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**Greening World Trade: The Malaysian  
Perspective on Emerging Issues and  
Policy Responses**

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and  
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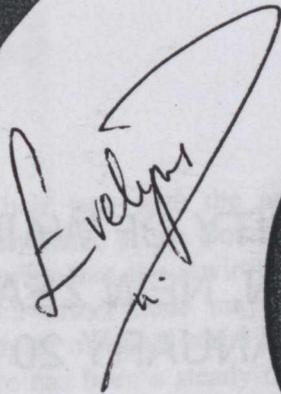
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# 'Greening World Trade': The Malaysian Perspective on Emerging Issues and Policy Responses<sup>+</sup>

Evelyn Devadason\* and Santha Chenayah\*\*

**Abstract** *The rising environmental trade barriers (ETBs), emanating largely from developed countries has affected the export interests of developing economies. Much contention remains that ETBs are a merely a guise for protectionism instead of reflecting green concerns as the associated costs for compliance can be prohibitive for developing countries. For a small but trade-dependent economy like Malaysia, environmental measures such as product standards and eco-labeling pose threats in terms of market access and industrial competitiveness. This paper addresses the emerging ETBs that have a direct bearing on Malaysia's exports and the policy actions taken in responding to the environmental challenge.*

**Key Words** Environmental Trade Barriers (ETBs), Sanitary and Phytosanitary (SPS), Technical Barriers to Trade (TBT), green trade, Malaysia

**JEL Classification** Q56, F18

## INTRODUCTION

Environmental issues made their way onto the negotiating agenda of the World Trade Organization (WTO) for the first time at the Doha Ministerial Meeting in November 2001. Though the WTO does recognize that the environment must be protected, and that some environmental measures which affect trade may be permitted in order to do so, it is maintained that the key principles of non-discrimination and avoidance of unilateral action not be compromised. Yet there has been a steady rise in the introduction of such measures that seem to disregard the very principles of WTO on trade coercion to enforce non-trade goals.

Most of the environmental measures originate from the European Union (EU), United States (US) and Japan. It is thus not surprising to note that these countries continue to be the major players in the debate on the trade-environment relationship. Over the past decade, 44 new environmental trade barriers (ETBs<sup>1</sup>) were imposed whilst a further 23 regulations were adopted (Australian APEC Study Centre, 2003). The number of barriers, instituted since the late 1990s, is set to rise as these powerful countries with the support of green organizations continue to push for change in the WTO rules. To date, the trade-environment concern is underscored by various international agreements, reports and mandates.

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<sup>1</sup> ETBs include the following: standards regulating (maximum residue) levels of toxic substances in products; standards for marketing approval; standards for product harvesting; product waste, disposal and recycling obligations; packaging and labeling requirements; standards managing energy efficiency/emissions reductions; and regulations pursuant to MEAs and other international treaties.

Based on Fontagne *et al.* (2005), 88 per cent of the value of world trade is in products potentially affected by ETBs. The ETBs are generally prominent in agriculture (including food), textiles and garments, thereby affecting mostly trade of developing countries from the Asia Pacific, South Asia and Africa regions. These are sectors of importance to the developing world, of which a large proportion of exports are directed to the developed markets. For example in the case of food and feed products, Asia experienced the highest level of rejections at the EU border, accounting for 44 per cent of total alert notifications between 1997 and 2006 (Rokiah, 2009). Similarly, a growing number of products from Malaysia are also subject to environmental and health measures in developed markets. These measures include economic instruments, technical regulations<sup>2</sup> and standards and quantity import controls that affect Malaysia based on the structure of exports in terms of product category and market destination.

Whilst some measures may be justified scientifically, much contention remains that ETBs (preservation of the environment, wildlife, as well as human health, human safety, animal health or plant health, see Fontagne *et al.*, 2005) are a merely a guise for protectionism (the so-called green barriers) instead of reflecting green concerns, as the associated costs of compliance (related to capacity constraints such as laboratory facilities and technical expertise) can be prohibitive in developing countries (Athukorala and Jayasuriya, 2003; UNCTAD, 2007). The major concern is environmental measures such as product standards and eco-labeling pose threats in terms of market access and industrial competitiveness (see Brooks, 1998). More specifically, is the indiscriminate use of eco-labeling schemes, which is expensive for producers to comply with. It has thus been argued the possibility of ISO 14000<sup>3</sup> becoming a defacto mandatory condition for imports and trade barrier rather than a voluntary requirement.

The paper therefore addresses the emerging ETBs that have a direct bearing on Malaysia's trade and the policy actions taken in responding to the environmental challenge. Section 2 surveys the key debates on trade and environment. Section 3 reviews Malaysia's position in green trade and green barriers that have affected export consignments of Malaysia to the EU and US. Section 4 details Malaysia's policy responses to the trading and environmental challenges. Finally, Section 5 concludes.

## DEBATE ON TRADE AND ENVIRONMENT

The debate on trade and environment surrounds two key areas: First, the conflicting views on the issue of linking or delinking the former and the latter; and Second, the potential threats of greening trade.

With regards to the first issue, the basis of arguments between free traders and environmentalists is the four basic avenues in the life cycle of traded products for environmental degradation through international trade. They are through production (including resource extraction), shipping or handling (including storage), consumption, and finally waste, disposal or recycling of the product (Brooks, 1998). Those who propose the

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<sup>2</sup> Malaysia does not generally enforce technical regulations for exports, but the technical regulations of importing countries remain applicable (SIRIM, 2005).

<sup>3</sup> The ISO 14000 family addresses various aspects of environmental management. The very first two standards, ISO 14001:2004 and ISO 14004:2004 deal with environmental management systems (EMS). ISO 14001:2004 provides the requirements for an EMS and ISO 14004:2004 gives general EMS guidelines. The other standards and guidelines in the family address specific environmental aspects, including labeling, performance evaluation, life cycle analysis, communication and auditing.

delinking of trade laws and environmental policies claim that environment issues should be tackled at their source (point of production), occasionally at the point of consumption and rarely at the point of exchange. As such, they advocate that environmental matters should remain the focus of national policies and not be brought into the international domain. More importantly, they argue that the WTO is not the right forum to handle environmental-related issues. Of the four channels, environmentalists emphasize the focus on consumption and disposal as critically important given that some of the more severe environmental effects originate from these two avenues. The arguments on linking and de-linking remain debatable as traded products become growingly complex and evolve into new domains (for example bio-technology products).

Production, processes and methods (PPMs) has already emerged a contentious issue, embedded in the arguments on linking or de-linking trade and environment policies. The choice of PPMs by most exporters considered to reflect genuine moral preferences is ecolabeling. However, Lohani and Ghosh (2000) highlight the specific concerns of developing countries on the issue of eco-labeling. First, their interests in product selection for ecolabeling may not be taken into account. Second, the selection of product categories may exclude other like products. Third, the selection of criteria and thresholds may result in the mandate of a particular technology or production process. Fourth, they may not be able to sponsor a product for ecolabeling or fulfill the requirement for on-site plant inspection. Fifth, they may be disadvantaged by the mandatory recycling requirements on packaging. Sixth, they may incur higher costs for certification of domestic firms by foreign firms. Given the above, Lohani and Ghosh (2000) opine that ecolabeling provides scope as a barrier to trade for developing countries.

In terms of global threats, the issue of greening trade is therefore said to basically pitch developed against developing countries as the latter has either no or lower domestic environmental standards. The fear is that developed countries will impose lofty environmental standards on developing countries and subject them to trade barriers if they fail to conform to those standards. Such environmental barriers could then disrupt viable sources of exports in areas of comparative advantage of developing countries. Further, if they are legitimized in international trade, they could also erode core WTO rights for developing members. This argument is conceded by free traders, much to the chagrin of environmentalists, who insist for a complete separation of trade and environmental policies. Environmentalists, in turn, argue that the lack of harmonization of environmental regulations globally may have adverse impact on both the developed and developing countries. As such, they argue that the trade-environment relationship should not be misconstrued to be a developed-developing country conflict.

In the context of the developing world, the influence of transnational corporations (TNCs) of the developed world on environment related activities is also brought to the fore. There are arguments that TNCs in developed countries relocate their highly polluting industries to low-standard jurisdictions [which then become pollution havens, Copeland and Taylor, (1995)] to reduce their environmental management costs. The pollution haven hypothesis manifests not only *via* changes in industry location but also in trade patterns when developing countries specialize in pollution intensive industries given their less restrictive environmental regulations [as propounded by standard theories, Pethig (1976); Siebert (1977); see also McGuire (1982)]. Alternatively, developed countries in turn could also relax their environmental standards to allow their own industries to withstand competition of cheaper products from nations with sub-par rules, leading to a regulatory 'race-toward-the bottom' (termed as competitive environmental deregulation).

In the context of TNCs, Bhagwati (2000) argues however that these companies do not in fact respond to lower environmental burdens for reasons of reputation, but instead are attracted by the incentives (such as tax breaks and tax holidays) meted out by the host country. Further, the host country is unlikely to subject itself to become a pollution haven [see Hettige *et al.*, (1992); Lehr and Maxwell (2000); for a revised view<sup>4</sup> of the pollution haven phenomenon; Mani and Wheeler, (1998)], or rather the formation of pollution havens become self-limiting as developing countries become more willing to enact and enforce expensive pollution abatement policies<sup>5</sup> (Mani and Wheeler, 1998; see also Grossman and Krueger, 1995). He also adds that in contrast to the 'race-toward-the-bottom,' the 'race-toward-the-top' may even be plausible. Esty (2001) however disagrees with the latter logic which he claims is applicable to product standards and not PPMs, as they are not subject to same market pressures.

Amidst the ongoing debate on the trade-environment nexus, the growing threats of greening trade is going to remain for some time given the current intensive lobbying efforts of internationally operating non-governmental organizations (NGOs) with WTO and the Organization of Economic Cooperation and Development (OECD) governments (Jakobeit, 2001). Irrespective of whether trade-environment matters should be tackled nationally or globally or which international organization is deemed the best vehicle to drive and guide the debate, the issue can no longer be treated with benign neglect given its present global reach. The challenge therefore remains for countries like Malaysia to engage in 'green trade'<sup>6</sup>.

## ISSUES AND CHALLENGES IN GREEN TRADE

### *Trade in Environmental Goods*

Environmental goods (EGs) constitute products, systems and services<sup>7</sup> for three groups: pollution management, cleaner technologies and resource management. Though, there is no agreed definition on EGs *per se*, the list of such goods as formulated by the OECD and APEC (Asia Pacific Economic Cooperation) can be used to analyze Malaysia's trade patterns in environmental goods.

Figure 1 caricatures the ratio of exports to imports of total EGs and that for the three groups based on the combined list of OECD and APEC (herein referred to as OECD+APEC). Malaysia has been a net importer of EGs. The ratio of exports to imports of total EGs rose from 0.26 in 1990 to 0.82 in 2009. Underlying this negative trade balances however is increases in the exports of EGs. By EG group, Malaysia remains largely a net exporter of

<sup>4</sup> Toxic intensity did not characterize all manufacturing in less developed countries in the 1970s when environmental regulations were tightened in the developed world. Conversely, toxic intensity had grown more rapidly in economies that were relatively closed to international trade (see also World Bank, 2008).

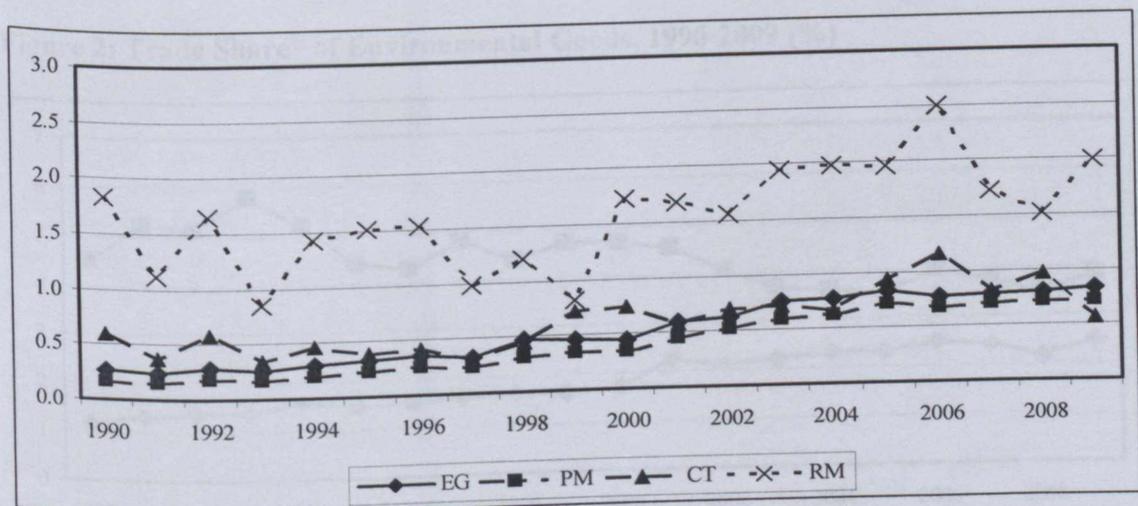
<sup>5</sup> Initial environment legislations in the case of Malaysia date 1977 for air and water and subsequently 1979 for toxics.

<sup>6</sup> Green trade is defined as the export and import of goods and services which are produced, traded, used and disposed of in an environmentally sustainable manner or that which promote sustainable development. It comprises components of environmental goods and services, environmentally sound technologies, renewable energy and more importantly conformity to internationally agreed environmental and health standards (Proksch, 2006).

<sup>7</sup> Environmental services include sewage services, refuse disposal services, sanitation and similar services, consultancy services and other environmental services (cleaning of exhaust gases, noise abatement services, nature and landscape protection services and recycling).

environmental products classified under the functional category of resource management<sup>8</sup> (such as water purification system, potable water supply and distribution, solar panels, wind turbines and geothermal energy sensors). One such class of products within the resource management group of which Malaysia has made some inroads is renewable energy (RE<sup>9</sup>). Though developing countries have only emerged as noticeable exporters on the low-technology side<sup>10</sup> of RE, Malaysia is amongst the five developing countries (apart from Brazil, China, India and South Africa) deemed to have both big export potential as well as large domestic markets for RE (Puri, 2005). Specifically, Malaysia has emerged amongst the top ten exporters of photovoltaics (HS854140 – photosensitive semiconductor devices, including solar cells<sup>11</sup>) (WTO, 2002). In fact, Malaysia does not impose any non tariff barriers (NTBs) on solar photovoltaic systems relative to other clean energy technologies such as clean coal technologies, wind energy and energy efficient lighting (World Bank, 2008).

Figure 1: Ratio of Exports to Imports for Environmental Goods, 1990-2009 (%)



- Note: 1. EG – environmental goods; PM – pollution management; CT – cleaner technologies; RM – resource management  
 2. The total number of products considered are 174 products for OECD+APEC based on the 6-digit HS codes.  
 3. It is noted that some codes appear in more than one functional category.  
 4. There is no trade for the following product codes: 220100, 283822, 381500, 841000 and 980390.

Source: 1. Calculated from the UN COMTRADE database  
 2. See WTO (2002) for list of EGs under OECD and APEC.

<sup>8</sup> Resource management constitutes the (distant) second largest functional group in terms of shares of total EGs traded by Malaysia, after pollution management.

<sup>9</sup> RE, more aptly classified as environmentally preferable goods (EPGs), is also recognized as EGs given its lowered negative environmental (low emission intensity) impact during operation/ end use. (EPGs are goods which have a minimum impact on the environment or comparatively less impact, for example natural fibres, organic agricultural products, recyclable and biodegradable products and sustainably produced forest products).

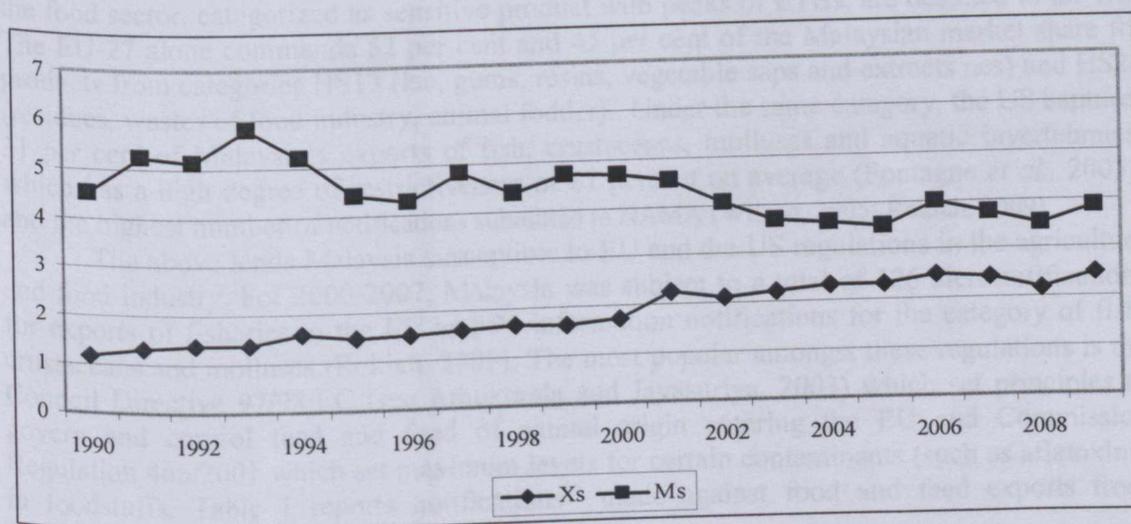
<sup>10</sup> Individually, though developing countries do not fare as well in RE, there are also other exceptions: Mexico has captured a significant share of solar collectors and India is a significant exporter of small hydraulic and wind-driven turbines.

<sup>11</sup> Worth mentioning here is that despite the recognition gained for this class of RE, the export/ import ratio for HS854140 has declined from 3.83 to 2.79 between 1990 and 2009, with the average annual growth of imports at 3.2 percentage points higher than that for exports.

It is also interesting to note that the top EG exports of Malaysia are also among the top EG imports, as many of the goods are intermediate products with multiple uses. Based on 2009, the top five EG exports are HS854140 (photosensitive semiconductor devices, including solar cells), followed by HS392690 (other articles of plastic), HS903090 (parts and accessories for instruments and apparatus), HS847990 (parts of machines) and HS847989 (other machines, nes, having individual functions). The top five EG imports comprise similar products in the following order, HS847989, followed by HS392690, HS847990, HS903090, and HS854140. Exports and imports of these top five products represent 49.75 per cent and 39.62 per cent of Malaysia's total EG exports and imports respectively. This is a clear indication that Malaysia's trade in EG is highly concentrated.

Malaysia's trade position in EGs however remains weak. Figure 2 presents the share of trade in EGs as a proportion of Malaysia's total trade. The export share of EGs in total exports grew marginally from 1.18 per cent to 2.48 per cent between 1990 and 2009. Though the import shares of EG in total imports are higher than the corresponding exports shares, the former has declined from 4.52 per cent to 3.83 per cent in the same period.

**Figure 2: Trade Share\* of Environmental Goods, 1990-2009 (%)**



Note: \*Percentage of total exports and total imports of Malaysia respectively.

Source: 1. Calculated from the UN COMTRADE database  
2. See WTO (2002) for list of EGs under OECD and APEC.

Another component of green trade is environmentally sound technologies (ESTs) based on Agenda 21, arose from the United Nations Conference on Environment and Development (UNCED), otherwise known as the Earth Summit, held in 1992 (UNEP, 2003). Chapter 34 of Agenda 21 defines ESTs as technologies which protect the environment, less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products and handle residual wastes in a more acceptable manner than the technologies for which they are substitutes. ESTs are therefore technologies that have the potential for significantly improved environmental performance relative to other technologies. The trade patterns above do not track ESTs as there are no HS codes to classify these technologies in the form of integrated capital goods. In ESTs, Malaysia continues to seek transfer of such technology through collaborative projects with foreign entities.

Apart from the ISO 14000 mentioned earlier, critical to green trade is conformity issues (standards and assessment systems) that are tackled within the confines of the agreement on application of Sanitary and Phytosanitary (SPS)<sup>12</sup> measures and the agreement on Technical Barriers to Trade (TBT)<sup>13</sup>. For Malaysia, SPS concerns relate to live animals and related products, specifically fisheries, whilst TBT<sup>14</sup> issues are dominant for items of machinery, electronics and pharmaceutical products [which are subject to relatively many developing countries notifications to Non-Agricultural Market Access (NAMA), see Johnson, 2008] (Wilson, 2005). It has been argued by Johnson (2008) that conformity assessment requirements may serve as significant barriers that increase manufacturers' costs (see also Bostock *et al.*, 2004; Ababouch *et al.*, 2005; UNCTAD, 2007).

The EU for one has strict standards on recycling, packaging and life cycle analysis, particularly in the agriculture sphere (food, fisheries and forest products) and seeks to aggressively advance the environmental agenda (Esty, 2001; Australian APEC Study Centre, 2003). This is a point of concern as the EU is Malaysia's second largest export market, taking 11 per cent by volume in 2008. A substantial percentage of Malaysia's world exports within the food sector, categorized as sensitive product with peaks of ETBs, are destined to the EU. The EU-27 alone commands 52 per cent and 45 per cent of the Malaysian market share for products from categories HS13 (lac, gums, resins, vegetable saps and extracts nes) and HS23 (residues, wastes of food industry, animal fodder). Under the same category, the US captures 31 per cent of Malaysia's exports of fish, crustaceans, molluscs and aquatic invertebrates, which has a high degree of restrictiveness of 61 percent on average (Fontagne *et al.*, 2005), and the highest number of notifications submitted to NAMA (Wilson, 2005; Rokiah, 2009).

The above lends Malaysia susceptible to EU and the US regulations in the agriculture and food industry. For 2000-2007, Malaysia was subject to a total of 126 alert notifications for exports of fisheries to the EU and 94 information notifications for the category of fish, crustaceans and molluscs (Rokiah, 2009). The most popular amongst these regulations is the Council Directive 97/98/EC (see Athukorala and Jayasuriya, 2003) which set principles to govern and control feed and food of animal origin entering the EU and Commission Regulation 466/2001 which set maximum levels for certain contaminants (such as aflatoxins) in foodstuffs. Table 1 reports notifications<sup>15</sup> made against food and feed exports from Malaysia.

<sup>12</sup> The SPS concerns the protection of health and life for humans, animals and plants. Some of the common measures are: additives in food or drink; contaminants in food or drink; toxic substances in food or drink; residues of veterinary drugs or pesticides in food or drink; certification: food safety, animal or plant health; processing methods with implications for food safety; labeling requirements directly related to food safety; plant/animal quarantine; declaring areas free from pests or disease; preventing disease or pests spreading to or in a country; other sanitary requirements for imports (for example imported pallets used to transport animals).

<sup>13</sup> Typical examples of TBT measures are as follow: labeling of composition or quality of food, drink and drugs; quality requirements for fresh food; volume, shape and appearance of packaging; packaging and labeling for dangerous chemicals and toxic substances, pesticides and fertilizer; regulations for electrical appliances; regulations for cordless phones, radio equipment; textiles and garments labeling; testing vehicles and accessories; regulations for ships and ship equipment; safety regulations for toys; and ecolabeling.

<sup>14</sup> Malaysia is also amongst the category of countries identified as enforcing substantial ETBs, affecting more than 30 per cent of the value of imports in 2001 (see Fontagne *et al.*, 2005). Johnson (2008) cites that in the information technology (IT) equipment industry, the electrical safety requirements maintained by Malaysia that equipment be tested domestically, may lead to redundant testing for the said product.

<sup>15</sup> There are three types of notifications. Alert notification is sent when risk is detected and the product is already in the market. Alerts are triggered by the Member state that detects the problem and immediate action is taken to withdraw or recall the product. Information notification is done when risk is identified in the consignment but

**Table 1: Notifications Against Malaysia's Exports of Food and Feed, 1990-2010**

Date	Notified by	Reason for Notifying	Type of Notification
14/4/2003	Germany	Prohibited substance nitrofuran (metabolite) furazolidone (AOZ) (6.4 µg/kg - ppb) in deep frozen shrimps in batter from Malaysia.	AN
8/9/2003	Austria	Prohibited substance nitrofuran (metabolite) furazolidone (AOZ) (5.9 µg/kg - ppb) in deep-frozen shrimps in batter from Malaysia.	AN
3/5/2004	Belgium	Prohibited substance chloramphenicol (> 0.10 µg/kg - ppb) in PUD frozen shrimps from Malaysia.	AN
7/5/2004	Belgium	Prohibited substance chloramphenicol (0.35 µg/kg - ppb) in PUD red shrimps from Malaysia.	AN
18/1/2005	UK	Bacillus subtilis (pathogenic strain) in chicken curry mix from Malaysia.	IN
28/1/2005	UK	Bacillus subtilis (9.2x10*6; 1.0x10*7; 3.7x10*6; 1.2x10*7; 9.2x10*5 CFU/g) in black peppercorns from Malaysia.	BR
31/3/2005	Italy	Vibrio parahaemolyticus (presence) in frozen black tiger shrimps (Penaeus monodon) from Malaysia.	BR
31/5/2005	Italy	Undeclared sulphite (26 SO <sup>2</sup> mg/kg - ppm) in frozen whole prawns (Penaeus monodon) from Malaysia via Spain.	IN
16/8/2005	UK	Unauthorised substances malachite green (12 µg/kg - ppb) and leucomalachite green (416 µg/kg - ppb) in chilled farmed barramundi (Lates calcarifer) from Malaysia.	IN
1/12/2005	Germany	Unauthorised colour Sudan 4 (0.19 mg/kg - ppm) in curry powder from Malaysia.	BR
16/1/2006	Italy	Salmonella spp (presence /25g) in frozen cuttlefish (Sepia officinalis) from Malaysia.	BR
20/4/2006	Sweden	Salmonella Agona (positive in 1 out of 8 samples) in palm kernel expeller from Malaysia via the Netherlands.	IN
10/5/2006	Cyprus	Dioxins (2.09 pg WHO TEQ/g) in monocarboxylic palm fatty acids from Malaysia via the United Kingdom.	AN
28/6/2006	Sweden	Salmonella (presence in 1 out of 8 samples /25g) in palm expeller from Malaysia via the Netherlands.	AN
7/8/2006	Greece	Aflatoxins (B1 = 2.7; Tot. = 3.6 / B1 < 0.5 / B1 = 1.6; Tot. = 2.3 µg/kg - ppb) in sesame snack from Malaysia.	BR
28/11/2006	Italy	Mercury (2.28 mg/kg - ppm) in swordfish (Xiphias gladius) manufactured in Spain, raw material from Malaysia.	IN
15/1/2007	UK	Prohibited substance nitrofuran (metabolite) nitrofurazone (SEM) (7.4 µg/kg - ppb) in frozen prawns from Malaysia.	IN
20/3/2007	UK	Unauthorised colour Sudan 4 (21.7 mg/kg - ppm) in chilli powder from Malaysia.	IN
20/4/2007	Germany	Unauthorised substance isoprocarb (0.047 mg/kg - ppm) in starfruit from Malaysia, via the Netherlands.	IN
5/6/2007	UK	Histamine (340 mg/kg - ppm) in salted dried queen fish and salted dried mackerel from Malaysia.	BR
5/6/2007	UK	Histamine (710 mg/kg - ppm) in dried anchovy from Malaysia.	BR
12/6/2007	Czech Republic	Migration of formaldehyde (5,68 mg/dm <sup>2</sup> ) from wooden bowl from Malaysia via the Netherlands.	AN
17/7/2007	Ireland	Benzo(a)pyrene (28.9; 9.9 µg/kg - ppb) in dried catfish fillets from Malaysia via the Netherlands.	AN
2/8/2007	Cyprus	Histamine (5/9 unfavourable: between 286.2 and 1198.1 mg/kg - ppm) in dried anchovies from Malaysia.	BR

Member states do not have to take immediate action as the product has not reached their markets. Border rejection relates to consignments that have been tested and rejected at the external borders of the EU when a health risk is found. The notifications are transmitted to all European Economic Area (EEA) border posts in order to reinforce controls and to ensure that the rejected product does not re-enter the Community through another border post

Contd. Table 1

Date	Notified by	Reason for Notifying	Type of Notification
2/8/2007	Cyprus	Histamine (6/9 unfavourable: between 300.9 and 466.0 mg/kg - ppm) in dried/salted mackerel and dried/salted scad (Selar) from Malaysia.	BR
2/8/2007	Cyprus	Histamine (between 207.2 and 372.2 mg/kg - ppm) in salted/dried queen fish and Maldives fish chips from Malaysia.	BR
4/10/2007	Ireland	Benzo(a)pyrene (28 µg/kg - ppb) in smoked dried catfish fillets from Malaysia and the Netherlands.	AN
1/10/2007	Austria	Benzo(a)pyrene (51 µg/kg - ppb) in dried catfish fillets from Malaysia.	AN
7/11/2007	Cyprus	Illegal trade of frozen pork tender loins with falsified Italian health mark, dispatched from Malaysia.	IN
21/11/2007	UK	Aflatoxins (B1 = 11; Tot. = 14 µg/kg - ppb) and too high content of colour E 110 - Sunset Yellow FCF (396; 420 mg/kg - ppm) and of colour E 129 - Allura Red AC (141; 139 mg/kg - ppm) in candy coated peanuts from Malaysia.	BR
21/11/2007	UK	Too high content of colour E 110 - Sunset Yellow FCF (560 mg/kg - ppm) and of colour E 129 - Allura Red AC (169 mg/kg - ppm) in coated chocolate beans from Malaysia.	BR
14/1/2008	Denmark	Vibrio cholerae (1 out of 5 samples) in farmed frozen cooked and peeled black tiger shrimps ( <i>Penaeus monodon</i> ) from Malaysia.	IN
16/1/2008	Sweden	Salmonella Liverpool (1 out of 8 samples) in palm kernel expellers from Malaysia, via the Netherlands.	IN
23/1/2008	UK	Histamine (465; 473; 737; 26; 977; 31; 13; 913; 21 mg/kg - ppm) in chilled dried headless anchovy from Malaysia.	BR
19/3/2008	UK	Aflatoxins (Tot. = 35 µg/kg - ppb) in glutinous rice balls with peanut butter from Malaysia.	BR
16/4/2008	UK	Histamine (733; 632; 657; 748; 633; 684; 945; 765; 754; 728 mg/kg - ppm) in dried anchovy from Malaysia.	BR
30/4/2008	Austria	Insufficient labelling (candlenuts are toxic when eaten raw) of candlenuts ( <i>Aleurites moluccana</i> ) from Malaysia.	AN
23/6/2008	Italy	Prohibited substance nitrofurans (metabolite) furazolidone (AOZ) (5.6 µg/kg - ppb) in raw frozen farmed black tiger prawns ( <i>Penaeus monodon</i> ) from Malaysia.	BR
30/7/2008	Italy	Salmonella spp. in frozen whole cuttlefish from Malaysia.	BR
14/1/2009	UK	Suffocation risk as a result of the consumption of and E 407 - carrageenan unauthorised in jelly mini cups from Malaysia.	BR
3/6/2009	UK	E 407 - carrageenan unauthorised in pudding mixed with nata de Coco from Malaysia, via Singapore.	BR
6/8/2009	UK	E 407 - carrageenan unauthorised in flavoured jelly cups from Malaysia.	BR
16/11/2009	Italy	Too high content of E 210 - benzoic acid (242 mg/kg - ppm) in salted soy beans from Malaysia, dispatched from Singapore.	BR
25/11/2009	UK	3-monochloro-1, 2-propanediol (3-MPCD) (569 µg/kg - ppb) in naturally brewed soy sauce from Malaysia.	AN
19/2/2010	UK	Undeclared milk ingredient in coconut cream powder from Malaysia, via Jamaica.	IN
2/3/2010	Slovakia	Unauthorised novel food ingredient tongkat ali ( <i>Eurycoma longifolia</i> ) in coffee premix from Malaysia, via Hungary.	IN
25/3/2010	Finland	Suffocation risk as a result of the consumption of jelly mini-cups containing unauthorised carrageenan E 407 from Malaysia, via the Netherlands.	AN

Note: 1. AN- alert notification; IN – information notification; BR – border rejection.  
2. Notifications reported until June 2010.

Source: Compiled from the Rapid Alert System for Food and Feed (RASFF) portal.

Amongst the specific problems faced by Malaysian exporters of agricultural and food products because of SPS measures in the EU as inferred from Table 1 include the hygiene requirements for fish and fish products, poultry, fats and oils (affecting filled milk and palm oil exports), pathogenic bacteria, antibiotic residues and high level of metal content (particularly in fish, crustaceans and molluscs) apart from pesticide residues in fresh fruit and vegetables<sup>16</sup>. The SPS measure on pesticide residue on fruits specifically is considered difficult (as it is more stringent than International Codex Standards) and costly for exporters to achieve given that the maximum residue levels are established at the limit of detection. This is a problem for tropical fruits. In the case of trade with the US, the Malaysian exporters have also voiced their concerns over the phytosanitary controls for fresh fruit (SIRIM, 2005). Between 2009-2010 (June), a total of 22 shipments from Malaysia were detained by the US Food and Drug Administration (USFDA) following its border inspection in compliance with the Federal Food, Drug and Cosmetic Act. Again, the reasons for the detention were related to microbiological contamination and acidification mainly in seafood and food products.

ETBs have also spread beyond the agriculture and food industry to other manufacturing products, such as apparel and electronics. The US commands a market share of 50 percent and 42 percent of articles of apparel exports, knit and not knit respectively from Malaysia in 2008. It is noted that for articles of apparel (not knit), the average degree of restrictiveness is 36 percent in 2001 (see Fontagne *et al.*, 2005) given the risks associated with the use of certain chemical substances. Vossenaar *et al.* (2006) note that apart from being subject to the regulations of developed countries in electronics (particularly the EU and Japan), there are also environmental implications for this sector within the Asia and the Pacific region. The industry is compounded by two trends: the rise in domestic consumption of electronic products as the Asian economies grow, and the volume of product wastes that reach their end destination in Asia, both from domestic sources and developed-country waste streams.

It is therefore not surprising that Malaysia is amongst the countries that have formally challenged some of the environmental and health standards. Most of the notifications put forth by Malaysia in NAMA WTO trade talks fall either under the category of standards/regulation and labeling/certification as shown in Table 2. For example, Malaysia challenged the use of eco-friendly labels on personal computers; opposed a measure used to ensure the purchase of tropical timber certified by the Forest Stewardship Council; objected to food quality requirements for poultry, procedures for allowing new food additives – by name – the Australia Heart Foundation's 'Tick' Scheme which approves healthy food products; challenged requirements for manufacturers to collect and recycle scrapped automobiles; and disagreed with the way in which recycling charges are structured.

The notifications made against Malaysian exporters reveal that trade restrictions based on environmental may matter more for specific products in key export markets. Given that the high export concentration of products regulated in the EU and US markets are also key exports of Malaysia, green barriers will indeed pose formidable challenges for the country. Most problems with export consignments relate to the SPS relative to the TBT (SIRIM, 2005). In the case of EU specifically, some of the restrictions that apply to Malaysia's products continue to grow and the impacts on trade are unfolding.

<sup>16</sup> Nevertheless, it should be noted here that only a small proportion of exports of fresh fruit and vegetables from Malaysia is destined to the EU and other developed markets. As such, the growing demand for higher level certification by European importers, namely the EurepGAP (renamed GlobalGAP – Global Good Agricultural Practices), which is expensive, applies to a few large commercial farmers that supply fresh fruit to Europe (UNCTAD, 2007).

**Table 2: Notifications Made by Malaysia in NAMA**

Type	Sector	Description of Measure	WTO Document Reference
LAB	Electrical	A programme to place eco-friendly labels on personal computers (PC) by the Member's Electronics Information Technology Industries Association beginning September, 2001, although voluntary, has adversely affected smaller Malaysian manufacturers. Creates discrimination against unlabelled exports.	TN/MA/W/25/Add.2
S	Electrical	Mandatory testing for electrical items and iron and steel products. Currently, there are two types of standards, i.e. compulsory standards and voluntary standards, which covers over 1,000 items.	TN/MA/W/25/Add.2
LAB	Forests	The proposal by legislators of a City Council to amend the administrative code of the City involving city contracts related to the purchase of wood products and materials will restrict the usage of tropical wood in public buildings. The legislation will require City Agencies to purchase tropical hardwood and tropical hardwood products from responsibly managed forests only, specifically, wood that is certified by the forest Stewardship Council. The proposed restriction is discriminatory, as it singles out tropical timber for certification, while other woods are not subject to it.	TN/MA/W/25/Add.2
LAB	Generic	In relation to all products: The Parliamentary approval of a law on international quality label for 'ethically produced goods'. The law is for the Promotion of Socially Responsible Production. Goods could carry the label if producers, from sub- contractors to manufacturers, abide by ILO guidelines in the manufacturing process. The scheme, although voluntary, requires social audit firms, approved by the Member's Ministry of Economy, to check on the companies for conformity in the use of the label.	TN/MA/W/25/Add.2
LAB	Generic	Exporting of technical products to the markets of this. Participant has to comply with the CE marking. To qualify for the CE mark, the products have to undergo rigorous testing and approval procedures for performance and safety. Prices of imported products become more expensive and uncompetitive as a result of higher cost incurred in fulfilling the stringent standards set.	TN/MA/W/25/Add.2
S	Health	In relation to poultry: Stringent rules on food quality, packaging and labelling for food products imported into Member States.	TN/MA/W/25/Add.2
S	Health	Restrictions on and complicated procedures for authorising use of new food additives.	TN/MA/W/25/Add.2
S	Health	Strict registration requirements for the import of pharmaceutical products.	TN/MA/W/25/Add.2
S	Health	In relation to palm oil, dietary guidelines under the Australian Heart Foundation "Tick-a-Pick" Scheme.	TN/MA/W/25/Add.2
S	Health	In relation to palm oil, Refined Bleachable Deodorized (RBD) palm stearin is not considered edible.	TN/MA/W/25/Add.2
LAB	Labour	In relation to all products: The application of specific labelling rules in one Member State, although voluntary, could become a hindrance for Malaysian exporters, as well as importers and traders supplying to other Member States. Unilateral trade actions to promote labour standards to satisfy domestic concerns will create discrimination against non-labelled products from Malaysia and restrict market access..	TN/MA/W/25/Add.2
S	MEA	Import licences required for Montreal Protocol chemicals because of international obligations.	TN/MA/W/25/Add.2
S	Petroleum	Import licences required for petroleum products for strategic reasons.	TN/MA/W/25/Add.2

contd. Table 2

Type	Sector	Description of Measure	WTO Document Reference
S	Range of Products	The law on Promoting Green Purchasing, implemented on 1 April 2001, has designated several products of export interest to Malaysia, the procurement of which will need to comply with the law. The law enforces stringent 'evaluation criteria', such as recycling and reuse, and minimal impact on the environment upon disposal. Unrealistic target for suppliers to meet 100 per cent of the evaluation criteria by end of 2001. Adaption takes time and this is causing disadvantage to Malaysian exports.	TN/MA/W/25/Add.2
S	Range of Products	FDA permits for food, pharmaceutical and cosmetics makes it difficult for exporters.	TN/MA/W/25/Add.2
S	Recycling	The Participant's law on recycling mandates manufacturers to collect used home appliances, and charge recycling fees. The law also requires that 50 to 60 per cent of materials in the appliances be recycled. The Authorities have subjected corporate use and home-use PC to recycling by the end of 2002. Additional costs to Malaysian exporters, discourages distributors and retailers from importing from Malaysia, in favour of domestically produced products that have recycling facilities. Favours domestic and multinational companies with strong financial resources.	TN/MA/W/25/Add.2
S	Recycling	In relation to Electrical and Electronic Equipment: The directive concerning the disposal of waste from electrical & electronic equipment is a barrier to trade as this industry is located mainly in developing countries. The additional costs incurred will affect the competitiveness of these products from developing countries. Waste management is a state responsibility and collection charges should be based on the "polluter-pays" principle.	TN/MA/W/25/Add.2

Note: S – Standards/ Regulations  
 LAB – Labelling/ Certification

Source: Friends of the Earth International (2005).

### Specific Export Restrictions

The environmental interest at least for Malaysia in terms of trade in natural resources has been stimulated by EU campaigns to restrict trade on food and forestry on environmental grounds. Some of the EU regulations include obligations for producer responsibility, address tolerance levels for hazardous substances exceeding international standards, require produce traceability requirements, mandate compliance with whole life cycle regulation and apply the precautionary principle in decision making (World Growth, 2009).

Austria has contemplated trade measures which can discriminate against timber imports from Malaysia. Further, there is also growing prospects of other European governments mandating schemes, such as eco-labels which indicate source of origin or nature of forestry management. The Dutch government has also already made it mandatory that there should be labeling on imported timber. At present, the 'Voluntary Partnership Agreement (VPA)<sup>17</sup>', which permit forest product imports to the EU to be banned if EU customs officials decide measures in exporting countries to verify they are legal (which already exist) are not adequate, is being negotiated with Malaysia and is expected to be concluded by July 2010. Malaysia's stand on this is that it will support eco-labels and standards only if they are

<sup>17</sup> This requirement is also considered problematic as it could alter Malaysia's WTO rights. However, the VPA is important for Malaysia given that the EU is scheduled to adopt the Due Diligence Regulation in 2011 which will prohibit illegally sourced timber into the bloc.

applied to all types of timber<sup>18</sup> and are based on accepted international standards. Malaysia however has yet to resolve the issue on the cost of certification involved with labeling and international standards. This remains a major hurdle (Beghin, 2000).

In line with the deforestation issue, is the mandated sustainability criteria related to emissions and landuse<sup>19</sup> for the cultivation of bio-fuels. Recent allegations are made by the Netherlands<sup>20</sup> NGO on the emissions from forest and peat swamp areas' conversion into oil palm plantations in Malaysia<sup>21</sup>. The threats from Greenpeace to impose moratorium on tropical forest and peatland will have severe implications for Malaysia's oil palm plantations that span across 4.5 million hectares. Malaysia is currently the largest exporter of palm oil in the world (Shahid and Nabeshima, 2008), whereby more than 90 per cent of Malaysia's palm oil production is exported. Recent statistics reveal flagging exports of Malaysia's palm oil shipment to Rotterdam Port, the gateway to Europe which has fallen by an average of 12 per cent every year since it reached the peak of 1.7 million tonnes in 2006 (Business Times, 12 January 2010).

In a similar context of labeling based on PPM (standards for product harvesting), is the Shrimp/Turtle case between Malaysia, Thailand, India and Pakistan on the one side and the US on the other. The US<sup>22</sup> had imposed a unilateral ban on shrimp and shrimp products from the four countries in 1996 which did not meet the criteria required under its national law, that is to use turtle excluder devices (TEDs) to minimize turtle kills. Though, the rulings of the WTO Dispute Settlement Panel in this case were against the US, but subsequently their intensity was diluted. The WTO Appellate Body accepted that shrimps could be differentiated on the basis of the process by which they are caught: in aquaculture, in the wild, in boats equipped with TEDs. This differentiation thus opened the door to new trade disputes based on PPMs. The ruling implied that countries could impose trade bans on the basis of PPMs.

The US ban on imports of shrimps from Malaysia indeed dealt a severe blow to the industry given that shrimps account for the largest share of fish exports from Malaysia. The fisheries industry in Malaysia saw a second round of trade restrictions. The EU banned seafood imports from Malaysia in 2008 as Malaysian vessels and establishments did not comply with the hygiene and regulations on imports. One issue cited is the shortcomings in the way seafood was being transported to ports, such as a lack of washbasins onboard. The impact of this ban is already evident as Malaysia's exports of fish and aquatic products to the EU dropped significantly between 2007 and 2008, from USD15.3 million to USD7.8 million.

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<sup>18</sup> Another issue related to timber that has affected Malaysian exporters is Directive 67/548/EEC that adopts a hazard classification for substances considered dangerous (boric acid) in timber products.

<sup>19</sup> The local conservationist group has also voiced their concerns that the forest conversions to oil palm plantations have created losses to the bio-diversity (The Star, 17 January 2010). It is noted in Sabah that the orangutan population had declined by 50-90 percent over the past few decades as the lowland forests inhabited by the wildlife was converted to plantations (oil palm plantations covered 14,000sq km of Sabah). At present, the Sabah state government is partnering with the World Wildlife Fund - Malaysia to address this problem, which is to conserve large tracts of forest to protect the habitat of endangered orangutans.

<sup>20</sup> Based on the Netherlands bill from Member of Parliament M Vos. relating to environmental protection (sustainably produced timber).

<sup>21</sup> Shahid and Nabeshima (1998) also agree that the increase in acreage under oil palms has downside effects that are particularly damaging to the environment: loss of forest ecosystems; release of greenhouse gas emissions (GHGs) from the exposure of or removal of peat soil and the liberal use of petroleum-based pesticides, herbicides and fertilizers; and the tons of soil oil wastes, palm fiber, shells and palm oil mill effluents that degrade aquatic systems.

<sup>22</sup> Based on Section 609 of Public Law 101-162 relating to the protection of sea turtles in shrimp trawl fishing operations 1989, 16USC 1826 (large-scale driftnet fishing), 50CFR222 (endangered and threatened marine species).

The seafood industry in Malaysia reported a loss of USD0.4 billion in January 2009 as a result of this ban (Rokiah, 2009).

Apart from timber, biodiesel and food, the EU's guidelines based on the principle of producer responsibility in dealing with end-of-life environmental impacts have also affected manufacturers of electrical and electronic products. In 2002, the EU enforced a guideline on wastes [Waste Electrical and Electronic Equipment (WEE) Directive 2002/96/EC] from the afore-mentioned industry, which covers the responsibilities of producers and exporters for the treatment, recovery and disposal of related equipment. Similarly, another directive [Restrictions on the Hazardous Substances (RoHS) Directive] was instituted to restrict the use of certain substances, which subsequently affected manufacturers, sellers, distributors and recyclers. Both requirements were transmitted through the supply chain (Vossenaar *et al.*, 2006), and eventually the small and medium enterprises (SMEs) in Malaysia bore the brunt of the high costs of compliance (MITI, 2006). The TNCs in Malaysia were however less affected by those guidelines since they had begun preparations with their head offices and subsidiaries to meet the new guidelines. The overall impact of those guidelines is not a critical issue for Malaysia since the EU only commands approximately 15 per cent of the country's electrical and electronic exports.

The above evidences reflect that ETBs imposed on Malaysian exports are not short in supply, especially in recent times. Irrespective of whether the ETBs are discriminatory, Malaysian exports to the regulating countries (mainly the EU and US) are severely affected. It is therefore in the interest of Malaysia to address the problems raised at the international level pertaining to resource use, production processes/ methods, shipping and storage and finally disposal activities. Malaysia needs to review her policies pertaining to the four basic channels in the life cycle of traded products for environmental degradation.

## POLICY INITIATIVES AND GLOBAL PARTICIPATION

Critical to Malaysia is the role of TNCs in environment-related issues given that foreign capital is extensive in the export-oriented sectors, more specifically in manufacturing. In line with the argument that foreign firms generate environmental degradation, there is evidence of transfer of environmentally inferior machinery by TNCs in Malaysia following the lower standards of the country despite their innovative environmental practices (Rasiah, 1999). There are also selected cited cases of negative environmental practices by TNCs, such as the Asian Rare Earth (ARE), Chemical Company of Malaysia (CCM) and Mamut Copper Mine (MCM).

Related to TNCs is also the issue of pollution generated by their industrial activity. Based on the 1997 results, a total of 4,932 factories<sup>23</sup> were identified as sources of river water pollution, of which 419 (8 per cent) were electrical and electronic plants (MOEJ, 2000). Given that an overwhelming proportion of foreign companies are engaged in the electrical and electronics sector, it may not be surprising if TNCs are also blamed for those environmental damages. The contribution of these companies to the air pollution load is mostly fumes from factory vent ducts. However, air pollution caused by industrial activities (except for rubber production) is still considerably low in Malaysia. The industrial (including both industrial fuels and industrial processes) sector contributes only 7 to 8 per cent of total air pollution in the country.

<sup>23</sup> The food and beverage manufacturing factories topped the list as major river polluters (20 per cent), followed by paper factories (11 per cent) (MOEJ, 2000).

Unlike pollution, scheduled wastes (comprising hazardous and dangerous substances and sludge generated by general manufacturing processes and wastewater treatment) emerged a critical issue for Malaysia. According to the Department of Environment (DOE) statistics, the volume rose from about 420,000 tons in 1994 to 630,000 tons in 1996. Based on the 1997 figures, 3,700 factories were found to have generated scheduled wastes of which the chemical, textile, metal working and electrical and electronic industries produced large amounts of wastes (MOEJ, 2000). Given the lack of final disposal facilities<sup>24</sup> in Malaysia and the high disposal costs, foreign companies that complied with the law, either ended up storing scheduled wastes on-site or exporting them for resource recovery or reuse. Many others had resorted to illegal dumping which polluted rivers and land. Illegal dumping therefore continues to be an ongoing problem and such incidents make major news stories from time to time in the newspapers and other media.

Environment matters are not just confined to manufacturing but also agriculture. Sources of pollution identified as contributing to BOD loading include agriculture-based industries (natural rubber and palm oil production) and livestock industry. Since trade in natural resources commands a substantial share in Malaysia's exports, ecosystems are undeniably at risk. More specifically, increased trade in timber products has increased deforestation<sup>25</sup> (see also Rasiah, 1999). At least half of the trees cut for timber in Malaysia are for exports. It is deemed that some states in Malaysia could be completely deforested within a few years, if harvesting continues at current rates.

The above environmental impacts that are generated by domestic industrial and agricultural activities imply that despite the early efforts to address environmental matters *via* the Environment Quality Act (EQA) of 1974<sup>26</sup>, there is still pressing need to protect the environment and conserve natural resources. There is greater realization now that the enactment and enforcement of national regulations on environment is becoming an international obligation, given the imposition of the various ETBs. National policies and legislations discussed below are therefore the result of coordinated approaches between trade, environment and development. In the Malaysian context, the legislations on environmental matters are accomplished in stages *via* reforms to the existing regulations, promotion of participation of foreign entities in domestic environmental matters and government participation in regional and global negotiations.

Environment matters were first given attention in the Third Malaysia Plan (1976-1980) and further strengthened under the Fifth Malaysia Plan (1986-1990) and Sixth Malaysia Plan (1991-1995). Subsequently the Committee on Trade and Environment (CTE) was set up in the Malaysian International Trade and Industry (MITI) under the Seventh Malaysia Plan (1996-2000). In the 2008 Budget, the government announced two incentives, an additional pioneer status of 10 years for companies that provide energy conservation services and tax exemption for income derived from trading certified emission reduction

<sup>24</sup> The lack of final disposal facilities also hinders foreign companies from moving into upstream manufacturing for fears of not being able to cope with the final disposal of the increased volume of scheduled wastes.

<sup>25</sup> Malaysia's deforestation rate is accelerating faster than that of any other tropical country in the world, according to data from the United Nations (UN). The Food and Agriculture Organization (FAO) of the UN shows that Malaysia's annual deforestation rate jumped almost 86 percent between the 1990-2000 period and 2000-2005.

<sup>26</sup> The EQA (amended in 1985, 1996 and 1998) is the main act for environmental governance in Malaysia, addressing air, noise, land, inland waters, oil or mixtures containing oil and discharge of wastes in waters. More specifically, the 1985 amendment introduced the environmental impact assessment (EIA) system for large-scale development projects as a means of preventing environmental destruction whilst the 1996 amendment increased fines and penalties for noncompliance with environmental regulations in response to an upsurge in environmental offenses.

(CER)<sup>27</sup> certificates. Subsequently, in the 2010 Budget, the 'green initiative policy' was announced by the Prime Minister, whereby a total of RM1.5 billion will be established by the government to provide soft loans to companies supplying and utilising green technology. The government has committed to the following: restructure the Malaysia Energy Centre as the National Green Technology Centre and give priority to environmentally-friendly products and services.

The efforts of promoting environmentally sound management and preservation of natural resources in Malaysia include three types of legislation: incentive driven legislation, corrective measures and preventive/ planning legislation. Beginning with the EQA 1974 and its accompanying regulations (see Appendix 1 for legislations on environmental impact assessment, general environmental provisions, wastes and pollution), emphasis has been on environmental impact assessment, project citing evaluation, pollution control assessment, monitoring and self-enforcement. The following discussion will focus on some of the initiatives to combat environmental problems that are specific to agricultural and industrial activities bound for exports.

Historically, environmental regulations had been implemented rapidly for two major export industries, palm oil and electronics (Beghin, 2000). The palm oil (apart from natural rubber production) had their own separate regulations, formulated earlier than other environmental regulations, as they were considered the greatest polluters. Thereafter regulations were enacted for all factories to comply with both air emission and effluent discharge (black smoke, dust or solid particles, metals or metallic compounds and gaseous substances) standards. Malaysia is also taking steps toward eliminating specific chlorofluorocarbons in order to protect the ozone layer. A unit of Montreal Protocol for protection of the ozone layer was set up in the Department of Environment (DOE)<sup>28</sup> in January 1997, and a project for phasing out Ozone Depleting Substances (ODS), supported by a grant from the Multilateral Fund of the Montreal Protocol, is now underway with the participation of several dozen companies. Following which, the government imposed a complete ban on new investments relating to the use of ODS under the Environmental Quality (Refrigerant Management) Regulations 1999 and the Environmental Quality (Halon Management) Regulations 1999.

In line with land pollution, scheduled wastes are now given high priority in Malaysia's environmental programs and penalties for illegal dumping are quite strictly enforced. A facility which generates, stores, transports, treats or disposes scheduled wastes is subject to various regulations as listed in Appendix 2. In 1993, Malaysia ratified the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes, and since then the government has taken an increasingly strict approach to the export of scheduled wastes. In 1997 there were 58 applications to export scheduled wastes, including 18 outstanding cases, but only 12 were approved within the year, and waste export is no longer allowed unless for resource recovery under the strictest criteria. Prior to that, in 1996, Malaysia drew up guidelines on transboundary waste movements with its nearest neighbor, Singapore, a

<sup>27</sup> CER is a form of measurement indicating compliance with the quantified emission reduction as endorsed by the United Nations Clean Development Mechanism (CDM) executive board for CDM projects.

<sup>28</sup> Department of Environment (DOE), which is charged with environmental administration, was established in 1975 within the Ministry of Science, Technology and Environment (MOSTE). The DOE implements progressive environmental programmes that emphasize pollution prevention, such as the establishment of the Environmental Fund, promotion of environmental management systems, adoption of environmental audits, and introduction of new regulations for controlling chemical substances.

country closely involved with Malaysia in regard to the flow of goods and materials. Post 1997, Malaysia approved a final disposal facility<sup>29</sup> for dealing with the scheduled wastes.

Other laws related to environmental matters in Malaysia in relation to trade are the National Forest Act 1984 and Protection of Wildlife Act 1972. More recent are the regulations in East Malaysia, the Sarawak Natural Resources and Environment Order 1994 and Sabah Conservation of Environment Order 1999. In the context of the forest sector, log export restrictions were phased in to curb deforestation. However, it is worth mentioning here as pointed out by Porter (1997) that this policy has not been successful. Instead, the failure to capture economic rents on logging concessions and protectionist trade policies was found to be pervasive to the forest sector. It was estimated that Malaysia only captured between 35 and 53 per cent of economic rents from timber concessions in 1991. The low stumpage fees<sup>30</sup> led to overcapitalization, which are higher levels of harvesting and higher levels of consumption of wood products. This was also compounded by the log export restrictions that similarly encouraged overcapacity and inefficiency<sup>31</sup> in the domestic wood processing industry, which then further increased the pressure on forests.

On the issue of technology transfers by TNCs, foreign companies in Malaysia are now expected not only to keep up serious efforts to combat environmental pollution, but also to take a proactive stance in making their technical expertise available to Malaysia. The expectation is that knowledge transfer by TNCs will not be limited to pollution control technology, but will extend to innovative environmental practices and related technologies, such as the setting up of an EMS. Investors are encouraged to consider the environmental factors (possible modifications in the process line to minimize waste generation, seeing pollution prevention as part of the production process, and focusing on recycling options) during the early stages of their project planning. In return, Malaysia provides the assistance and support to investors to promote environmentally sound and sustainable environment. Some of the incentives are: Incentives for Forest Plantation Projects; Incentives for Waste Storage, Treatment and Disposal of Toxic and Hazardous Wastes; Incentives for Waste Recycling Activities; Incentives for Energy Conservation; Incentives for Energy Generation Activities Using Renewable Energy Resources; Incentives for Generation of Renewable Energy for Own Consumption; and Accelerated Capital Allowance for Environmental Management [Malaysian Industrial Development Authority (MIDA), 2010].

Rising environmental standards of TNCs in the global supply chain also mean that local SMEs would need to increase investments into 'greener' technology and standards to raise their overall level of competitiveness if they are to maintain domestic market share and penetrate new external markets. Malaysia, through the Standards and Industrial Research Institute of Malaysia (SIRIM<sup>32</sup>) promulgates ISO14001 international EMS and provides consultations for businesses who intent to use environmental friendly technology. More recently, SIRIM has engaged foreign organizations such as the Danish Cooperation on Environment and Development (DANCED) to conduct technological transfer on environmental friendly processes for SMEs.

<sup>29</sup> The final disposal plant, run by Kualiti Alam (KA), a private company with some Danish financing, became partially operational at the end of 1997 and started full operation in June 1998.

<sup>30</sup> Esty (2001) points out the net negative environmental impacts of resources that are mispriced.

<sup>31</sup> The wood processing industry in Malaysia used 5 to 15 per cent more logs per unit of production than log importing countries because they lacked the incentive to economize on log intake (Porter, 1997).

<sup>32</sup> SIRIM Berhad has been appointed as the sole standards development agency in Malaysia.

Though Malaysia participates in various international standard bodies<sup>33</sup> such as International Organization for Standardization (ISO, member since 1969), International Electrotechnical Commission (IEC), International Telecommunications Union (ITU) and Codex Alimentarius Commission (CAC, member since 1971), International Plant Protection Convention (IPPC) and World Organization for Animal Health (OIE), further awareness and understanding of the role of international standards and TBT issues is still needed amongst the domestic industry players to ensure effective participation from the various sectors. One such standard that is vital to Malaysian food exporters, mainly to those SMEs in the fish processing business, is the EU requirements (on hygiene) for Hazard Analysis and Critical Control Point (HACCP). For exporters of fresh fruit and vegetables, the benchmarking of Malaysia's GAP scheme, the Farm Accreditation Scheme of Malaysia (SALM) to the EurepGAP standard becomes pertinent as the SALM scheme is not recognized in overseas markets and therefore does not facilitate market access. In terms of compliance with the SPS<sup>34</sup> measures, some limitations in the domestic infrastructure to undertake risk assessments relating to food safety, animal health and plant pests and diseases has created problems for Malaysian exporters of fresh fruit, vegetables and cut flowers (SIRIM, 2005; UNCTAD, 2007).

Globally, Malaysia played an active role in the Rio Earth Summit 1992<sup>35</sup> and continues to actively participate in other regional cooperation such as Association of Southeast Asian Nations (ASEAN) and APEC. Malaysia is engaged in the program of harmonization of standards within the context of ASEAN and APEC. To date 51.5 per cent of the 3,786 Malaysian Standards are aligned to international standards<sup>36</sup> (Mariani, 2005), and this proportion is growing as more standards are revised and new standards developed based on international standards. To further facilitate trade in the regulated sector, Malaysia has signed on to the ASEAN EEMRA which is on the recognition of test and certification results for electrical and electronic products amongst ASEAN member countries. Malaysia is also a party to some of the APEC Mutual Recognition Arrangements (MRAs) such as the EEMRA Part 1 on the acceptance of test reports and the APEC MRA on toy safety. Whilst most standards are appropriate, some may not be. One case to cite is the environment specified for the testing of products, of which the specified conditions are more suitable to temperate countries. Given the current requirements, the recurrent costs of operating laboratories at low temperatures may pose problems for the developing of testing capabilities of many tropical climate countries (SIRIM, 2005).

Malaysia is also a signatory for major Multilateral Environment Agreements (MEAs) (Kadaruddin and Azilah, 2002; EPU, 2006) which includes trade provisions (see Appendix 2 for a list of the MEAs relevant to Malaysia). The trade provisions under the MEAs are categorized as trade bans/sanctions, export/ import licenses, notification requirements and packaging and labeling requirements. For example, the ASEAN-Japan Comprehensive Economic Partnership

<sup>33</sup> Standards Malaysia also participates in the following organizations that deal with standardization activities: Asia Pacific Economic Cooperation Sub-Committee on Standards and Conformance (APEC-SCSC), Pacific Area Standards Congress (PASC), ASEAN Consultative Committee on Standards and Quality (ACCSQ) and Asian-Europe Trade Facilitation Action Plan (ASEM-TFAP).

<sup>34</sup> The SPS infrastructure is rather complex as the notifications are handled by various parties. The Ministry of Agriculture coordinates all WTO SPS issues, with the Department of Agriculture and Department of Veterinary Services responsible for plant and animal (and animal products) respectively. The Ministry of Health is responsible for food safety.

<sup>35</sup> Subsequent to the Summit, the Malaysian government was highly criticized for putting the pressure on environmentalists, specifically the Friends of the Earth Malaysia, World Rain Forest Movement and Environmental Protection Society.

<sup>36</sup> Malaysia's participation at the international level in standardization activities dates way back to 1969 when she became a member of ISO.

Agreement of 2008 has a chapter on standards, technical regulations and conformity assessment procedure (Chapter 5) to “apply standards and technical regulations, to the extent necessary, to fulfill a legitimate objective such as the prevention of deceptive practices; protection of human health or safety, animal or plant life or health, or the environment. Similarly, the Pakistan-Malaysia Closer Economic Partnership Agreement of 2008 includes a chapter on SPS (Chapter 6) to “protect human, animal or plant life or health in the territory of the countries of the Parties, and to provide a framework to address any bilateral sanitary and phytosanitary matters so as to facilitate and increase trade between the countries of the Parties” (Gigli, 2009).

The government is also in full support of promoting CDM projects<sup>37</sup> established under the Kyoto Protocol. As at March, 2009, there are total of 4,660 CDM projects in the pipelines, released by United Nations Environment Programme (UNEP) Risoe Center, of which Malaysia has 156 projects or 3.3 per cent in this list. Malaysia has only cornered a small percentage of the carbon market in Asia, mainly through investments in the waste treatment sectors, in lieu of the CER credits. Malaysia however has vast potential (specifically in oil palm, cement, biogas and biofuel sectors) to reap from carbon projects as her carbon emissions in 2006 alone stood at 187 million tonnes. At the United Nations Climate Change Conference 2009 at Copenhagen, Malaysia committed to reduce up to 40 per cent in terms of emissions intensity of GDP (gross domestic product) by the year 2020, subject to assistance from developed countries. More recently, Australia has expressed her interest to engage in networking with Malaysian businesses on the issue of developing sustainable emission reduction. In the recent World Future Energy Summit 2010, Malaysia further pledged her commitment to reduce GHG and to mitigate carbon dioxide emissions.

Other initiatives include the establishment of the Environment, Energy and Green Technology Committee (EEGT) by the EU-Malaysia Chamber of Commerce & Industry (EUMCCI) in 2009 to provide its members with information concerning environmental matters and green/clean energy issues. In terms of collaboration, Malaysia continues to solicit the help of foreign countries to green local industries. At present, Malaysia is engaged in discussions with South Korea, which has substantial experience in the area of green industries, to create business enterprises in recycling, water treatment, waste water and sustainable development (The Star, 26 January 2010). In seeking to improve market access of the products exported, Malaysia continues to actively participate and engage in regional and global dialogues to ensure a transfer of ESTs for capacity-building towards achieving sustainable development and meeting environmental objectives.

## CONCLUDING REMARKS

Market access is critical for Malaysian products as the home market base is too small. A compounding effect on market access for exports is the recent proliferation of green barriers in the global trading system. The rising ETBs, emanating largely from the EU and US, have profound implications for sectors of export interest to the economy. The reality is that Malaysia's export growth in major developed markets can only be sustained by compliance with the (evolving and high) standards within the SPS and TBT. Further engagement in green trade is therefore growingly important for a highly trade dependent Malaysia.

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<sup>37</sup> An example of this is the biomass project in Sabah, the first project in the world to receive the CER endorsement.

## Appendix 1: Malaysia - Selected Environmental Law and Regulations Related to Development and Industrial Activity

Integration of Environment and Development
Environmental Quality (Appeal Board) Regulations 2003
Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987 (Amendment) 1995
Environmental Quality (Prescribed Premises) (Crude Palm Oil) Order 1977 (Amendment) 1982
Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations 1977
Environmental Quality (Licensing) Regulations 1977
Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Order 1978 (Amendment) 1980
Control of Municipal and Industrial Waste Pollution
Environmental Quality (Control of Pollution from Solid Waste Transfer Station and Landfill) Regulations 2009
Environmental Quality (Industrial Effluent) Regulations 2009
Environmental Quality (Sewage) Regulations 2009
Environmental Quality (Sewage and Industrial Effluents) Regulations 1979 (Amendment) 1997
Control of Toxic and Hazardous Waste
Customs (Prohibition of Import) Order 1998, (Amendment) 2006
Customs (Prohibition of Export) Order 1998, (Amendment) 2006
Environmental Quality (Dioxin and Furan) Regulations 2004
Environmental Quality (Scheduled Wastes) Regulations 1989 (Amendment) 2005, 2007
Environmental Quality (Prescribed Conveyance) (Scheduled Wastes) Order 2005
Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Order 1989, 2006
Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Regulations 1989 (Amendment) 2006
Promotion of Investments (Promoted Activities and Products) (Amendment) (No.10) Order 1990 (made under the Promotion of Investments Act, 1986)
Control of Industrial Emissions
Environmental Quality (Halon Management) Regulations 1999
Environmental Quality (Refrigerant Management) Regulations 1999
Environmental Quality (Clean Air) Regulations 1978
Environmental Quality (Compounding of Offences) Rules 1978
Environmental Quality (Delegation of Powers on Marine Pollution Control) Order 1993 (Amendment) 1994
Environmental Quality (Prohibition on the Use of Chlorofluorocarbons and other Gases as Propellants and Blowing Agents) Order 1993
Environmental Quality (Prohibition on the Use of Controlled Substance in Soap, Synthetic Detergent and Other Cleaning Agents) Order 1995, 2005
Control of Natural Resources and Environment
Sarawak Natural Resources and Environment (Prescribed Activities) Order 1994
Sabah Conservation of Environment (Prescribed Activities) Order 1999

Source: Compiled from DOE website.

## Appendix 2: Malaysia – Signatory of Key Conventions

Conventions and Objectives
<p>Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973  <i>The Convention seeks to control international trade in endangered species and their products by the provision of a framework for the sound management of wildlife trade.</i></p>
<p>Montreal Protocol on Substances that Deplete the Ozone Layer, 1987  <i>The Montreal Protocol aims to protect the ozone layer by taking precautionary measures to control equitably total global emissions of substances that deplete the ozone layer.</i></p>
<p>Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989  <i>The Basel Convention aims to protect human health and the environment against the adverse effects which may result from the generation and management of hazardous and other wastes through control of the transboundary movements of hazardous wastes.</i></p>
<p>Convention on Biological Diversity (CBD), 1993  <i>The Convention focuses on conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.</i></p>
<p>UN Convention on the Law of the Sea (UNCLOS), 1994  <i>The Convention is based on the principle that states should cooperate to ensure conservation and promote the objective of the optimum utilization of fisheries resources both within and beyond the exclusive economic zone.</i></p>
<p>Kyoto Protocol to the UN Framework Convention on Climate Change (UNFCCC), 1997  <i>The Kyoto Protocol aims to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous human induced interference with the climate system.</i></p>
<p>Cartagena Protocol on Biosafety, 2000  <i>A supplementary agreement to CBD to ensure an adequate level of protection in the field of safe transfer, handling and use of living modified organisms (LMOs) that may have adverse effects on the conservation and sustainable use of biological diversity also taking into account risks to human health.</i></p>
<p>Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 2004  <i>The Rotterdam Convention aims to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm and to contribute to environmentally sound use.</i></p>
<p>Stockholm Convention on Persistent Organic Pollutants, 2004  <i>The Stockholm Convention aims to protect human health and the environment from Persistent Organic Pollutants (POPs) by reducing or eliminating their release into the environment.</i></p>

Note: The years indicate when the Conventions came into force, though some may have been adopted earlier.

Source: Compiled from convention homepage.

## REFERENCES

- Athukorala, P. and Jayasuriya, S. (2003). Food safety issues, trade and WTO rules: a developing country perspective, *World Economy*, 26(9): 1395-1416.
- Australian APEC Study Centre (2003). European unilateralism: environmental trade barriers and the rising threat to prosperity through trade, Australian APEC Study Centre, Monash University: Melbourne. Accessed from: <http://www.apec.org.au/docs/tradebarriers2003.pdf>
- Beghin, J.C. (2000). Environment and Trade in Developing Economies: A Primer for the World Bank's Global Economic Prospects 2001, Working Paper No.00-WP-247, Center for Agricultural and Rural Development, Iowa State University: United States.
- Bhagwati, J. (2000). On thinking clearly about the linkage between trade and the environment, *Environment and Development Economics* 5(4): 485-496.
- Brooks, D.H. (1998). Challenges for Asia's trade and environment, Economic Staff Paper No.57, Asian Development Bank (ADB): Manila.
- Copeland, B.R. and Taylor, M.S. (1995). Trade and transboundary pollution, *American Economic Review* 85(4): 716-737.
- Copeland, B. R. and Taylor, M. S. (2003). *Trade and the Environment: Theory and Evidence*, Princeton University Press: New Jersey.
- Coxhead, I. (2003). Development and the environment in Asia: a survey of recent literature, *Asian Pacific Economic Literature* 17(1): 22-54.
- Esty, D.C. (2001). Bridging the trade-environment divide, *Journal of Economic Perspectives* 15(3): 113-130.
- EPU (2006). *Ninth Malaysia Plan 2006-2010*, Economic Planning Unit (EPU): Malaysia.
- Fontagne, L., von Kirchbach, F. and Mimouni, M. (2005). An assessment of environmentally-related non-tariff measures, *World Economy* 28(10): 1417-1439.
- Gigli, S. (2009). Environment and Regional Trade Agreements: Developments in 2008, Organization for Economic Cooperation and Development (OECD). Accessed from: <http://www.oecd.org/dataoecd/41/23/42764023.pdf>
- Goonatilake, L. (2006). WTO TBT/SPS agreements - implications for developing countries. Accessed from: <http://www.waitro.org/files/downloads/proceedings/stdconformity/paper6.pdf>
- Grossman, G. and Krueger, A. (1995). Economic growth and the environment, *Quarterly Journal of Economics* 110(2): 353-377.

Hettige, H., Lucas, R.E.B. and Wheeler, D. (1992). The toxic intensity of industrial production: global patterns, trends, and trade policy, *American Economic Review* 82(2): 478-481.

Jakobeit, C. (2001). Delineating trade and environmental rules: towards a new consensus, in *The World Trade Organization Millennium Round: Freer Trade in the Twenty-First Century*, Klaus Gunter Deutsch and Bernhard Speyer (eds.), Routledge: London, pp.237-242.

Johnson, C. (2008). Technical barriers to trade: reducing the impact of conformity assessment Measures, USITC Working Paper No. ID-19, US International Trade Commission: Washington D.C.

Kadaruddin A. and Azilah K. (2002). Globalisation of environmental protection: challenge for Malaysian businesses, Proceedings of the Regional Symposium on Environment and Natural Resources, Omar, R., Ali Rahman, Z., Latif, M.T., Lihan, T. and Adam J.H. (eds.) Vol. 1, pp.215-224. Accessed from: <http://pkukmweb.ukm.my/~rsenr3/rsenr1/P215-224.pdf>

Khatun, F. (2009). Environment related trade barriers and the WTO, CPD Occasional Paper Series No.77, Center for Policy Dialogue (CPD): Bangladesh.

Lehr, C.S. and Maxwell, J.W. (2000). Comparative advantage, trade and transboundary pollution, *Open Economies Review* 11(3): 205-227.

Lohani, B.N. and Ghosh, P. (2000). Ecolabeling: developing country apprehensions, *Environment and Development Economics* 5(4): 483-529.

Mani, M. and Wheeler, D. (1998). In search of pollution havens? dirty industry in the world economy, 1960-1995, World Bank Discussion Paper No.402, World Bank: Washington D.C.

Mariani, M. (2005). The Malaysian approach: evolution towards international recognition, Consultative Cycle 2005 on Innovations in Export Strategy – A Strategic Approach to the Quality Assurance Strategy. Accessed from: [http://www.intracen.org/wedf/ef2005/quality\\_assurance\\_challenge\\_presentations/MalaysiaExperience\\_Mariani\\_Day3Sess2.pdf](http://www.intracen.org/wedf/ef2005/quality_assurance_challenge_presentations/MalaysiaExperience_Mariani_Day3Sess2.pdf)

McGuire, M. (1982). Regulation, factor rewards, and international trade, *Journal of Public Economics* 17(3): 335-54.

MITI (2006). *IMP3: Third Industrial Master Plan 2006-2020, Malaysia – Towards Global Competitiveness*, Ministry of International Trade and Industry (MITI): Malaysia.

MOEJ (2000). Overseas environmental measures of Japanese companies (Malaysia), Research Report on Trends in Environmental Considerations Related to Overseas Activities of Japanese Companies 1999, Ministry of the Environment, Government of Japan (MOEJ). Accessed from: <http://www.env.go.jp/earth/coop/oemjc/malay/e/contents.html>

Najam, A., Halle, M. and Melendez-Ortiz, R. (eds.) (2007). *Trade and Environment: A Resource Book*, International Institute for Sustainable Development (IISD): Canada.

- Pethig, R. (1976). Pollution, welfare and environmental policy in the theory of comparative advantage, *Journal of Environmental Economics and Management* 2(3): 160-169.
- Proksch, M. (2006). Trade and environment: issues, concepts and the Doha negotiations, Trade and Investment Division, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP): Bangkok. Accessed from:  
[http://www.unescap.org/esd/environment/cap/meeting/regional/documents/Session\\_02.pdf](http://www.unescap.org/esd/environment/cap/meeting/regional/documents/Session_02.pdf)
- Porter, M.E. van der Linde, C. (1995). Toward a new conception of the environment competitiveness relationship, *Journal of Economic Perspectives* 9 (4): 97-118.
- Porter, G. (1997). Natural resources subsidies, trade and environment: the cases of forests and fisheries, *Journal of Environment and Development* 6(3): 276-291.
- Puri, L. (2005). Commission on trade in goods and services and commodities. Accessed from:  
[http://www.unctad.org/sections/wcmu/docs/statement\\_0104\\_c1\\_en.pdf](http://www.unctad.org/sections/wcmu/docs/statement_0104_c1_en.pdf)
- Rokiah, A. (2009). Sanitary standards in the EU: the impact on Malaysian fishing industry, *Journal of Economic Cooperation and Development*, 30(4): 51-86.
- Rasiah, R. (1999). Transnational corporations and the environment: the case of Malaysia, Occasional Paper No.4, United Nations Conference on Trade and Development (UNCTAD): Geneva.
- Shahid, Y. and Nabeshima, K. (2008). Knowledge deepening and industrial deepening in Malaysia, Economic Planning Unit (EPU): Malaysia.
- Siebert, H. (1977). Environmental quality and the gains from trade, *Kyklos* 30(4): 657-673.
- SIRIM (2005). Influencing and meeting international standards: challenges for developing countries – an example for Malaysia, Consultative Cycle 2005 on Innovations in Export Strategy – A Strategic Approach to the Quality Assurance Strategy. Accessed from:  
[http://www.intracen.org/wedf/ef2005/quality\\_assurance\\_challenge\\_papers/InfluencingMeetinInternationalStandards-Malaysia-Day3Sess2.pdf](http://www.intracen.org/wedf/ef2005/quality_assurance_challenge_papers/InfluencingMeetinInternationalStandards-Malaysia-Day3Sess2.pdf)
- UNCTAD (2006). *Trade and Environment Review 2006*, United Nations: New York.
- UNCTAD (2007). Challenges and opportunities arising from private standards on food safety and environment for exporters of fresh fruit and vegetables in Asia: experiences of Malaysia, Thailand and Vietnam, United Nations: New York
- UNEP (2003). *Environmentally Sound Technologies for Sustainable Development 2003*, International Environmental Technology Centre Division of Technology, Industry and Economics, United Nations Environment Programme: New York.
- UNEP (2005). *Environment and Trade: A Handbook*, Second Edition, United Nations Environment Programme: New York.

Vossenaar, R., Santucci, L. and Ramungul, N. (2006). Environmental requirements and market access for developing countries: the case of electrical and electronic equipment, in *Trade And Environment Review 2006*, United Nations: New York.

Wilson, N. (2005). Analysis of non-tariff barriers of concern to developing countries, OECD Trade Policy Working Paper No. 16, Organisation for Economic Co-operation and Development: Paris.

World Bank (2008). *International Trade and Climate Change: Economic, Legal and Institutional Perspectives*, World Bank: Washington D.C.

World Growth (2009). The new face of European environmental protectionism: forestry and climate change. Accessed from:  
[http://www.worldgrowth.org/assets/files/WG\\_Trade\\_Report\\_12\\_09.pdf](http://www.worldgrowth.org/assets/files/WG_Trade_Report_12_09.pdf)

WTO (2002). List of environmental goods, Document TN/TE/W/18, World Trade Organization: Geneva.

WTO (2003). Environmental goods: trade statistics of developing countries, Document TD/B/COM.1/EM.21/CRP.1, World Trade Organization: Geneva.