



Asian Journal of Scientific Research

ISSN 1992-1454

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Trade and Environment in the Forestry Sector: Towards Sustainable Forest Management

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Abstract: This study analyzes the trade and environment, forest certification, timber product, market access and sustainable forest management. Trade is an important part in the forestry sector on environment, which affect on the competitiveness of individual producers. The timber products sector is a major player in Malaysia's economic growth and this is reflected in the country's exports performance. Market access leads to the extent to which forestry products can be traded domestic and internationally. Forest certification is a policy instrument to promote sustainable forest management and creates a variety of challenges for both marketers and regulators. Sustainable forest management has developed in the market access and it has a huge potential for creating employment, income and wealth for the populations. The purpose of this study is to develop the relationship between trade and environment through sustainable forest management.

Key words: Trade and environment, timber product, forest certification, market access, sustainable forest management

INTRODUCTION

Trade is an important role in the forestry sector on environment, while environmental policies affect on the competitiveness of individual producers. While trade in forest products is perceived as the major driving force for sustainable management of natural resources, international trade liberalization and corresponding national macroeconomic policy reforms have led to expanding exports by developing countries, particularly in commodities, thereby increasing pressure on the environment.

The trade and environment debate is not new. The link between trade and environmental protection, consisting of both the impact of environmental policies on trade, as well as the impact of trade on the environment, was recognized as early as 1970. In the early 1970s, there was growing international concern regarding the impact of economic growth on social development and the environment. This led to the 1972 Stockholm Conference on the Human Environment (UNEP, 2005).

Trade policy reforms are viewed with regard to their environmental priority and possible action needed to mitigate negative impacts on the environment. It is given to certification of forest management and eco-labelling in view of their expected potential to contribute to sustainable forest management due to their current importance in various national and international initiatives (Laarman, 1995).

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Trade can also have a positive effect on long-term economic growth if it increases the rate of investment and/or improved incentives for the development and diffusion of technology. Trade liberalization and increased openness is generally seen as a means of helping countries to utilize their resources better (WTO, 2003b). Openness can provide a stimulus to greater efficiency and growth by introducing international competitive pressures and exposure to international technology (WTO, 2003a).

The relationship between growth in income levels fostered by trade liberalization and economic growth and environmental outcomes is of an ambiguous nature and might depend on the type of environmental damage and country under analysis, as well as the rest of the effects discussed herein. For example, inconclusive results are more generally obtained when the hypothesis is applied to deforestation as compared to other environmental problems such as pollution for which the Environmental Kuznets Curve (EKC) hypothesis has been more successfully tested (Angelsen, 1996; Panayotou, 1994).

Murad and Mazumder (2009) stated the relationship between trade liberalization, economic growth and the environment in Asia-Pacific. To decompose the potential effect of trade liberalization on the environment in terms of these three affects the composition, scale and technique effects (Nordstrom and Vaughan, 1999).

Trade is identified as an important instrument influencing land use. However, it is not considered to be the only factor causing deforestation. Other causes of deforestation and forest degradation include population increase, migration, land tenure provisions, forest products trade, fuelwood demand, corruption, infrastructure development and government policies including provision of subsidies (Brown, 2000). Ferrantino (1999) illustrated how trade affects land use by identifying the following chain of causality: Trade liberalization changes prices of traded goods relative to each other. It also changes the price of factors of production, the prices of non-traded goods and also changes real incomes. Price changes in turn influence the production, consumption and investment decisions of agricultural households. One of these decisions is how much land to clear. Price and income changes may affect the behaviour of commercial logging operations, which in most countries is secondary but still has an impact on land clearing.

Market access is an important role in the tropical timber trade to international tropical timber markets. It can be described as the conditions under which producers are able to offer products for sale. These conditions are the consequences of decisions by importers and exporters and also a consequence of the inherent characteristics of the sector and products. Trade, environment, development, welfare and social are the complex issues of market access of tropical timber trade (Rytkonen, 2003).

The aim of this study is to highlight and clarify the link between trade and environment, the development of timber certification, timber products and market access on tropical timber trade towards sustainable forest management.

MATERIALS AND METHODS

Data Attainment

The study is conducted in University Kebangsaan Malaysia, Bangi since July, 2008 to June, 2009. The data for analysis is perceived from International Tropical Timber Organization member Country in Malaysia. The significant manipulations for acquired data are log production, log exports, processed exports, total exports, exports and imports in Malaysian economy. The corresponding outcomes are demonstrated from the analysis of the collected data.

Links Between Trade and Environment

UNEP (2005) describe that timber trade and environment are related each other, because all economic activity is based on the environment. Much environmental damage is due to the increased scale of global economic activity. Two distinct bodies of international law govern trade and the environment. Trade law is governed by the World Trade Organization. Environment and trade linkages are not isolated, they are fundamentally related. Environmental changes have been made by international trade constitutes a growing portion of that growing scale. Trade can be good for the environment, because it creates wealth that can be used for environmental improvement.

Trade plays an important role in determining the environmental quality of a country. Timber trade influences the quality of environment not only in the exporting countries but also in the importing countries. Suri and Chapman (1998) stated that trade has significant impact on the environment implying physical flow of goods from one economy to another. They also tell that international trade expansion plays increasingly important role in determining the economic growth among the countries.

Trade creates in markets, which in turn harmonize production and consumption of goods and services to the relationship between timber trade and environment. Environmental effects occur when goods and services are produced and consumed. It is necessary to examine the channels which such impacts are transmitted to understand the framework of how globalization induced free trade impacts the environment. These channels are: scale effect, composition or structural effect and technology effect (Andersson *et al.*, 1995).

Effects of Timber Trade and Environment

Das (1996) describes the international trade and environment which can be studied in two ways: the effect of environmental policy on trade and the effect of trade on the environment. Bourke (1995) has addressed that the international trade has effects on the environment and environmental action affects trade.

The imposition of an environmental tax by a country imposes cost on its producers. If one country imposes an environmental tax, it expects to see specialization in pollution intensive products in the other country where the environmental tax is lower. Snape (1992) argues that there is no economic justification for countering the effect of an environmental tax on competitiveness because an appropriate environmental tax corrects rather than distorts the price of environmental resources.

Krutilla (1991) examined the optimal environmental tax for a large open economy in the presence of production and consumption related pollution. The environmental taxes derived explicitly incorporate trade effects like the terms of trade impact of taxation.

There are few effects on timber trade and environment which trade expansion impacts can be channeled to the environment. These are: scale effect, structural effect, income effect, product effect, technology effect and regulatory effect (Panayotou, 2000). There are four types of physical and economic impacts on environment and development are affected by trade. They are product effects, scale effects, structural effects and direct effects (OECD, 1994).

Product Effects

Trade can have positive and negative effects.

- **Positive Effects:** Wide dissemination of environmentally friendly technologies and technology for protecting the environment

- **Negative Effects:** Facilitation of international trade in environmentally harmful products

Scale Effects

Expansion of the level of economic activity due to allocate efficiency.

Positive Effects

- Efficient use of natural resources
- Increased wealth-higher demand for environmental protection
- Increased wealth-less pressure to exploit natural resources

Negative Effects

- Increased environmental pressure and/or environmental damage
- Increased wealth-increase in environmentally harmful activities

Structural Effects

Specialization in sectors for which country has a comparative advantage.

Positive Effects

- Increased share of environmentally friendly sectors
- Creation of new environmentally friendly products/sectors
- Removal of subsidies, quotas, other restrictive measures

Negative Effects

- Increased share of environmentally harmful sectors

Direct Effects

Direct environmental impacts of economic activity and trade.

- Increased levels of transportation-increased air pollution
- Invasive species of plants and animals

Impacts on Sustainable Development

The concept of sustainable development has a fundamental nature and serves as the basis for other new and innovative concepts and principles arising within environmental conventions. Sustainable development is development that lasts for long time. The Brundtland Commission (WCED, 1987) correctly defined sustainable development as, meeting the needs of the present generation without compromising the ability of the future generations to meet their needs. At present and in future, sustainability is related to the economic, social and environmental systems that make up the community provide a healthy, productive and meaningful life for all community residents.

Kirkpatrick *et al.* (2004) explained that trade measures have direct and indirect impacts on sustainable development. Economic, environmental and social impacts are the dimensions of sustainable development.

- **Economic Impacts:** Changes in per capita incomes, net capital formation and employment
- **Environmental Impacts:** Changes in air, water and land quality, in biological abundance and diversity and in other environmental resource stocks
- **Social Impacts:** Impacts on poverty and other measures of inequality; effects on levels of health and education; changes in the culture and cohesion of community life

Overview of Timber Products

Timber Products Exports

From the International Tropical Timber Organization (ITTO) producing regions comprised to modify the composition of timber exports for 2006 to 2008. Tropical timber exports of ITTO producers decreased dramatically from over 60% in the 1980s to 24% in 2008. Only Africa persisted to tropical log exports volume compared to primary products and with log exports made up 20% of Africa's log production and 46% of Africa's total export volume in 2008. Log exports were substituted with the export of secondary processed primary products in the Asia Pacific region. Asian log exports made up over a fifth of total Asian export volume in 2008. Production and total primary product exports have a small fraction in tropical log exports of Latin America. Total roundwood equivalent export volume as a percentage of log production decreased from 1.2 to 1.1% in Latin America and from 11.0 to 10.2% in Asia-Pacific, but increased from 17.7 to 19.7% in Africa (Table 1). Total ITTO producer member exports (rwe) of tropical primary products have been declining since 2006 and reduced significantly in 2008.

Secondary Processed Wood Products

Secondary Processed Wood Products (SPWP) play an increasingly important role in world tropical forest sectors. The primary categories of tropical secondary processed wood products in trade are wooden furniture and parts, builder's woodwork, other secondary processed wood products, mouldings, cane and bamboo furniture and parts. Secondary processed wood products trade trends in 2006 were similar to those in 2005. Wooden furniture and parts is the major SPWP product of ITTO producer and consumer countries and constitutes around 60% of trade between them, followed by builder's woodwork, other SPWPs, mouldings and cane and bamboo furniture and parts.

Table 2 compares the different values reported by five major exporters of SPWP plus aggregate producer exports (in italics) with the import statistics recorded in COMTRADE for the EU, the USA, Japan and all ITTO consumers. Table 2 shows that China's export figures still have significant discrepancies with import figures for EU and the USA. The table shows an overall 57% discrepancy with ITTO consumers' import figures in 2006. Table 2 also identifies Indonesia and Malaysia's discrepancies with ITTO consumers' import figures (26 and 14%, respectively). In contrast to previous years, however, these discrepancies have been reduced, largely due to crackdowns on the illegal trade, increased capacity building on statistics in these countries and improved data collection methods.

Table 1: Composition of exports by producing regions, 2006-2008 (1000 m³ roundwood equivalent)

Region	Log production			Log exports			Processed exports			Total exports		
	2006	2007	2008	2006	2007	2008	2006	2007	2008	2006	2007	2008
Africa	18780	18150	18038	3329	3536	3547	4158	4352	4194	7487	7888	7741
Asia-Pacific	83796	88861	88915	9108	9013	9033	32787	32309	31396	41895	41322	40429
Latin America	31008	31824	31668	365	371	353	5740	5603	5797	6105	5974	6150
Total	133584	138834	138620	12802	12920	12933	42685	42226	41387	55487	55146	54320

Source: International Tropical Timber Organization (2008)

Table 2: Direction of SPWP trade for main partners, 2006 (million US\$)

Export/ import	EU	ITTO consumers	China	Brazil	Indonesia	Thailand	Malaysia	ITTO producers
EU		23290	4493	630	1567	305	547	3548
		25139	2514	584	1035	297	500	2733
Japan	501	2590	1901	13	356	292	200	1159
	503	2214	1538	11	296	293	234	1443
US	1693	17488	10659	1225	905	552	1013	5208
	1848	13245	6039	1116	748	447	759	4471
ITTO consumers	20180		20147	1967	3188	1275	2137	10973
	24103		12819	1782	2537	1147	1870	9844

Values in bold denote imports recorded by importing country/region and values are not bold denote exports by exporting country/region. Source: UN COMTRADE, ITTO (2007)

Forest Certification

Forest certification is a policy instrument to promote sustainable forest management and creates a variety of challenges for both marketers and regulators. Certification is the process whereby an independent third-party (called a certifier or certification body) assesses the quality of forest management in relation to a set of predetermined requirements (the standard). The certifier gives written assurance that a product or process conforms to the requirements specified in the standard.

Forest certification was introduced in 1993 as a market-based response to address public concerns related to deforestation in the tropics, resulting loss of biodiversity and the perceived low quality of forest management in areas where traded wood products are sourced from. After a slow start spearheaded by the Forest Stewardship Council (FSC), the situation has radically changed when other schemes have become operational by the end of the decade.

The initiatives on forest certification have set out to tackle an immensely diverse field by using one single instrument across the globe and across all conceivable situations. Forest certification caters for many different peers and their respective interests. For industry and trade, it is an instrument for environmental marketing and market access. For buyers and consumers, it provides information on the impacts of products they purchase. For forest owners and managers, it is a tool for market access or gaining market advantage. For governments, it is as soft policy instrument to promote Sustainable Forest Management (SFM) and sustainable consumption patterns. For environmental movement, it is a means to influence how forests are managed to promote, inter alia, biodiversity maintenance.

Effects of Forest Certification

The advent of certification has obviously shaken the power dynamics among forestry circles. Forest policy, authority and decision over practices have always been the domain of the government and the Forestry Department. The entry of FSC and other certification programs have introduced a 'threat' to this domination. The government is intent on achieving SFM at its own determination, but certification has hastened the urgency. Hence, among other things on grounds of patriotism, the country established the Malaysian Timber Certification Council (MTCC) to certify that the timber with the MTCC logo comes from sustainably managed forest. Despite the focus and determination to improve forest management practices, the MTCC scheme has found that Non Governmental Organizations (NGOs) have a strong influence on market endorsement. The concerns by NGOs are in relation to the process by which the standards have been developed, in particular on (WWF Malaysia, 2003).

The lack of openness or transparency is in its development process particularly on non-inclusive public policy decision-making. Although, community NGOs have been invited in stakeholders consensus hearings, the NGOs question decisions made by National Steering Committee (NSC) on 4 versus 3 chambers in the run up to Malaysian Criteria and Indicators (MC and I) seeking the adoption of FSC principles.

- The lack of environmental and social benchmarks within the standards
- The lack of consultation with stakeholders in the development of the standards
- The lack of incorporation of stakeholder concerns (e.g., the indigenous people's groups concerns and issues)

Social

Limited evidence of social effects of certification is available. Certified concessions have an obligation to take care of the interest of local residence. For instance, Perak Integrated Timber Complex (PITC) has created two social programs in its effort to fulfill the third Forest Stewardship Council (FSC) principle on financial, socio-economic and legal considerations. These programs were created to fulfill the elements of community and public involvement particularly on the employment from within the local and regional workforce and involvement of employees in community affairs.

Economic

There are definitive indications that firms obtaining FSC accreditation have received an economic benefit. Peninsular Malaysia has imposed a ban on the exportation of logs in a bid to encourage domestic processing and to meet local demand under a log supply deficit situation. Any export of timber has to be processed. Hence, PITC is involved in the sawmilling industry and in sawn timber exporting. The PITC exports sawn timber to niche markets requiring FSC labeled supplies. It has receiving sawn timber orders at prices with an average premium of 37%. These higher prices occurred due to direct ordering by international manufacturing firms. Hence, not all of the premium should be attributed to certification. The higher premium was possible due to a transfer of the marketing margin that normally goes to traders or middlemen direct to PITC. Prices quoted by buyers vary by destination. The PITC has exported to Germany, UK and Holland, of which the German market has offered 20% higher prices than the UK market.

Environmental

Certification has led to a greater planning and monitoring of the environment. This assertion can be concluded from reviews of certification audits of forest concession and responding comments from state forestry departments. Taking the case of the certification audit for the state of Terengganu that seek MTCC certification program, several activities would be conducted taking on-board environmental concerns (Terengganu State Forestry Department, 2002). While various forest plans are normally prepared, in response to certification audits such reports have to be redrafted to incorporate environmental and social concerns. For instance, the Forest Management Plans (FMP) have to be prepared following a new format whereby information related to the environment, community participation and social have to be considered as well.

Role of Forest Certification

Forest certification has developed as a way of providing timber consumers with information about the management of the forests from which certain timber products have

originated. Several certification bodies have been established by interest groups to provide a framework in which certification initiatives can be pursued and managed. The two largest schemes are the Forest Stewardship Council (FSC), which was established in 1993 and is driven largely by environmental non-governmental organizations and the Programme for the Endorsement of Forest Certification schemes (PEFC), which was established in 1999 with the support of international forest industry and trade organizations and associations representing woodland owners in Europe. Several tropical countries are developing their own certification systems, including Indonesia (the Ecolabeling Institute), Malaysia (the Malaysian Timber Certification Council) and Brazil (Certificação Florestal-CERFLOR), while countries in Africa are developing a regional initiative. Despite the progress achieved in many producer countries, more than 90% of currently certified forests worldwide is outside the tropics, indicating the difficulties associated with implementing SFM in the tropics.

Timber certification in Malaysia began on three fronts coinciding with the three regions of the country. In Peninsular Malaysia, certification was initiated through the Malaysia-Netherlands Joint Working Group's (M-NJWG) Pilot Study on timber certification. The Malaysian Timber Industry Board (MTIB) and the Netherlands Timber Trade Association (NTTA) were the focal points for the study. Under the initial planning, three timber products - namely, sawn timber, plywood and moldings - were subjected to the certification process, following which the 'certified' timber products would enter the Keurhout Hallmark System implemented in the Netherlands to track these products to the final end-users. In Sabah it was initiated by the Sabah Forestry Department-German Sustainable Forest Management project at Daramakot Forest, which was certified with the Forest Stewardship Council (FSC). In Sarawak, certification efforts were initiated by the State Forestry Department with support from the Sarawak Timber Association. The Malaysian Government and Forestry Departments in the three regions of Malaysia were keen on the benefits of certification and set up the Malaysian Criteria and Indicators (MC and I) following that of the International Tropical Timber Organization (ITTO) Criteria and Indicators (C and I) on Sustainable Forest Management (SFM). The Malaysian Timber Certification Council (MTCC) was formed to oversee the implementation of the Malaysian Criteria and Indicators (MC and I). There was a move to obtain Mutual Recognition (MR) of the MC and I from FSC but to date this has not been successful, as endorsement from social Non-Governmental Organizations (NGOs) has not been obtained. Eventually, efforts were placed on improving the MC and I by complying with the FSC's Principles and Criteria (P and C) in a final effort to get the MC and I recognized globally. The MTCC considers the transition of its certification program as part of its phased approach of certification.

In Peninsular Malaysia, all the major forest-endowed states were successful in getting forests certified with the MC&I by the end of 2003. The Malaysian Government involvement in forest management certification schemes has some advantages in ensuring:

- A consistency of criteria and indicators applied
- A balance the views of the different parties involved
- A greater accountability to the public
- A greater transparency in the schemes used
- An additional channel for presenting their interest to labeling authorities

MTCC certification program is motivated by the country's commitment to ITTO's Guidelines for Sustainable Management of Natural Tropical Forests and its Criteria for the Measurement of Sustainable Tropical Forest Management (CMSTFM). Certification is seen

as a step toward ensuring the production of a continuous flow of desired forest products and services from the forest reserves. In doing so, it also commits to ensuring that production be conducted without undue reduction of the forest's inherent values and future productivity and without undue undesirable effects on the physical and social environment. Further, certification is being actively pursued to ensure continued market access of Malaysian timber products, particularly in the environmentally sensitive market.

Forestry Problems

Forestry in Malaysia faced various problems. Small scale and isolated illegal logging, deforestation and loss of biodiversity in harvesting activities are typical grievances being faced by a rapidly developing nation. The occurrence of illegal logging within certified FMUs has a better chance of being checked. Monitoring the use of imported illegal logs by domestic processors proved more challenging. Despite the federal government placing a ban on the importation of illegal logs, there are suggestions that Malaysia's wood-based industry is utilizing illegal Ramin logs (Telapak, 2003). Ramin was listed by Indonesia of CITES (the Convention on International Trade in Endangered Species). Malaysia responded by arguing that it is illogical and unfair to draw the conclusion that proof of illegal Indonesian Ramin import is evidenced by the steady export of Ramin of Malaysia. There is selective logging in the Ramin rich production forest of the Permanent Forest Estate in South East Peninsular Malaysia. Malaysia put up a partial reservation to the Convention for Ramin parts and derivatives as a step to ensure that the trade that had arduously been built up over the years is not jeopardized by unnecessary procedures and misidentification.

Market Access of Malaysia

Malaysia's total trade expanded by 19.1% per annum during the 6th plan period, 1990-1995; 12.6% during the 7th plan period, 1995-2000; 7.2% during the 8th plan period, 2000-2005 and expected to be continued by 8.0% during the 9th plan period, 2006-2010. The ASEAN countries, Japan, the US and the EU are the major trading partners accounting for 75.5% of Malaysia's total exports in 1995 as compared to 76.3% in 1990 and 73.2% in 2000. Total trade almost doubled from RM379.3 billion in 1995 to RM685.7 billion in 2000. Trade with Australia, the Newly Industrialized Economies and South Asia also increased, reflecting efforts by the Government to diversify its markets. Malaysia's total trade in the Southern Countries expanded by 18.7% during the Plan period 1995-2000, with its share increasing from 13.9% in 1995 to 18.1% in 2000. Total exports was RM79.64 billion in 1990, RM185.32 billion in 1995, RM 373.27 billion in 2000 and RM 533.79 billion in 2005 (Government of Malaysia, 2006).

During the 7th plan period Malaysian economy was depended high import in its structure of production, despite efforts to deepen and broaden the industrial base, as reflected in the acceleration of gross import at 19.7% per annum. On average, imports of intermediate goods grew by 19.4% per annum to account for 44.8% of gross imports at the end of the plan period. This growth was due mainly to the rapid growth in manufacturing productions. In the 8th plan period gross imports grew at 10.0% per annum and about 88.9% were intermediate and capital goods used for productive purposes. Imports of intermediate goods grew at an average rate of 12.8% per annum to account for 73.8% of gross imports, while capital goods grew marginally at 3.8% per annum, constituting 15.1% of imports at the end of 2000. The slower growth in the imports of capital goods was due to the contraction in investment as well as the higher cost of imports as a result of the crisis. Gross imports increased at an average rate of 6.9% per annum during the 9th Plan period particularly due to capital expansion in the manufacturing and services sectors. Import of intermediate goods

Table 3: Direction of trade in the Malaysian economy from 1990-2005 (RM million)

Direction	RM million						Total (%)					
	Exports			Imports			Exports			Imports		
	1990	2000	2005	1990	2000	2005	1990	2000	2005	1990	2000	2005
ASEAN	23065.5	99028	139208	15085.0	74940	110823	29.0	26.5	26.1	19.1	24.1	25.5
Singapore	18052.1	68574	83333	11800.0	44696	50828	22.7	18.4	15.6	14.9	14.4	11.7
Indonesia	920.7	6484	12580	850.8	8623	16566	1.2	1.7	2.4	1.1	2.8	3.8
Thailand	2788.0	13485	28723	1881.2	11987	22889	3.5	3.6	5.4	2.4	3.8	5.3
Philippines	1054.6	6558	7476	427.3	7562	12192	1.3	1.8	1.4	0.5	2.4	2.8
European Union	12204.5	51019	62629	12494.4	33527	50512	15.5	13.7	11.7	15.8	10.8	11.6
United Kingdom	3136.0	11566	9470	4312.3	6080	6522	3.9	3.1	1.8	5.5	2.0	1.5
Germany	3096.8	9336	11259	3389.2	9282	19265	3.9	2.5	2.1	4.3	3.0	4.4
USA	13487.0	76579	105033	13232.5	51744	55918	16.9	20.5	19.7	16.7	16.6	12.9
Canada	-	3043	2847	-	1445	2133	-	0.8	0.5	-	0.5	0.5
Australia	-	9210	18042	-	6052	8171	-	2.5	3.4	-	1.9	1.9
Selecte NEA*	-	103784	149105	-	117828	169236	-	27.8	27.9	-	37.8	39.0
Japan	12588.9	48770	49918	23584.5	65513	62982	15.8	13.1	9.4	16.7	21.0	14.5
China	-	11507	35221	-	12321	49880	-	3.1	6.6	-	4.0	11.5
Hong Kong	2523.1	16854	31205	1497.5	8557	10797	3.2	4.5	5.8	1.9	2.7	2.5
Korea Rep.	3677.0	12464	17945	2033.6	13926	21604	4.6	3.3	3.4	2.6	4.5	5.0
Taiwan	1728.1	14189	14813	4323.0	17511	23974	2.2	3.8	2.8	5.5	5.6	5.5
South Asia	-	10529	21245	-	3030	4504	-	2.8	4.0	-	1.0	1.0
India	-	7312	14972	-	2748	4164	-	2.0	2.8	-	0.9	1.0
CSA	-	5633	6169	-	2587	6786	-	1.5	1.2	-	0.8	1.6
Africa	-	2996	7649	-	1421	2511	-	0.8	1.4	-	0.5	0.6
Others	-	11449	21866	-	18886	23415	-	3.1	4.1	-	6.1	5.4
Rest of the world	10372.3	-	-	11478.8	-	-	13.0	-	-	14.5	-	-

Sources: Department of statistics, 9th Malaysia Plan, 2006. *NEA indicates selected North East Asian countries. **CSA indicates Central and South America

grew at an average rate of 5.8% per annum to account for 71.0% of gross imports while import of capital goods grew by an average rate of 6.6% per annum and constituted 14.0% of total imports in 2005. The import of consumption goods increased by an average annual rate of 7.6% and where gross import increase rate was 5.7% at the end of the Plan period. The import intensity declined from 51.1% in 2000 to 49.9% in 2005, reflecting an increase in the utilization of locally produced components. Table 3 shows the direction of trade in the Malaysian economy from 1990 to 2005.

Sustainable Forest Management

Sustainable forest management implies the sustainable utilization of forest resources for the benefit of communities and states. The concept not only aims to maintain the value of forest resources, it also has a huge potential for creating employment, income and wealth for the populations and states concerned. The sustainable forest management programme seeks to improve the management of natural tropical forests by increasing the adoption of sustainable forest management practices by forest managers from industries to communities. Good forest management can both reduce the negative impacts of timber harvesting on other forest resources and services and increase yields of desired products and services from a given area of forest.

Sustainable Forest Management (SFM) is the process of managing forest land to achieve one or more clearly specified objectives of management without undue reduction of its inherent values and future productivity or undesirable effects on the economic, social and environment (ITTO, 1992) and integrates and balances social, economic, ecological, cultural and spiritual needs to present and future generations.

Economic

The capacity of the forests to attract investment and support economically viable forest uses in the present and the future is undiminished. The forest is not used beyond its long-term capacity for production of wood and non-wood forest products.

Social

There are a variety of pillars include social such as:

- The rights of indigenous peoples and local communities are respected and protected
- Forest workers are healthy, safe and their rights are protected (e.g., freedom of association, right to bargain, child labor, forced labor, equal remuneration and non-discrimination)
- Local communities, including indigenous peoples, benefit economically from forest management
- Sites of religious, spiritual, archaeological, historic as well as of aesthetic and recreational value are preserved

Environmental

Forest use protects biodiversity (ecosystems, species, genes and ecological processes) and the capacity to maintain ecosystem processes and services such as watershed protection, pollination, protection against mudslides, aesthetic beauty, carbon storage, etc.

RESULTS AND DISCUSSION

Sustainable development has directly and indirectly been affected by economic, social and environmental. It has reduced the negative impacts of timber harvesting on forest products and increased the protection of environmental products and services (Fig. 1).

Figure 1 also shows that the path to sustainable is a threefold process. Sustainable development has three aspects: economic, social and environmental, which are linked together and have overlapping within themselves. So, the three parts and their links are to understanding sustainable development, because sustainable development is about more than quality of life and achieving balance among the social, economic and environmental price of a community.

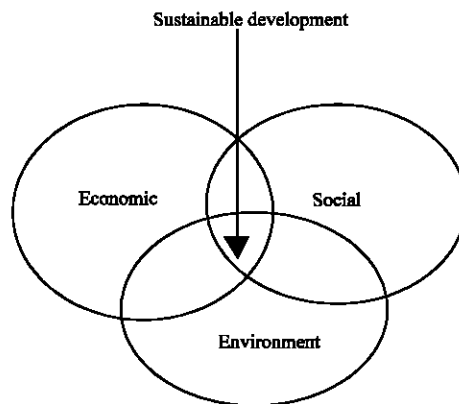


Fig. 1: Sustainable development

The analytical framework, which has been used in interpreting the impacts on sustainable development, is shown in the Fig. 2.

From Fig. 2, we can see that trade rules may influence on the components of sustainable development, such that the effects of liberalization are felt primarily through the extent to which it accelerates or decelerates these other processes. The direction and significance of impacts depends on the nature of the policy and regulatory frameworks are under-developed and well-developed capacity for policy analysis and implementation

In Fig. 3, we can see that ITTO producer member countries, the exports of tropical logs totalled 13.0 million m³ in 2007 and the exports of Malaysian tropical logs totalled 5.2 million m³ in 2004 grew to 5.7 million m³ in 2005. But, Malaysian log exports have been declining since 2005 and reduced significantly in 2007. Malaysia's major log customers are all in Asia, especially China, India, Taiwan Province of China and Japan. In recent years, tropical logs have been processed domestically, although the wood processing industry would be severely impacted by the economic downturn in major export markets in 2008-2009.

Figure 3 show that the exports of tropical sawnwood totalled 11.6 million m³ in 2007, the same level as 2006 in ITTO producer member countries. The exports of Malaysian tropical sawnwood totalled 3.2 million m³ in 2004, the same level as 2006 decreased to 2.4 million m³ in 2005 and 2.8 million m³ in 2007. In this study, we see that Malaysian sawnwood exports are decreasing and increasing year by year and constituting 26% of total ITTO producer member exports. Malaysia's major sawnwood customers were China, Taiwan P.O.C., Republic of Korea, Japan, USA, France and Belgium.

From Fig. 3, that ITTO producer member countries, the exports of tropical veneer totalled 1.1 million m³ in 2007 and the exports of Malaysian tropical veneer totalled 41 5000 m³ in 2007.

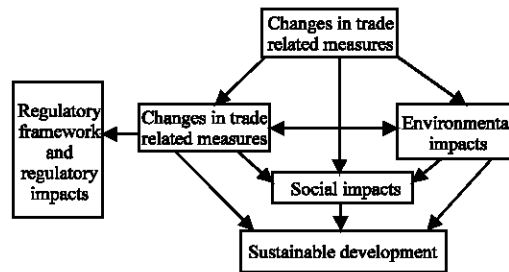


Fig. 2: Impact types of trade liberalization on sustainable development

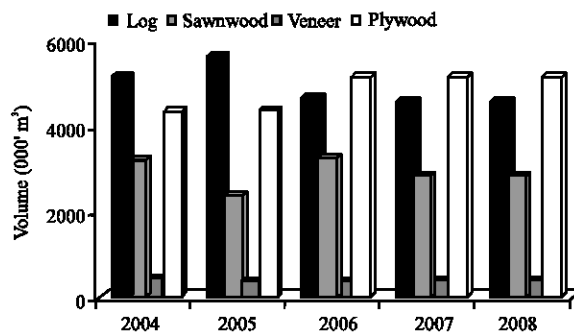


Fig. 3: Malaysian exports of tropical timber, 2004-2008

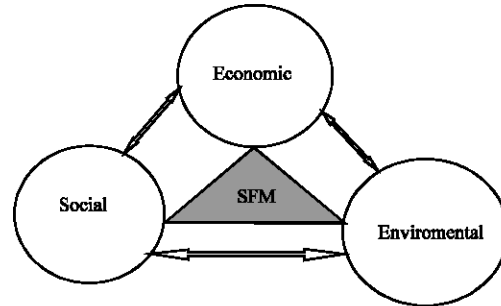


Fig. 4: Pillars of sustainable forest management

Malaysia's veneer exports decreased from 2004 to 2006 and recovered in 2007. Malaysia accounted for 42% of the ITTO producer member veneer exports. Malaysia's major veneer customers were Republic of Korea, China, Japan, Taiwan P.O.C. and Philippines.

In Fig. 3, ITTO producer member countries, the exports of tropical plywood totalled 9.7 million m³ in 2007 and the exports of Malaysian tropical plywood totalled 5.1 million m³ in 2007. Malaysia's plywood exports increased from 2004 to 2006, as the same level as 2007. Malaysia accounted for 42% in 2003 to over 58% in 2007 in the ITTO producer member plywood exports. Malaysia's plywood exports are mainly to the Republic of Korea, the USA and Taiwan P.O.C. and Japan.

There are three pillars of SFM include the Fig. 4.

Figure 4 shows that the economic pillar is a suitable mix of wood products and non-wood products (plants, animals, etc.), that does not diminish the productive capacity of the forest. Social pillars include respect for labor and indigenous rights, the health and safety of forest workers, sharing of economic benefits and protection of sites of spiritual or historic value. Environmental pillars can include soil protection, biodiversity, maintenance of air and water quality and aesthetics. The appropriate balance of these pillars will vary among regions and contexts.

Some studies have showed only the relationship between trade and environment, some studies only for Peninsular Malaysia, some studies trade liberalization, some studies sustainable development. Nobody has showed combinable the link between trade and environment, the development of timber certification, timber products and market access on tropical timber trade towards sustainable forest management. In the results, we have only showed the link between trade and environment, the development of timber certification, timber products and market access on tropical timber trade towards sustainable forest management.

Trade and environment affects each other by economically, socially and environmentally. Trade liberalization also affects trade and environment. It does not only affect the size of the economic activities, it also brings about changes in the composition of production and technique of production. Scale effect tends to increase the amount of environmental degradation; however, a change in the composition of production from dirtier goods towards cleaner on as well as an adoption of cleaner technology can improve overall environmental conditions after trade liberalization.

There are a lot of trade rules on trade and environment. It is protected by forest certification. Forest certification remains one of the most contentious issues in international forest policy because it is a trade-related instrument and States feel that it could influence their competitiveness and market access. Market concentration is difficult to establish with

any clarity because of issues related to definition of product categories and markets. There is increasing concentration in some parts of the forest products sector. Forests and forest-based livelihoods are also strongly affected by the serious inequities which prevail in international institutions governing market structure and competition, trade rules, barriers and disputes in the many sectors which compete with or involve forestry. Because of this, we conclude that the theory behind mutual benefits to trading partners is unlikely to be predictive for less powerful interest groups or forest types within many tropical nations.

In general terms, forest trade benefits the environment of the importing region whilst the exporting region environment is degraded. However, such effects are ambiguous, both in the sense that they may cancel each other out in terms of overall sustainability and to the extent that within each region there are often areas with positive impacts and areas with negative impacts at the same time.

Sustainable developments lead to sustainable forest management. Sustainable forest management practices the environmental protection especially in Malaysia. In response to the needs to promote SFM, the Forestry Department Peninsular Malaysia has produced the Malaysian Criteria and Indicators (MC and I) that clarify major activities that have to be complied with sustainable basis. To ensure that the forest is better conserved, the annual coupe in Peninsular Malaysia has been scaled down for each Malaysian Plan starting from the 4th Malaysia Plan (1981-1985) of 74,869 to 36,940 ha year⁻¹ under the 9th Malaysia Plan (2006-2010) (Kamaruzaman and Dahlan, 2008).

With regards to SFM practices, Schwarzbauer and Rametsteiner (2001) have analyzed the potential impacts of SFM certification on forest products markets of the Western European forest sector. The market impact of timber supply reduction from certified forest would be more distinct than the impact of chain of custody costs. That means a decrease of harvesting levels in certified forest will affect forest products markets more than the increase costs related to the installation and maintenance of SFM certification in the forest sector.

Forest certification is emerging as a mode of corporate governance and is shaping the parameters under which economic actors along the timber products trade. New forms of collaboration are emerging and impacting on trade governance. Recently, developments within the forestry sector are increasingly being regulated by trade society initiatives. These initiatives are impacting on and breaking down, highlighting the fact that economic pressure along the commodity trade comes from different sources and that economic pressure can vary context to context.

In 2001, B and Q refused to buy non-FSC certified Canadian softwood (Reimer and Leslie, 2004). While certification schemes were established with the goal of sustainable forestry management, certification has become a market-based tool to promote forestry products. Currently, certification schemes appear voluntary but in time market forces may demand certified products. The development of timber certification standards are embedded in power relations at different geographical scales. While there is recognition and collaboration between national, regional and global schemes, greater attention needs to be made to the synchronizing of standards and mutual recognition. Indeed, though trade in certified products is still insignificant the question must be asked if the market can actually support a large number of competing certification schemes (Yassin, 2003).

One of the early claims made about forest certification was that the development of environmental certification standards would become an instrument of development. Since the establishment of the FSC and the subsequent emergence of a variety of certification schemes, the geographical uptake of forest certification varies considerably around the world. The majority of certified timber products are located in core countries. Moreover, there

has been a reworking of established relationships and increased efforts by producers within core countries to obtain access to core markets. This can be viewed as a reinforcement of the core-periphery economic dependency relationship. Potentially, the apparent core-periphery division around certification identified at present could deepen to a realignment of the way the forestry complex is organized, based on calculative practices.

From the results of this study, we can see that some sustainable development reduce the negative impacts and increase the environmental protection of forest products. It affects the changes in trade patterns and trade policies, in particular trade liberalization, on aspects of forest management. It covers the trade factors beyond the forest sector that influence whether forest management is even an option, then goes on to consider how expansion of trade affects environmental, economic and social aspects of forest management. Economically, socially and environmentally, the net effect of trade is beneficial-it is the distribution of benefits and the way different benefits are accorded value by different interests that determine impacts in a given location. Promoting more secure land tenure for these and other credible forest managers is likely to be the single most positive step towards ensuring that trade promotes sustainable forest management. Finally, we identify some of the key approaches to understanding and improving trade impacts on forestry which deserve attention in future.

CONCLUSION

In conclusion, there is an interrelationship between trade and environment in the forestry sector in order to promote sustainable forest management. Within the forestry sector, significant developments are occurring at global, regional and national scales, which are reshaping the environmental, economic and social dimensions of the forestry sector. Malaysia is one of the largest exporters of high quality timber products to the world market. It has achieved this position through adherence to a strict quality control system and an effective marketing strategy for forest wood products. As the forest products, it needs to establish an industry which can provide a country with long-term earnings, fuller utilization of its natural resources and greater socio-economic benefits for its people. In order to carry out these tasks, it is important to understand not only the forest wood products and its markets in Malaysia, but also its relative position in international markets. Within a relatively short time, Malaysia has emerged as one of the major suppliers in the world forest wood products market. This study will conclude by making some suggestions to enhance the competitiveness of tropical forest wood products and to increase the market share in the global forest products market.

ACKNOWLEDGMENTS

Financial assistance provided by the Research University Grant (GUP), UKM-GUP-ASPL-07-06-011. Institute for Environment and Development, University Kebangsaan Malaysia is gratefully acknowledged.

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