has also been expressed (Gulbransen, 2005)[75]. In fact, the real significance of eco-labelling schemes seems to stem from potential rather than actual market benefits (Deere, 1999). Significant benefits are still to be realized, even for the Western Rock Lobster that was the first fishery that received MSC certification in 2000 (Rogers et al., 2003)[76]. Costs of certification, in contrast, have to be taken directly. They have been difficult to quantify and depend on the size and complexity of the production process (Wessells et al., 2001). Yet, estimates reveal that full certification costs range from US$ 10,000-20,000 for a small and simple fishery to US$ 100,000-150,000 for a large, complex fishery (Peacy, 2000; Wessells et al., 2001; May et al., 2003). These include fundamental changes, records of data improvement and costs paid by fishers for getting the MSC status[77]. The cost of annual audits is expected to be small compared with the cost of initial certification (Peacy, 2000).

Besides, MSC fails to reach developing countries, including the world's leading fish producer and exporter, China (FAO, 2006b)[78]. Developing nations account for about half of the total exports of fish, largely to Japanese, EU and US markets (Gardiner and Viswanathan, 2004; FAO, 2006b)[79]. Lower income developing countries play an active part in this trade and represent almost 20% of total exports (Earley and Anderson, 2003). To date, 9 year after the establishment of MSC, only two fisheries from developing countries have been certified (the Baja California Mexico Lobster and the South African Hake, see Table 3) and two are on the way (MSC, 2006b). This is despite the fact that, from an environmental perspective, these fisheries seems to be more eligible for certification than those

[74] The figures are: 3% underexploited fish stocks, 21% moderately exploited, 52% fully exploited, 16% overexploited, 7% depleted and 1% recovering (FAO, 2004a).

[75] Even if certification did have the predicted effects in markets it would be likely to reward middlemen and the post-harvest chain of custody, but not necessarily the fisher (Kurien, 2000). This is the same as with FSC (see section 3.2.1.2).

[76] An extra issue here is the seasonal availability of some types of MSC certified fish, which make their marketing more difficult (May et al., 2003).

[77] Pre-assessment costs range between US$ 3,000 and 25,000 (Wessells et al., 2001). Costs for chain of custody are US$ 1,000 to 5,000 and the user fee for the MSC logo on products is 0.1% of the catch value at the point of labelling (OECD, 2005).

[78] Its exports value 6.6 billion US$ and represent 9.2% of total exports in 2004. China is followed by Norway (US$ 4.1 billion), the USA (US$ 3.9 billion), Denmark (US$ 3.9 billion) and Canada (US$ 3.5 billion) (FAO, 2004b).

[79] The share of developing countries in total fishery exports was 48% by value and 57% by quantity in 2004 (FAO, 2006b).

of many developed countries. The fish stocks within their territories are less depleted and fisheries are less developed (Wessells et al., 2001). Barriers to developing country involvement in the MSC scheme are addressed in section 4.3.1.

Finally, a crucial problem with respect to MSC labelling is the presumed existence of a spill over effect. There is a serious suspicion that rather than 'greening' trade, the MSC eco-label simply causes problems to move elsewhere when excess fishing capacity from certified fisheries is redirected to uncertified ones (FAO, 2000)[80].

4.2.2 Marginal environmental impact

At present, there is hardly any evidence revealing that compliance with MSC standards actually improves fish eco systems. According to a recent report, environmental gains can be identified in all certified fisheries, especially the latter approved ones, but there is uncertainty about causality. Only a few benefits could be primarily attributed to certification conditions as the intention to make a particular change may well have already been present in the fishery management system (Agnew et al., 2006)[81]. It seems encouraging that most progress appears to be made on principle 2 (regarding the link between fishing and wider eco-system health), since most fisheries score lowest on this principle (Agnew et al., 2006). MSC uses performance based standards, which would be good for the verifiability of its environmental claims.

However, making the MSC principles operational is a difficult and controversial process. Criteria should be 'practical, viable and verifiable' (FAO, 1999: §11). They are criticised for being broad-based, although some things are generally not accepted, such as the use of poison and explosives as fishing methods (May et al., 2003). This is partly due to the lack of general consensus on what exactly sustainability in fishery means (Wessells et al., 2001; EC, 2005). Marine eco-systems are complex and identifying over-fishing, defining maximum sustainable yields and assessing the impact of fishing on non-target species seems to be problematic. Besides, there are various parties with different interests. MSC principles are in line with best practices for fisheries in many parts of the world, as outlined in FAO rules, but the application of principle 2 remains a bottleneck (Chaffee et al., 2003)[82]. Requirements appear to be higher than the standards generally adopted by mainstream fisheries management practices (Agnew, 2006). In addition, MSC principles are general. They are supposed to be applied

[80] When a market for unsustainable fishing products remains to exist, even when less lucrative than the certified one, poor fishers will continue to exploit the resources, perhaps even increasing effort (illegally or legally) to make up of for lower income in the non-certified market.

[81] 'The best we can do is to say, on the basis of the evidence from these (16) fisheries, that environmental gains have flowed from conditions that have been set, and have been generated independently of conditions, at time scales that are coincident with, or appear to have been stimulated by, the certification process'. (Agnew et al., 2006:22).

[82] In 2006, MSC will become wholly consistent with the UN guidelines for eco-labelling of fish and fish products from marine capture fisheries (ISEAL, 2006).

to all fisheries in the world, irrespective of size, scale, location and intensity (MSC, 2005). Yet, such a 'one-size-fits-all' approach is problematic given the diversity in fisheries and local circumstances (also see section 4.3.1.).

In a way, MSC does adopt a flexible approach. Fisheries can receive certification even if they have not reached the 'unconditional' pass level of performance (score of 80% or higher). To date, all certified fisheries have had to commit to meeting conditions defined in the assessment to raise their performance beyond the minimum standard (Agnew et al., 2006)[83]. Some argue that this practice might enhance significant environmental improvements as fisheries want to maintain the label (Agnew et al., 2006). A prerequisite is strictness of the certification body to ensure that the conditions will become fully satisfied. For others, this practice raises serious questions on the trustworthiness of MSCs claim that certified fisheries are producing in a sustainable manner. There have been controversies surrounding some certifications of MSC (Roheim and Sutinen, 2006). It is feared that too many fisheries are awarded an unjustified certificate (MRAG/IIED/Soil Association 2000; Sutton, 2003). For example, the by-catch of fur-seals and birds by the certified New Zealand Hoki fishery still continues (Aalders et al., 2003; Short, 2003).

This scepticism, especially on the part of environmental NGOs, is fuelled by the way stakeholders have been involved in MSC standard setting. Fishing industry has been dominant in the process. Instead of choosing a bottom up approach led by members (as done by FSC), a top down approach led by 'experts' had been chosen (Brander, 2004). In response to criticism, MSC changed its governance structure in 2001 (2004) and set up a stakeholder council (steering group) and technical advisory board (MSC, 2006c; May et al., 2003). It is not known whether stakeholder consultation has actually improved since then. Taken all issues as a whole, the strength of MSC certification to improve environmental quality is questionable **(B2)**.

4.2.3 Origin environmental problem

Since MSC is an export-oriented scheme that targets international trade in fish and fish products, it has the capacity to solve sustainability problems in fisheries to a certain extent. A significant share (38%) of global fish production enters international trade[84]. Given that most products (81%) are destined for developed countries' markets (FAO, 2006b), MSC has the potential to create a market-based incentive for sustainable fisheries management by raising consumer awareness and stimulating demand in these markets.

Nevertheless, over-capacity in the world fishing fleet remains the fundamental problem in fisheries (Vitalis, 2003). As long as this problem is unaddressed and some demand for unsustainably produced fish and fish products remains, sustainability in global fisheries will be hard to achieve **(B3)**.

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[83] Some of these conditions relate to management or institutional concerns, but many relate to concerns about the target stock or the ecosystem with which the target stock or the fishery interacts (Agnew et al., 2006).

[84] The trade in fish products is the most international of trade in all food products (Brander, 2004).

4.3 Poverty impact

The poverty impact of MSC labelling depends on its impact on trade flows from developing countries and its social consequences. Both are evaluated in turn.

4.3.1 Trade impact developing countries

Given the importance of fish exports for developing countries, it is of no surprise that they were reluctant to embrace MSC when it was launched (Deere, 1999). Latin American exporters had experienced great difficulties with the US government sanctioned labelling of tuna as being 'dolphin safe'. Many governments of developing countries are still concerned that MSC labelling may act as a non-tariff barrier to high-value markets in developed countries (Vitalis, 2002; World Bank, 2004)[85]. Especially in Asian countries, eco-labelling is perceived as measure of eco-imperialism that harms their sovereignty (Gardiner and Viswanathan, 2004).

Indeed, developing country fisheries have hardly participated in MSC certification. Yet, given the small size of markets for labelled seafood, there is no reason to assume that export earnings of these producers have been harmed by the existence of the MSC label **(B4)**[86]. However, eco-labelling has no beneficial impact either. It did not offer any trade opportunities **(B4)**.

The market benefits of MSC certification are limited and unsure while its costs are high (see section 4.2.1.), so producer incentives seem to be lacking **(B4.1)**. More importantly, the label does not seem to fit developing country fisheries. Several factors that may constrain their access to the label can be identified **(B4.3)**:

- There have been complaints on high costs of the certification procedure and chain of custody audits for which less developed countries have no funding.
- Particularly small scale fisheries lack scientific data to determine the health of fish stocks and their performance on all the other criteria and indicators. Both data and management are regularly based on local knowledge instead of scientific, 'western' methods (Gardiner and Viswanathan, 2004). Filling the information gap is time and money consuming and might involve the sharing of best practices. Developing countries have emphasised the need for greater financial and technical assistance for the improvement of fisheries management systems (Wessells et al., 2001; Roheim and Sutinen, 2006).

[85] Given the influence of voluntary purchasing decisions of large wholesale, retail and restaurant chains that control large market shares, these schemes could effectively lead to reductions in the capacity of non-labelled products to be sold within those markets (Deere, 1999).

[86] Some argue that even if the demand for eco-labelled fish becomes a reality, this might not have large trade impacts on current exporters in developing countries and low income countries in particular. Their single and high value fisheries (harvesting shrimp and tuna) would face no direct competition from developed country fisheries as they fish on different species (MRAG/IIED/Soil Association, 2000). This holds as long as consumers do not substitute significantly between fish products as a result of differences in certification (Brander, 2004). Therefore, precaution is required in my view.

- MSC applies 'one-size-fits-all' criteria. It is inherent to this approach that different domestic circumstances are ignored. The scheme is designed by developed countries according to their priorities and reflecting their situations. However, the differences between industrial off-shore fishing of single species in higher latitudes and the fisheries of tropical, developing countries are substantial. The latter are characterized by open access and overlapping multi-species fisheries, fishing with numerous gears and using a multitude of landing sites (Gardiner and Viswanathan, 2004). Over 90% of the workers in fishing sectors of developing countries are involved in artisanal or small-scale fishing enterprises (FAO, 2000)[87]. For them it is almost impossible to receive MSC seals of approval.
- There is a lack of stakeholder consultation, as illustrated by the aforementioned issues. Subsequently, actors in the developing world mistrust the MSC criteria setting, of which they have not been part (Deere, 1999; OECD, 2005)[88].
- Given that many fisherman fish in a common pool, they have only partly control over a fish stock and its management (OECD, 2005). It hinders effective fisheries management and assignment of responsibility. Government support is needed, but often absent due to either lack of interest or lack of financial and institutional capacity (Gardiner and Viswanathan, 2004). Without addressing the issue of access or property rights to the coastal seas, labels alone will fail to achieve sustainability (Kurien, 2000).

In response to all these concerns, MSC launched a special program in which it tries to adapt the content of its scheme to data deficient and small scale fisheries and helps with the funding of certification costs. It tries, among others, to get industrial country businesses involved with developing countries through joint ventures (MSC, 2006d). Since 2000, WWF supports small producers by applying a community-based certification methodology and provision of funding (Novy-Hildesley and Short, 2003). Interest in the label from the part of developing countries has grown (MSC, 2006d), but the continuing low share of developing country fisheries in MSC certification and assessment indicates that there has been only moderate success[89]. Unless the flaws are overcome, MSCs reputation in less developed countries is seriously undermined (OECD, 2005).

4.3.2 Social issues

Fishery is important for the livelihoods of 250 million people in the developing world. They dependent on fish for their employment, income and food provision (World Bank, 2004). It is noted that small scale fisheries and their sustainability is a matter of survival for many countries (FAO, 2006c).

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[87] Artisanal fishers use traditional methods (perceived as less damaging), but receive no special status (Gardiner and Viswanathan, 2004).

[88] The MSC has carried out several consultations on its draft principles and criteria but had been criticized for not having included fishermen from developing countries (Mathew, 2000; OECD, 2005)

[89] See MRAG/IIED/Soil Association (2000) for an early review of the WWF approach.

The direct livelihood impact of MSC labelling is expected to be limited. Those fisheries that are of greatest importance in terms of livelihoods are generally not directed towards export markets, rather towards domestic ones (Brander, 2004). They will thus be unaffected by eco-labelling[90]. On the other hand, the need for small-scale fisheries to benefit from trade in terms of employment and income is emphasized (FAO, 2006c; LNV/BuZa, 2005). Yet, former section revealed that especially artisanal and small-scale fishing communities are unlikely to benefit from MSC labelling as its design still does not fit their circumstances. So, eco-labelling does not harm the poor directly, but neither provides an opportunity for poverty alleviation through trade at the moment **(B5)**.

Besides, when multi-species fisheries do become certified in the future there is a potential distortion to livelihoods. Some of the caught fish might be sold in high value international markets, others at domestic markets. If high certification costs are translated in higher domestic prices, fish becomes only available to certain groups of consumers or turns out to be unaffordable in local markets (Gardiner and Viswanathan, 2004).

Finally, with respect to non-environmental conditions in labelling, the MSC has included in its definition of a sustainable fishery the necessity that it is 'conducted in a socially and economically fair and responsible manner' (MSC, 2002:2). Yet, no specific criteria are attached to this notion. The MSC has been criticized for not incorporating labour concerns in the fishing industry into its scheme (Consumer Union, 2006) **(B5)**.

4.4 Conclusion

To date, the contribution of MSC labelling to more sustainable fisheries has been limited. Both the volumes of demand and supply are small and the marginal impact of certification on environmental quality is uncertain.

Given the limited market penetration of sustainable fish and fish products, it can reasonable be assumed that eco-labelling has no negative impact on the exports and economic growth of developing countries. However, they did not get the opportunity to benefit from 'green' trade, despite that fact that the state of their fish stocks is better than those captured by many developed countries. The latter form the majority of MSC certified fisheries. This contradiction is particularly due to the fact that developing countries lack access to the label. Its requirements disadvantage tropical, data poor, multi species, small scale fishers. In sum, MSCs performance is marginal both from an environmental and poverty perspective.

[90] ' The developing country fisheries that are exposed to international competition are more likely to be larger scale operations for species such as shrimp and tuna. While these fisheries may be of higher financial value, they are not large providers of employment opportunities' (Brander, 2004:279).

Table 4 Performance of existing eco-labels (-=bad, 0=moderate/inconclusive, +=good, ...=no input)

Performance indicators	**Scores**	
	(A) **Forest Stewardship Council (FSC) label** Voluntary, third party, targets (foreign) production processes.	(B) **Marine Stewardship Council (MSC) label** Voluntary, third party, targets (foreign) production processes
Environmental impact		
1. Overall trade impact	**-** Scope of influence rises, but fails on world level.	**-** Scope of influence rises, but fails on world level.
1.1. Market demand	- Lacks on global scale. Excess demand in some niche markets in EU and North America, mainly through corporate and public procurement, but lack of crucial demand in rapid growing economies in Asia and developing countries. Uncertain willingness to pay.	- Lack on global scale, even in eco-conscious markets. Existing demand originates from retailers and fish processing industry (Unilever). Low consumer awareness, uncertain willingness to pay.
1.2. Market supply	- Growth in certification area, but mainly in developed countries. Main environmental problems lie in tropical regions. Not enough producer incentive; only 'best' producers apply. Market access vs. high costs, uncertain price premiums. Certification of plantations. Corruption problems. Role of China as re-exporter.	- Growth in certification, but small volume of supply. Mainly in developed countries. Covers overexploited fishing areas, but only low cost certification undertaken. Lack of interest China and other exporters. Spill-over effect (overcapacity flows to unsustainable fisheries).
2. Marginal improvements	0 No hard evidence. Tailor-made approach, but qualitative and vague standards and baseline certification.	- No hard evidence. Broad-based standards that are generally applied, baseline certification and supple granting of certificates.
3. Origin environmental problem	- Main causes deforestation in developing world not addressed: domestic demand (fuel wood) and clear cutting for alternative land-use (export 'cash crops').	0 Significant share of capture fish production enters international trade, but overcapacity in fishing fleet remains problem.
Poverty impact		
4. Trade impact	0 No negative trade impact as overall trade impact is limited, but missed opportunity.	0 No negative trade impact as overall trade impact is limited, neither an opportunity.
4.1. Producer incentive	- Perceived benefits do not outweigh high costs, profitable alternative land-uses.	- Perceived benefits do not outweigh high costs, while the state of fish stocks might be better. Mistrust of label.
4.2. Awareness of label	0 Might be a problem.	…
4.3. Access to label	- Lack of resources, limited transparency. Tailor made requirements do not fit small forest owners; imperfect stakeholder consultation. Lack of property rights.	- Lack of resources, irrelevant requirements due to 'one-size-fits-all' approach; lack of stakeholder consultation. Insufficient control over common fish pool (open access).
5. Social issues	- Working conditions are addressed, but not substantially and no poverty alleviation.	- No poverty alleviation, fish might become less affordable for poor people, no working conditions addressed.

5 Conclusion and policy recommendations

In attempts to make human consumption and production patterns more sustainable, eco-labelling has become a widely applied measure. However, concerns have been raised on its actual environmental effectiveness and on its effect on growth and poverty alleviation in developing countries. In order to check the performance of eco-labels, the theoretical framework outlined in chapter 2 can be used. It identifies key factors that determine the impact of eco-labelling. This framework was applied to the Forest Stewardship Council (FSC) label and the Marine Stewardship Council (MSC) label, covering chapter 3 and 4 respectively.

Both case studies revealed that:

- The total demand for and supply of eco-labelled products has been disappointing so far.
- The current interest in eco-labelling is geographically unevenly distributed. Eco-labelling proved to be mainly a 'western' phenomenon. The developing world hardly participates, either due to lack of incentive or lack of access to the labels. The schemes are not suited for special circumstances in developing countries, those of local communities in particular.
- The size of marginal environmental improvements induced by compliance with eco-label standards is modest at best. There has been criticism on the appropriateness of criteria, the fact that only 'best producers' had been certified and that reported improvements might have taken place anyway.
- Eco-labels do not seem to be effective measures, because the main underlying causes of environmental problems are outside their direct scope of influence, i.e. international trade in targeted product categories and sectors.

These findings allow me to conclude that:

- From an environmental perspective, the effectiveness of eco-labelling has indeed been limited. Not too much should be expected from it. This holds especially with regard to altering production processes in developing countries.
- From a poverty perspective, the impact of eco-labelling has not been as detrimental as regularly expressed. There is no evidence that it actually harmed exports from developing countries, despite their limited participation in labelling. However, its impact has not been beneficial either. No trade opportunities in 'green' goods have been created. Besides, the described trade impact only holds as long as markets for eco-labelled products are *small*.
- If the demand for eco-labelled products is sufficiently stimulated, trade concerns *do* arise as non-labelled exports will lose market access.

Unless the sketched situation changes, I am negative on the desirability of eco-labelling. When eco-labels grow to be successful, they become undesirable from a poverty perspective, whereas their ability to solve environmental problems remains uncertain. Consequently, I recommend the Ministry of Foreign Affairs to take a conservative position in the eco-labelling debate at the moment.

In order to let eco-labelling benefit both the environment and poverty alleviation, more efforts need to be undertaken to:

- Make sure that developing countries are able to participate in labelling. Options include offering technical and financial support, consulting representatives in the standard-setting process, harmonizing standards and making them more transparent.
- Work on the design of criteria and the certification process to improve marginal environmental benefits.
- Stimulate worldwide demand for eco-labelled products. It is crucial to reach rapid growing economies, China in particular, with eco-labelling. Otherwise, the effectiveness of labelling on a global scale is doomed to fail.

These are complex tasks. Not only is it difficult to reach the goals, partly due to the involvement of many stakeholders with various interests, but the question is also where to start. It is risky to stimulate demand when there is not sufficient (developing country) supply and vice versa.

There is a potential role for the government. Several options have been debated[91]. Governments could help developing countries to benefit from labelling opportunities, among others by providing technical and financial support. They could regulate private labelling initiatives by outlining minimum requirements, to avoid consumer confusion and mistrust and make labelling more transparent to producers, or set up their own scheme. In addition, governments could support eco-labelling by public purchasing and policy measures that address the demand and supply side of markets. At the global level, attempts could be made to harmonize labelling schemes and achieve mutual recognition. Besides, the international community could put political pressure on Asian countries to become more eco-conscious, although this might be hard to achieve as 'western' economies have behaved in environmentally unfriendly manners themselves.
At present, the Dutch government supports FSC by providing financial funding and by offering subsidies to companies that want to stimulate the supply of sustainable wood from developing countries, such as Bolivia or Indonesia, through joint ventures and partnerships (BuZa, 2006a)[92]. It is also working on a new forest certification scheme (LNV/BuZa/VROM, 2006). As stated, it has incorporated FSC in public procurement policies, at least officially. The government is not directly involved in MSC labelling.

[91] Among others in Zarilli (1993), OECD (1997a), EPA (1998), Wessells et al. (2001), Vitalis (2002), Salmon (2002), OECD (2002), SER (2004), EC (2005) and LNV(2005).

[92] The Ministry of Foreign Affairs and the Ministry of Housing, Spatial Planning and the Environment cover each about 15% of the FSC campaign 2006-2009, i.e. € 450,000 (BuZa, 2006b). In addition, the former Ministry subsidizes the African branche of FSC (BuZa, 2006a).

Only when particular developing countries face trade difficulties in fisheries due to some eco-labelling scheme, it will offer support (LNV/BuZa, 2005). The EU seems to be in favour of government regulation in fisheries and with respect to other commodities[93].

In my view, however, the government should solely support eco-labelling in its role as market participant. It is obliged to buy sustainable products as a consumer, otherwise it sets a wrong example. As a regulator it should not be heavily involved in eco-labelling; leave these initiatives to the markets. There are too many bottlenecks to overcome with eco-labelling. Taxpayer's money might be better spend on the implementation of other policy measures. Future research might be devoted to that. It is worth looking at greening national tax systems. Taxation offers namely a different kind of incentive. Its success is not dependent on voluntary commitment by consumers and producers to improve environmental quality. It discourages bad behaviour, rather than encouraging good behaviour. This is consistent with the 'polluter pays' principle.

A final note is needed on the generality of above mentioned conclusions and policy recommendations. It has been mentioned that eco-labelling schemes differ in design, so that generalizing is difficult. This still holds, although the two case studies have shown that many general concerns raised in the eco-labelling debate are justified by the available amount of evidence. So in that sense, they are representative. Yet, both FSC and MSC differentiate products solely with respect to their production methods; labelled and non-labelled goods have the same final product characteristics. The success of labels in markets is likely to be higher when characteristics of products, distinguishable by consumers, are involved. This is illustrated by the case of organic food. As mentioned, consumers tend to have more interest in eco-labelled goods out of direct self-interest.

[93] The European Commission proposes to regulate voluntary private eco-labels in fishery (EC, 2005). It has also been discussed to strengthen environmental criteria and define minimum standards for agricultural products. The EU is working on animal welfare standards for labelling various types of meat (EC, 2006a; Eaton et al., 2005). It had set up the 'Euro-flower' scheme to cover several industrial products.

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Eco-labelling: to be or not to be?

Desirability of eco-labels from an environmental and poverty perspective

Annexes

Report

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A Types of eco labels

In principle, 'eco-labelling' refers to anything that involves environmental requirements and the application of a mark of conformity. Yet, there are numerous types of labelling schemes. They can be classified according to a number of program characteristics (UNEP, 2005; EPA, 1998)[94]:

- Administration: labels can be run by governments, private companies, NGOs or through cooperation between these actors.
- Nature: labelling might be voluntary in nature, in the sense that manufacturers have the choice whether or not to apply for the eco-label, or can be mandatory, when they are required by law. De facto mandatory labelling can also exists, meaning that products without eco-label have problems entering certain markets.
- Target group: labels aim to reach individual consumers, industrial consumers, investors, government agencies or others ('business-to-business' and 'business-to-consumer').
- Scope: labels might focus on the consumption effects, production impacts or the product's complete life cycle ('from cradle to grave'). They comprise environmental, social and/or economic issues regarding one product sector or multiple product sectors.
- Approach: labels can address management processes (application of process-based criteria), performance outcomes (performance based-criteria) or both.
- Certification: labels are rewarded by second-party certification bodies, impartial third-parties or involve self declarations of conformity.
- Message: labels can provide positive information by giving a seals of approval to products that are deemed to have fewer impacts on the environment than similar products, negative information by alerting consumers about hazardous characteristics, or can be neutral in message type.

As a result, various definitions of eco-labelling exist. The international organization for standardization (ISO) defined three types of eco-labels that are generally accepted. Type I labels are based on voluntary, life-cycle assessment of products' environmental performance through independent third party certification. They are awarded to environmentally preferable products. Type II labels involve environmental claims made by manufacturers, importers or retailers themselves. Type III labels are neutral. They list product information but contain no judgement (IISD/UNEP, 2005).

While there are marked differences among programs, their overall goal is identified by ISO as: '...through communication of verifiable and accurate information, that is not misleading, on environmental aspects of products and services, to encourage the demand for and supply of those products and services

[94] For a comprehensive overview of design features of various labels worldwide, see EPA (1998).

that cause less stress on the environment, thereby stimulating the potential for market-driven continuous environmental improvement' (GEN, 2004:1). Thus, eco-labels aim to change consumer behaviour by providing information on environmental impact of a product, while simultaneously offering an incentive for (foreign) producers to meet environmental standards.

The labelling schemes analysed in this report award positive labels and verification is performed by third parties. They are private voluntary labels, specialized in certain products and focussed on production processes. Their design comes closest to ISO type I labels.

B WTO conformity of eco labelling

There has been a long standing debate on whether the existence of eco-labels is presently subject to the WTO provisions and, if so, whether they violate them or not. The main issues will be highlighted, once relevant WTO agreements have been shortly introduced in the next section.

B.1 Relevant WTO agreement

The first relevant agreement is the GATT of 1994. It is the main WTO Agreement for trade in goods and has become the WTOs umbrella agreement. The WTO relies on two core principles that are outlined in the articles I and III of GATT: the 'most-favoured nation' and the 'national treatment' principles. The former implies that if special treatment is given to the goods and services of one country, it must be given to all WTO member countries, whereas the latter rule prescribes that goods and services originating from foreign countries are treated equally as those of domestic origin (IISD/UNEP, 2005)[95]. These non-discriminatory principles are followed among 'like' products. General exceptions are made in article XX (WTO, 2006a), for measures that are 'necessary to protect human, animal or plant life or health' (art. XXb) and 'relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption' (art. XXg)[96].

In addition to GATT, specific agreements have been negotiated to address specific aspects of trade. The Agreement on Technical Barriers to Trade (TBT) directly covers labelling requirements. It captures 'technical regulations' to which compliance is mandatory and 'standards' to which compliance is voluntary. Both refer to product characteristics or 'related' processes and production methods (annex 1)(Rotherham, 2003). The TBT agreement outlines when such measures are allowed and what conditions must be met. Labelling requirements must comply with the most-favoured nation and national treatment obligations for 'like' products, as derived from GATT. They should also meet certain absolute standards, such as avoidance to create more obstacles to trade than necessary to fulfil a legitimate objective (WTO, 2006a)[97]. Besides, TBT stimulates transparency, openness, proper notification of measures and urges the use of international standards when available (WTO, 2006b). The Agreement on

[95] Article XI might also be relevant as it sets a general prohibition on import and export restrictions other than duties, tariffs and other charges (Appleton, 2002). There are exceptions to article I; regional trade agreements allow preferential tariffs and developing countries might have preferential treatment in order to promote development (IISD/UNEP, 2005).

[96] In some cases, allowance of measures essential to protect public morals (art. XXa) is relevant. For example, with respect to measures concerning the treatment of animals (Eaton et al., 2005).

[97] The TBT Code of Good Practice for the Preparation, Adoption and Application of Standards covers standards and TBT Article 2 covers technical regulations.

Sanitary and Phytosanitary Standards (SPS) has similar provisions. It deals exclusively with food safety issues[98].

B.2 Implications for eco labelling

The debate on whether eco-labelling schemes are WTO conform centres mainly on three questions. The first question is whether voluntary eco-labels are submitted to WTO rules. There is broad consensus on the view that eco-labelling schemes that are mandated by law fall within the relevant rules, but it is an ongoing discussion if the WTO has legal jurisdiction over private bodies that develop schemes or private companies and buyers that use them in purchasing decisions (Borregaard and Dufey, 2005; UNEP, 2005). Some argue that both public and private voluntary labelling programs are subject to the TBT agreement (Wessells et al., 2001; Appleton, 2002). They would be covered under the Code of Good Practice. Besides, the TBT requires that member states 'shall take such reasonable measures as may be available to them to ensure that local government and nongovernmental standardizing bodies within their territories... accept and comply with this Code of Good Practice…' (art. 4.1). SPS terms are similar (art. 13).

Yet, others emphasize that there is no direct obligation for non-governmental bodies to comply and no mechanism for assessing or imposing compliance (Rotherham, 2003: UNEP, 2005). The WTO can only impose requirements on governments and not on private actors, so private voluntary schemes would not be covered. Moreover, governments are not expected to have direct control over voluntary eco-labelling programs that operate under their authority or that they promote (UNEP, 2005). They cannot be held responsible (Joshi, 2004). Nevertheless, such eco-labelling schemes are relevant for the political context of WTO. Some feel that even though eco-labelling schemes are voluntary, they were not automatically consistent with WTO rules as they might act as barriers to trade (Borregaard and Dufey, 2005).
Accordingly, the second question that arises is whether eco-labelling practices are discriminatory, thereby violating GATT articles I and III. On the one hand, it could be argued that voluntary eco-labelling is non-discriminatory. Producers are not forced to use the label and consumers can decide for themselves based on provided information. Labelling is seen as an alternative to more trade-restrictive environmental policies such as import bans or tariffs on goods with harmful environmental effects (WTO, 2006b).

[98] It sets rules for standards necessary to protect humans, animals and plants from certain hazards associated with international trade (annex A) (WTO, 2006a). These standards must be based on scientific evidence, appropriate risk assessment and not more trade restrictive as necessary. SPS also reflects the 'precautionary principle', by allowing temporary measures when scientific evidence and conclusive risk assessment is insufficient to adopt permanent measures (IISD/UNEP, 2005).

One other hand, however, eco-labelling can have a discriminatory impact in practice because foreign products do not have the same opportunity to compete in a market. This is due to unequal access to the labelling scheme or because labels have a domestic bias as they rely on domestic priorities (IISD/UNEP, 2005). In these cases, trade is distorted when eco-labels become an important competitive factor in some markets. Besides, eco-labels might not be solely used for purely environmental goals. They can deliberately be used as barriers to trade and are therefore controversial. Especially developing countries fear the potential use of eco-labelling for protectionist purposes (Appleton, 2002). Whether differential treatment actually violates WTO rules depends on the description of 'like' products.

This brings me to the third question , which concerns the appropriate definition of 'like' products. Often, reference is made to process and production methods (PPMs). They refer to '… the way in which products are manufactured or processed and natural resources extracted or harvested' (OECD, 1997b:7). There are PPMs that related to product characteristics (product-related PPMs) and those that do not reveal physical differences between products (non-product related PPMs). In the later case, the production process does not affect final product characteristics. It only involves the environmental impacts during production, i.e. production externalities.

By far, the greatest obstacle to resolving the eco-labelling debate within the WTO is the issue of whether two products can be distinguished solely on the basis of different environmental impacts (UNEP, 2005). There is an increasing reliance on process-based, as opposed to product-based, regulation and standards in global trade (WTO, 2006b). Many eco-labelling schemes target non product-related (npr) production methods. For instant, timber originating from sustainable managed forests (the Forest Stewardship Council label) and sustainably harvested fish (the Marine Stewardship Council label). From an environmental perspective, it is important to argue that products with higher standards are not 'like' other products. It is frequently mentioned that domestic PPM-related requirements are important policy tools for promoting sustainable development (OECD, 1997b). However, these are controversial because of the resistance of developing countries towards 'technical barriers' based on npr-PPMs that may undermine their competitiveness (Appleton, 2002).

Within the WTO, the likeness of products is determined on a case-by-case basis (UNEP, 2005). There is no legal interpretation of the 'like product', but currently four criteria are used in analysing likeness: (i) product properties, nature and quality, (ii) the end uses of products, (iii) consumers' tastes and habits and (iv) the tariff classification of the product (Joshi, 2004). Existing jurisprudence in the WTO would indicate that regulations merely based on npr-PPMs would discriminate between 'like' products and thereby would be inconsistent with GATT rules (Joshi, 2004; Appleton, 2002). In the 'Tuna-Dolphin' dispute, US import restrictions on tuna caught with methods that did not meet dolphin protection standards were found unjustified. 'Dolphin safe' labelling itself was allowed since it was voluntary on all tuna products, either imported or

domestically produced (WTO, 2006c). In general, countries cannot treat products with dissimilar npr-PPMs differently under WTO rules as they must be considered as alike (IISD/UNEP, 2005).

However, the use of eco-labelling schemes addressing npr-PPMs for trade measures could be allowed under article XX, provided that certain criteria such as non-discrimination are met (WTO, 2006a). The 'Shrimp-Turtle' dispute revealed that measures addressed foreign production methods are not automatically considered inconsistent with trade law (IISD/UNEP, 2005; UNEP, 2005). US measures to prohibit imports of certain shrimp and shrimp products caught without using a turtle extruder device was found to be covered under art. XXg. However, the USA lost the case as it did not treat products from WTO members the same (WTO, 2006c).

In sum, the WTO recognizes that well-designed labelling programs can be effective environmental policy instruments, but also raises concerns that the practice reduces market access through expensive and complicated requirements and restrictions on trade (WTO, 2006c), thus that they are discriminating. One area where the WTO needs further discussion on is how to handle labelling used to describe npr-PPMs under TBT rules (WTO, 2006c).
So far, it is generally accepted that product-related barriers are permitted under the conditions of the TBT and SPS agreements (Rotherham, 2003; Borregaard and Dufey, 2005). Whether requirements based on npr-PPMs fall or should fall inside their scope is unclear and hotly debated (WTO, 2006b)[99].

The European communities want to permit the use of standards on npr-PPMs and extend the scope of TBT, but they faced severe opposition from a large number of other nations (Joshi, 2004). Developing countries and non-European developed countries do not want to legitimize the use of measures based on npr-PPMs and argue that voluntary standards based on npr-PPMs are inconsistent with TBT and other provisions of GATT. The US position is due to the fact that it is the largest exporter of Genetically Modified Organisms and several industrial items. Canada, Australia, New Zealand and less developed countries fear the implications for their agricultural and manufacturing exports (Joshi, 2004).

[99] OECD (1997b), Joshi (2004), Borregaard and Dufey (2005) and Appleton (2002) provide arguments backing the point of view that npr-PPMs measures are not covered by TBT.

C FSC principles and criteria for Forest Stewardship

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Title: **FSC Principles and Criteria for Forest Stewardship**

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Contents

INTRODUCTION

It is widely accepted that forest resources and associated lands should be managed to meet the social, economic, ecological, cultural and spiritual needs of present and future generations. Furthermore, growing public awareness of forest destruction and degradation has led consumers to demand that their purchases of wood and other forest products will not contribute to this destruction but rather help to secure forest resources for the future. In response to these demands, certification and self-certification programs of wood products have proliferated in the marketplace.

The Forest Stewardship Council (FSC) is an international body which accredits certification organizations in order to guarantee the authenticity of their claims. In all cases the process of certification will be initiated voluntarily by forest owners and managers who request the services of a certification organization. The goal of FSC is to promote environmentally responsible, socially beneficial and economically viable management of the world's forests, by establishing a worldwide standard of recognized and respected Principles of Forest Stewardship.

The FSC's Principles and Criteria (P&C) apply to all tropical, temperate and boreal forests, as addressed in Principle #9 and the accompanying glossary. Many of these P&C apply also to plantations and partially replanted forests. More detailed standards for these and other vegetation types may be prepared at national and local levels. The P&C are to be

incorporated into the evaluation systems and standards of all certification organizations seeking accreditation by FSC. While the P&C are mainly designed for forests managed for the production of wood products, they are also relevant, to varying degrees, to forests managed for non-timber products and other services. The P&C are a complete package to be considered as a whole, and their sequence does not represent an ordering of priority. This document shall be used in conjunction with the FSC' s Statutes, Procedures for Accreditation and Guidelines for Certifiers.

FSC and FSC-accredited certification organizations will not insist on perfection in satisfying the P&C. However, major failures in any individual Principles will normally disqualify a candidate from certification, or will lead to decertification. These decisions will be taken by individual certifiers, and guided by the extent to which each Criterion is satisfied, and by the importance and consequences of failures. Some flexibility will be allowed to cope with local circumstances.

The scale and intensity of forest management operations, the uniqueness of the affected resources, and the relative ecological fragility of the forest will be considered in all certification assessments. Differences and difficulties of interpretation of the P&C will be addressed in national and local forest stewardship standards. These standards are to be developed in each country or region involved, and will be evaluated for purposes of certification, by certifiers and other involved and affected parties on a case by case basis. If necessary, FSC dispute resolution mechanisms may also be called upon during the course of assessment. More information and guidance about the certification and accreditation process is included in the FSC Statutes, Accreditation Procedures, and Guidelines for Certifiers.

The FSC P&C should be used in conjunction with national and international laws and regulations. FSC intends to complement, not supplant, other initiatives that support responsible forest management worldwide.

The FSC will conduct educational activities to increase public awareness of the importance of the following:
*improving forest management;
*incorporating the full costs of management and production into the price of forest products;
* promoting the highest and best use of forest resources;
*reducing damage and waste; and
*avoiding over-consumption and over-harvesting.

FSC will also provide guidance to policy makers on these issues, including improving forest management legislation and policies.

1 Principle #1: Compliance with laws and FSC Principles
Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory, and comply with all FSC Principles and Criteria.

1.1 Forest management shall respect all national and local laws and administrative requirements.

1.2 All applicable and legally prescribed fees, royalties, taxes and other charges shall be paid.

1.3 In signatory countries, the provisions of all binding international agreements such as CITES, ILO Conventions, ITTA, and Convention on Biological Diversity, shall be respected.

1.4 Conflicts between laws, regulations and the FSC Principles and Criteria shall be evaluated for the purposes of certification, on a case by case basis, by the certifiers and the involved or affected parties.

1.5 Forest management areas should be protected from illegal harvesting, settlement and other unauthorized activities.

1.6 Forest managers shall demonstrate a long-term commitment to adhere to the FSC Principles and Criteria.

2 Principle #2: Tenure and use rights and responsibilities
Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented and legally established.

2.1 Clear evidence of long-term forest use rights to the land (e.g. land title, customary rights, or lease agreements) shall be demonstrated.

2.2 Local communities with legal or customary tenure or use rights shall maintain control, to the extent necessary to protect their rights or resources, over forest operations unless they delegate control with free and informed consent to other agencies.

2.3 Appropriate mechanisms shall be employed to resolve disputes over tenure claims and use rights. The circumstances and status of any outstanding disputes will be explicitly considered in the certification evaluation. Disputes of substantial magnitude involving a significant number of interests will normally disqualify an operation from being certified.

3 Principle #3: Indigenous peoples' rights
The legal and customary rights of indigenous peoples to own, use and manage their lands, territories, and resources shall be recognized and respected.

3.1 Indigenous peoples shall control forest management on their lands and territories unless they delegate control with free and informed consent to other agencies.

3.2 Forest management shall not threaten or diminish, either directly or indirectly, the resources or tenure rights of indigenous peoples.

3.3 Sites of special cultural, ecological, economic or religious significance to indigenous peoples shall be clearly identified in cooperation with such peoples, and recognized and protected by forest managers.

3.4 Indigenous peoples shall be compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest operations. This compensation shall be formally agreed upon with their free and informed consent before forest operations commence.

4 Principle #4: Community relations and worker's rights
Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and local communities.

4.1 The communities within, or adjacent to, the forest management area should be given opportunities for employment, training, and other services.

4.2 Forest management should meet or exceed all applicable laws and/or regulations covering health and safety of employees and their families.

4.3 The rights of workers to organize and voluntarily negotiate with their employers shall be guaranteed as outlined in Conventions 87 and 98 of the International Labour Organisation (ILO).

4.4 Management planning and operations shall incorporate the results of evaluations of social impact. Consultations shall be maintained with people and groups (both men and women) directly affected by management operations[1].

4.5 Appropriate mechanisms shall be employed for resolving grievances and for providing fair compensation in the case of loss or damage affecting the legal or customary rights, property, resources, or livelihoods of local peoples. Measures shall be taken to avoid such loss or damage.

5 Principle #5: Benefits from the forest

Forest management operations shall encourage the efficient use of the forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits.

5.1 Forest management should strive toward economic viability, while taking into account the full environmental, social, and operational costs of production, and ensuring the investments necessary to maintain the ecological productivity of the forest.

5.2 Forest management and marketing operations should encourage the optimal use and local processing of the forest' s diversity of products.

5.3 Forest management should minimize waste associated with harvesting and on-site processing operations and avoid damage to other forest resources.

5.4 Forest management should strive to strengthen and diversify the local economy, avoiding dependence on a single forest product.

5.5 Forest management operations shall recognize, maintain, and, where appropriate, enhance the value of forest services and resources such as watersheds and fisheries.

5.6 The rate of harvest of forest products shall not exceed levels which can be permanently sustained.

6 Principle #6: Environmental impact

Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

6.1 Assessment of environmental impacts shall be completed -- appropriate to the scale, intensity of forest management and the uniqueness of the affected resources -- and adequately integrated into management systems. Assessments shall include landscape level considerations as well as the impacts of on-site processing facilities.

[1] Criterion modified by FSC 2002 General Assembly.

Environmental impacts shall be assessed prior to commencement of site-disturbing operations.

6.2 Safeguards shall exist which protect rare, threatened and endangered species and their habitats (e.g., nesting and feeding areas). Conservation zones and protection areas shall be established, appropriate to the scale and intensity of forest management and the uniqueness of the affected resources. Inappropriate hunting, fishing, trapping and collecting shall be controlled.

6.3 Ecological functions and values shall be maintained intact, enhanced, or restored, including:

a) Forest regeneration and succession.

b) Genetic, species, and ecosystem diversity.

c) Natural cycles that affect the productivity of the forest ecosystem.

6.4 Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.

6.5 Written guidelines shall be prepared and implemented to: control erosion; minimize forest damage during harvesting, road construction, and all other mechanical disturbances; and protect water resources.

6.6 Management systems shall promote the development and adoption of environmentally friendly non-chemical methods of pest management and strive to avoid the use of chemical pesticides. World Health Organization Type 1A and 1B and chlorinated hydrocarbon pesticides; pesticides that are persistent, toxic or whose derivatives remain biologically active and accumulate in the food chain beyond their intended use; as well as any pesticides banned by international agreement, shall be prohibited. If chemicals are used, proper equipment and training shall be provided to minimize health and environmental risks.

6.7 Chemicals, containers, liquid and solid non-organic wastes including fuel and oil shall be disposed of in an environmentally appropriate manner at off-site locations.

6.8 Use of biological control agents shall be documented, minimized, monitored and strictly controlled in accordance with national laws and internationally accepted scientific protocols. Use of genetically modified organisms shall be prohibited.

6.9 The use of exotic species shall be carefully controlled and actively monitored to avoid adverse ecological impacts.

6.10[2] Forest conversion to plantations or non-forest land uses shall not occur, except in circumstances where conversion:

a) entails a very limited portion of the forest management unit; and

b) does not occur on high conservation value forest areas; and

c) will enable clear, substantial, additional, secure, long term conservation benefits

[2] Criterion 6.10 was ratified by the FSC Members and Board of Directors in January 1999.

across the forest management unit.

7 Principle #7: Management plan
A management plan -- appropriate to the scale and intensity of the operations -- shall be written, implemented, and kept up to date. The long term objectives of management, and the means of achieving them, shall be clearly stated.

7.1 The management plan and supporting documents shall provide:

a) Management objectives.

b) Description of the forest resources to be managed, environmental limitations, land use and ownership status, socio-economic conditions, and a profile of adjacent lands.

c) Description of silvicultural and/or other management system, based on the ecology of the forest in question and information gathered through resource inventories.

d) Rationale for rate of annual harvest and species selection.

e) Provisions for monitoring of forest growth and dynamics.

f) Environmental safeguards based on environmental assessments.

g) Plans for the identification and protection of rare, threatened and endangered species.

h) Maps describing the forest resource base including protected areas, planned management activities and land ownership.

i) Description and justification of harvesting techniques and equipment to be used.

7.2 The management plan shall be periodically revised to incorporate the results of monitoring or new scientific and technical information, as well as to respond to changing environmental, social and economic circumstances.

7.3 Forest workers shall receive adequate training and supervision to ensure proper implementation of the management plan.

7.4 While respecting the confidentiality of information, forest managers shall make publicly available a summary of the primary elements of the management plan, including those listed in Criterion 7.1.

8 Principle #8: Monitoring and assessment
Monitoring shall be conducted -- appropriate to the scale and intensity of forest management -- to assess the condition of the forest, yields of forest products, chain of custody, management activities and their social and environmental impacts.

8.1 The frequency and intensity of monitoring should be determined by the scale and intensity of forest management operations as well as the relative complexity and fragility of the affected environment. Monitoring procedures should be consistent and replicable over time to allow comparison of results and assessment of change.

8.2 Forest management should include the research and data collection needed to monitor, at a minimum, the following indicators:

a) Yield of all forest products harvested.

b) Growth rates, regeneration and condition of the forest.

c) Composition and observed changes in the flora and fauna.

d) Environmental and social impacts of harvesting and other operations.

e) Costs, productivity, and efficiency of forest management.

8.3 Documentation shall be provided by the forest manager to enable monitoring and certifying organizations to trace each forest product from its origin, a process known as the "chain of custody."

8.4 The results of monitoring shall be incorporated into the implementation and revision of the management plan.

8.5 While respecting the confidentiality of information, forest managers shall make publicly available a summary of the results of monitoring indicators, including those listed in Criterion 8.2.

9 Principle #9: Maintenance of high conservation value forests[3]

Management activities in high conservation value forests shall maintain or enhance the attributes which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.

9.1 Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to scale and intensity of forest management.

9.2 The consultative portion of the certification process must place emphasis on the identified conservation attributes, and options for the maintenance thereof.

9.3 The management plan shall include and implement specific measures that ensure the maintenance and/or enhancement of the applicable conservation attributes consistent with the precautionary approach. These measures shall be specifically included in the publicly available management plan summary.

9.4 Annual monitoring shall be conducted to assess the effectiveness of the measures employed to maintain or enhance the applicable conservation attributes.

10 Principle #10: Plantations[4]

Plantations shall be planned and managed in accordance with Principles and Criteria 1 - 9, and Principle 10 and its Criteria. While plantations can provide an array of social and economic benefits, and can contribute to satisfying the world' s needs for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

[3] The FSC Members and Board of Directors ratified the revised Principle 9 in January 1999.

[4] The FSC Members and Board of Directors ratified Principle 10 in February 1996.

10.1 The management objectives of the plantation, including natural forest conservation and restoration objectives, shall be explicitly stated in the management plan, and clearly demonstrated in the implementation of the plan.

10.2 The design and layout of plantations should promote the protection, restoration and conservation of natural forests, and not increase pressures on natural forests. Wildlife corridors, streamside zones and a mosaic of stands of different ages and rotation periods, shall be used in the layout of the plantation, consistent with the scale of the operation. The scale and layout of plantation blocks shall be consistent with the patterns of forest stands found within the natural landscape.

10.3 Diversity in the composition of plantations is preferred, so as to enhance economic, ecological and social stability. Such diversity may include the size and spatial distribution of management units within the landscape, number and genetic composition of species, age classes and structures.

10.4 The selection of species for planting shall be based on their overall suitability for the site and their appropriateness to the management objectives. In order to enhance the conservation of biological diversity, native species are preferred over exotic species in the establishment of plantations and the restoration of degraded ecosystems. Exotic species, which shall be used only when their performance is greater than that of native species, shall be carefully monitored to detect unusual mortality, disease, or insect outbreaks and adverse ecological impacts.

10.5 A proportion of the overall forest management area, appropriate to the scale of the plantation and to be determined in regional standards, shall be managed so as to restore the site to a natural forest cover.

10.6 Measures shall be taken to maintain or improve soil structure, fertility, and biological activity. The techniques and rate of harvesting, road and trail construction and maintenance, and the choice of species shall not result in long term soil degradation or adverse impacts on water quality, quantity or substantial deviation from stream course drainage patterns.

10.7 Measures shall be taken to prevent and minimize outbreaks of pests, diseases, fire and invasive plant introductions. Integrated pest management shall form an essential part of the management plan, with primary reliance on prevention and biological control methods rather than chemical pesticides and fertilizers. Plantation management should make every effort to move away from chemical pesticides and fertilizers, including their use in nurseries. The use of chemicals is also covered in Criteria 6.6 and 6.7.

10.8 Appropriate to the scale and diversity of the operation, monitoring of plantations shall include regular assessment of potential on-site and off-site ecological and social impacts, (e.g. natural regeneration, effects on water resources and soil fertility, and impacts on local welfare and social well-being), in addition to those elements addressed in principles 8, 6 and 4. No species should be planted on a large scale until local trials and/or experience have shown that they are ecologically well-adapted to the site, are not invasive, and do not have significant negative ecological impacts on other ecosystems. Special attention will be paid to social issues of land acquisition for plantations, especially the protection of local rights of ownership, use or access.

10.9[5] Plantations established in areas converted from natural forests after November 1994 normally shall not qualify for certification. Certification may be allowed in circumstances where sufficient evidence is submitted to the certification body that the manager/owner is not responsible directly or indirectly of such conversion.

GLOSSARY

Words in this document are used as defined in most standard English language dictionaries. The precise meaning and local interpretation of certain phrases (such as local communities) should be decided in the local context by forest managers and certifiers. In this document, the words below are understood as follows:

Biological diversity: The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems. (see Convention on Biological Diversity, 1992)

Biological diversity values: The intrinsic, ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components. (see Convention on Biological Diversity, 1992)

Biological control agents: Living organisms used to eliminate or regulate the population of other living organisms.

Chain of custody: The channel through which products are distributed from their origin in the forest to their end-use.

Chemicals: The range of fertilizers, insecticides, fungicides, and hormones which are used in forest management.

Criterion (pl. Criteria): A means of judging whether or not a Principle (of forest stewardship) has been fulfilled.

Customary rights: Rights which result from a long series of habitual or customary actions, constantly repeated, which have, by such repetition and by uninterrupted acquiescence, acquired the force of a law within a geographical or sociological unit.

Ecosystem: A community of all plants and animals and their physical environment, functioning together as an interdependent unit.

Endangered species: Any species which is in danger of extinction throughout all or a significant portion of its range.

Exotic species: An introduced species not native or endemic to the area in question.

Forest integrity: The composition, dynamics, functions and structural attributes of a natural forest.

Forest management/manager: The people responsible for the operational management of the forest resource and of the enterprise, as well as the management system and structure, and the planning and field operations.

[5] The FSC Members and Board of Directors ratified Criterion 10.9 in January 1999.

Genetically modified organisms: Biological organisms which have been induced by various means to consist of genetic structural changes.

Indigenous lands and territories: The total environment of the lands, air, water, sea, sea-ice, flora and fauna, and other resources which indigenous peoples have traditionally owned or otherwise occupied or used. (Draft Declaration of the Rights of Indigenous Peoples: Part VI)

Indigenous peoples: "The existing descendants of the peoples who inhabited the present territory of a country wholly or partially at the time when persons of a different culture or ethnic origin arrived there from other parts of the world, overcame them and, by conquest, settlement, or other means reduced them to a non-dominant or colonial situation; who today live more in conformity with their particular social, economic and cultural customs and traditions than with the institutions of the country of which they now form a part, under State structure which incorporates mainly the national, social and cultural characteristics of other segments of the population which are predominant." (Working definition adopted by the UN Working Group on Indigenous Peoples).

High Conservation Value Forests: High Conservation Value Forests are those that possess one or more of the following attributes:

a) forest areas containing globally, regionally or nationally significant :
concentrations of biodiversity values (e.g. endemism, endangered species, refugia); and/or large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance

b) forest areas that are in or contain rare, threatened or endangered ecosystems

c) forest areas that provide basic services of nature in critical situations (e.g. watershed protection, erosion control)

d) forest areas fundamental to meeting basic needs of local communities (e.g. subsistence, health) and/or critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

Landscape: A geographical mosaic composed of interacting ecosystems resulting from the influence of geological, topographical, soil, climatic, biotic and human interactions in a given area.

Local laws: Includes all legal norms given by organisms of government whose jurisdiction is less than the national level, such as departmental, municipal and customary norms.

Long term: The time-scale of the forest owner or manager as manifested by the objectives of the management plan, the rate of harvesting, and the commitment to maintain permanent forest cover. The length of time involved will vary according to the context and ecological conditions, and will be a function of how long it takes a given ecosystem to recover its natural structure and composition following harvesting or disturbance, or to produce mature or primary conditions.

Native species: A species that occurs naturally in the region; endemic to the area.

Natural cycles: Nutrient and mineral cycling as a result of interactions between soils, water, plants, and animals in forest environments that affect the ecological productivity of a given site.

Natural Forest: Forest areas where many of the principal characteristics and key elements of native ecosystems such as complexity, structure and diversity are present, as defined by FSC approved national and regional standards of forest management.

Non-timber forest products: All forest products except timber, including other materials obtained from trees such as resins and leaves, as well as any other plant and animal products.

Other forest types: Forest areas that do not fit the criteria for plantation or natural forests and which are defined more specifically by FSC-approved national and regional standards of forest stewardship.

Plantation: Forest areas lacking most of the principal characteristics and key elements of native ecosystems as defined by FSC-approved national and regional standards of forest stewardship, which result from the human activities of either planting, sowing or intensive silvicultural treatments.

Precautionary approach[6]: Tool for the implementation of the precautionary principle.

Principle: An essential rule or element; in FSC' s case, of forest stewardship.

Silviculture: The art of producing and tending a forest by manipulating its establishment, composition and growth to best fulfil the objectives of the owner. This may, or may not, include timber production.

Succession: Progressive changes in species composition and forest community structure caused by natural processes (nonhuman) over time.

Tenure: Socially defined agreements held by individuals or groups, recognized by legal statutes or customary practice, regarding the "bundle of rights and duties" of ownership, holding, access and/or usage of a particular land unit or the associated resources there within (such as individual trees, plant species, water, minerals, etc).

Threatened species: Any species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Use rights: Rights for the use of forest resources that can be defined by local custom, mutual agreements, or prescribed by other entities holding access rights. These rights may restrict the use of particular resources to specific levels of consumption or particular harvesting techniques.

[6] The definition of Precautionary Approach was ratified during the 1999 FSC General Assembly in June 1999.

D MSC principles and criteria for Sustainable Fishing

MSC Principles and Criteria for Sustainable Fishing

At the centre of the MSC is a set of *Principles and Criteria for Sustainable Fishing* which are used as a standard in a third party, independent and voluntary certification programme. These were developed by means of an extensive, international consultative process through which the views of stakeholders in fisheries were gathered.

These Principles reflect a recognition that a sustainable fishery should be based upon:

- The maintenance and re-establishment of healthy populations of targeted species;
- The maintenance of the integrity of ecosystems;
- The development and maintenance of effective fisheries management systems, taking into account all relevant biological, technological, economic, social, environmental and commercial aspects; and
- Compliance with relevant local and national local laws and standards and international understandings and agreements

The Principles and Criteria are further designed to recognise and emphasise that management efforts are most likely to be successful in accomplishing the goals of conservation and sustainable use of marine resources when there is full co-operation among the full range of fisheries stakeholders, including those who are dependent on fishing for their food and livelihood.

On a voluntary basis, fisheries which conform to these Principles and Criteria will be eligible for certification by independent MSC-accredited certifiers. Fish processors, traders and retailers will be encouraged to make public commitments to purchase fish products only from certified sources. This will allow consumers to select fish products with the confidence that they come from sustainable, well managed sources. It will also benefit the fishers and the fishing industry who depend on the abundance of fish stocks, by providing market incentives to work towards sustainable practices. Fish processors, traders and retailers who buy from certified sustainable sources will in turn benefit from the assurance of continuity of future supply and hence sustainability of their own businesses.

The MSC promotes equal access to its certification programme irrespective of the scale of the fishing operation. The implications of the size, scale, type, location and intensity of the fishery, the uniqueness of the resources and the effects on other ecosystems will be considered in every certification.

The MSC further recognises the need to observe and respect the long-term interests of people dependent on fishing for food and livelihood to the extent that it is consistent with ecological sustainability, and also the importance of fisheries management and operations being conducted in a manner consistent with established local, national, and international rules and standards as well as in compliance with the MSC Principles and Criteria.

Preamble

The following Principles & Criteria are intended to guide the efforts of the Marine Stewardship Council towards the development of sustainable fisheries on a global basis.

They were developed assuming that a sustainable fishery is defined, for the purposes of MSC certification, as one that is conducted in such a way that:

- it can be continued indefinitely at a reasonable level;
- it maintains and seeks to maximise, ecological health and abundance,
- it maintains the diversity, structure and function of the ecosystem on which it depends as well as the quality of its habitat, minimising the adverse effects that it causes;
- it is managed and operated in a responsible manner, in conformity with local, national and international laws and regulations;
- it maintains present and future economic and social options and benefits;
- it is conducted in a socially and economically fair and responsible manner.

The Principles represent the overarching philosophical basis for this initiative in stewardship of marine resources: the use of market forces to promote behaviour which helps achieve the goal of sustainable fisheries. They form the basis for detailed Criteria which will be used to evaluate each fishery seeking certification under the MSC programme. Although the primary focus is the ecological integrity of world fisheries, the principles also embrace the human and social elements of fisheries. Their successful implementation depends upon a system which is open, fair, based upon the best information available and which incorporates all relevant legal obligations. The certification programme in which these principles will be applied is intended to give any fishery the opportunity to demonstrate its commitment to sustainable fishing and ultimately benefit from this commitment in the market place.

Scope

The scope of the MSC Principles and Criteria relates to marine fisheries activities up to but not beyond the point at which the fish are landed. However, MSC-accredited certifiers may be informed of serious concerns associated with post-landing practices.[1]

The MSC Principles and Criteria apply at this stage only to wildcapture fisheries (including, but not limited to shellfish, crustaceans and cephalopods). Aquaculture and the harvest of other species are not currently included.

Issues involving allocation of quotas and access to marine resources are considered to be beyond the scope of these Principles and Criteria.

[1] Other complementary certification programmes (e.g., ISO 14000) provide opportunities for documenting and evaluating impacts of post landing activities related to fisheries products certified to MSC standards. Constructive solutions to address these concerns through appropriate measures should be sought through dialogue with certification organisations and other relevant bodies.

PRINCIPLE 1

A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery [2]:

Intent:

The intent of this principle is to ensure that the productive capacities of resources are maintained at high levels and are not sacrificed in favour of short term interests. Thus, exploited populations would be maintained at high levels of abundance designed to retain their productivity, provide margins of safety for error and uncertainty, and restore and retain their capacities for yields over the long term.

Criteria:

1. The fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity.
2. Where the exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level consistent with the precautionary approach and the ability of the populations to produce long-term potential yields within a specified time frame.
3. Fishing is conducted in a manner that does not alter the age or genetic structure or sex composition to a degree that impairs reproductive capacity.

PRINCIPLE 2:

Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

Intent:

The intent of this principle is to encourage the management of fisheries from an ecosystem perspective under a system designed to assess and restrain the impacts of the fishery on the ecosystem.

Criteria:

1. The fishery is conducted in a way that maintains natural functional relationships among species and should not lead to trophic cascades or ecosystem state changes.

[2]The sequence in which the Principles and Criteria appear does not represent a ranking of their significance, but is rather intended to provide a logical guide to certifiers when assessing a fishery. The criteria by which the MSC Principles will be implemented will be reviewed and revised as appropriate in light of relevant new information, technologies and additional consultations

2. The fishery is conducted in a manner that does not threaten biological diversity at the genetic, species or population levels and avoids or minimises mortality of, or injuries to endangered, threatened or protected species.

3. Where exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level within specified time frames, consistent with the precautionary approach and considering the ability of the population to produce long-term potential yields.

PRINCIPLE 3:

The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

Intent:

The intent of this principle is to ensure that there is an institutional and operational framework for implementing Principles 1 and 2, appropriate to the size and scale of the fishery.

A. Management System Criteria:

1. The fishery shall not be conducted under a controversial unilateral exemption to an international agreement.

The management system shall:

2. demonstrate clear long-term objectives consistent with MSC Principles and Criteria and contain a consultative process that is transparent and involves all interested and affected parties so as to consider all relevant information, including local knowledge. The impact of fishery management decisions on all those who depend on the fishery for their livelihoods, including, but not confined to subsistence, artisanal, and fishing-dependent communities shall be addressed as part of this process;

3. be appropriate to the cultural context, scale and intensity of the fishery – reflecting specific objectives, incorporating operational criteria, containing procedures for implementation and a process for monitoring and evaluating performance and acting on findings;

4. observe the legal and customary rights and long term interests of people dependent on fishing for food and livelihood, in a manner consistent with ecological sustainability;

5. incorporates an appropriate mechanism for the resolution of disputes arising within the system[3];

6. provide economic and social incentives that contribute to sustainable fishing and shall not operate with subsidies that contribute to unsustainable fishing;

7. act in a timely and adaptive fashion on the basis of the best available information using a precautionary approach particularly when dealing with scientific uncertainty;

8. incorporate a research plan – appropriate to the scale and intensity of the fishery – that addresses the information needs of management and provides for the dissemination of research results to all interested parties in a timely fashion;

9. require that assessments of the biological status of the resource and impacts of the fishery have been and are periodically conducted;

10. specify measures and strategies that demonstrably control the degree of exploitation of the resource, including, but not limited to:

    a) setting catch levels that will maintain the target population and ecological community's high productivity relative to its potential productivity, and account for the non-target species (or size, age, sex) captured and landed in association with, or as a consequence of, fishing for target species;
    b) identifying appropriate fishing methods that minimise adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas;
    c) providing for the recovery and rebuilding of depleted fish populations to specified levels within specified time frames;

    d) mechanisms in place to limit or close fisheries when designated catch limits are reached;
    e) establishing no-take zones where appropriate;

11. contains appropriate procedures for effective compliance, monitoring, control, surveillance and enforcement which ensure that established limits to exploitation are not exceeded and specifies corrective actions to be taken in the event that they are.

B. Operational Criteria

Fishing operation shall:

12. make use of fishing gear and practices designed to avoid the capture of non-target species (and non-target size, age, and/or sex of the target species); minimise mortality of this catch where it cannot be avoided, and reduce discards of what cannot be released alive;

[3]Outstanding disputes of substantial magnitude involving a significant number of interests will normally disqualify a fishery from certification.

13. implement appropriate fishing methods designed to minimise adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas;

14. not use destructive fishing practices such as fishing with poisons or explosives;

15. minimise operational waste such as lost fishing gear, oil spills, on-board spoilage of catch, etc.;

16. be conducted in compliance with the fishery management system and all legal and administrative requirements; and

17. assist and co-operate with management authorities in the collection of catch, discard, and other information of importance to effective management of the resources and the fishery.