Rapid Trade and Environment Assessment (RTEA)

National Report for Thailand

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The Rapid Trade and Environment Assessment (RTEA) is a project of the **International Institute for Sustainable Development** (IISD), which contributes to sustainable development by advancing policy recommendations on international trade and investment, economic policy, climate change, measurement and indicators, and natural resources management. IISD's vision is better living for all—sustainably; its mission is to champion innovation, enabling societies to live sustainably. IISD has been supported in undertaking this project by the Swedish Environmental Secretariat for Asia (SENSA); the RTEA research team is grateful for input from Mr. Christer Holtsberg and Dr. Anders Granlund (SENSA).

To carry out this project, IISD has joined forces with the World Conservation Union (IUCN – Asia Regional Office) and signed Memoranda of Understanding with two prominent research institutes in Thailand—the International Institute for Trade and Development (ITD) and the Good Governance for Social Development and the Environment Institute (GSEI). IISD has also developed partnerships with the Thailand Development Research Institute, the Centre for Ecological Economics (CEE) at Chulalongkorn University, the Thailand Environment Institute (TEI) and the Stockholm Environment Institute-Asia Centre (SEI-A).

The **World Conservation Union** (IUCN) brings together a unique membership of states, government agencies and non-governmental organizations and over 1,000 scientists and experts from across the globe to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that the use of natural resources is equitable and ecologically sustainable. IUCN's vision is a just world that values and conserves nature. The World Conservation's regional office in Bangkok oversees implementation of this vision in Asia.

The **International Institute for Trade and Development** (ITD) was established on the occasion of the Tenth Ministerial Conference of UNCTAD in 2000 by the Thai government and the UN. ITD's vision is to be a centre of excellence to strengthen the potential of human resources of developing countries in the Asian Region and beyond. ITD conducts training courses and undertakes research programs in international trade, finance and investment to assist in policy-making and economic policy formulation. Promoting regional economic cooperation and knowledge sharing in the region is a guiding principle.

The vision of the **Good Governance for Social Development and the Environment Institute** (GSEI) is to focus on social development and environmental issues, promoting sustainable development through increasing community participation in order to reduce conflicts and establish good governance, as well as disseminating knowledge for public awareness. By integrating interdisciplinary approaches through its network of academics and policy-makers, the GSEI provides alternative means for sustainable development.

The **Thailand Development Research Institute** (TDRI) is among the leading research institutes on policy-making in Thailand. The Institute provides technical and policy analysis that supports the formulation of policies with long-term implications for sustaining social and economic development in Thailand.

The **Centre for Ecological Economics** (CEE), Chulalongkorn University is a recognized centre of research on economic analysis of environmental and natural resource issues using an integrated ecological economic approach for Thailand and the Southeast Asian region. The Centre aims to conduct research and training activities to explore the application of economic analysis to environmental and natural resource issues to support open public debate and inform policy discourse on environmental and natural resource management actions in Thailand and Southeast Asia.

Founded on the belief that partnerships are the most effective approach to achieving a more sustainable way of life, the **Thailand Environment Institute** (TEI) advocates a participatory approach to shared environmental responsibility. By working closely with the private sector, government, local communities, other civil society partners, academia and in international circles with international organizations, TEI helps to formulate environmental directives and link policy with action to encourage meaningful progress towards sustainable development in Thailand and in the Asia-Pacific region.

The mission of the **Stockholm Environment Institute–Asia Centre** (SEI-A) is to bring together global SEI resources and place these in the service of the policy community in the Asian region in order to engender a transition to sustainability. SEI-A has the following goals: (a) enhanced policy attention on regional dimensions of sustainability; (b) creation of a coherent and user-friendly SD framework; (c) building an active policy community in each region, consisting of the full range of stakeholders; and (d) building national and regional capacity through collaborative research, outreach, and training, including through the Sustainable Mekong Research Network (SUMERNET).

Support and direction has also been provided by an Expert Advisory Panel established with the assistance of the Ministry of Commerce and including the Ministry of Natural Resources and Environment, Ministry of Industry, Ministry of Foreign Affairs, Ministry of Agriculture and Forestry, the Centre for Ecological Economics at Chulalongkorn University, the Faculty of Environment and Resource Studies at Mahidol University, the Thai Chamber of Commerce, Board of Trade of Thailand and the Federation of Thai Industries. A list of Expert Advisory Panel members is provided in Annex I.

Acronyms

ACMECS	Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy
ADB	Asian Development Bank
AFTA	ASEAN Free Trade Area
AIA	ASEAN Investment Area
ASEAN	Association of South East Asian Nations
ATC	Agreement on Textiles and Clothing
BIMSTEC	Bay of Bengal Initiative for MultiSectoral Technical and Economic Cooperation
CEE	Centre for Ecological Economics
CEPA	Closer Economic Partnership Agreement
CEPT	Common Effective Preferential Tariff
CER	Closer Economic Relations
CGE	Computable general equilibrium
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CSR	corporate social responsibility
EH	Early Harvest
EFTA	European Free Trade Association
EIA	environmental impact assessment
EPA	(United States) Environmental Protection Agency
EST	environmentally-sound technologies
FBA	Foreign Business Act
FDI	foreign direct investment
FTA	Free Trade Agreement
GAP	Good Agricultural Practices
GATT	General Agreement on Tariffs and Trade
GATS	General Agreement on Trade in Services
GDP	Gross Domestic Product
GMO	genetically modified organism
GMS	Greater Mekong Subregion
GSEI	Good Governance for Social Development and the Environment Institute
GSP	Generalized System of Preferences
GTAP	Global Trade Analysis Project
HARL	Home Appliances Recycing Law
HS	harmonized system
IISD	International Institute for Sustainable Development
IPR	intellectual property right
ITD	International Institute for Trade and Development
IUCN	The World Conservation Union
JTEPA	Japan-Thailand Economic Partnership Agreement
MDGs	Millennium Development Goals
MEA	multilateral environmental agreement
MFN	Most-favoured Nation
MOAC	Ministry of Agriculture and Cooperatives
MONRE	Ministry of Natural Resources and Environment
MRA	Mutual Recognition Agreement
NEQA	National Environmental Quality Act
NGO	non-governmental organization
NTB	non-tariff barrier to trade
PCB	Polychlorinated Biphenyl
POP	persistent organic pollutant
PPMs	process and production methods
RoHS	Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (EU Directive)
RTEA	Rapid Trade and Environment Assessment
SENSA	Swedish Environmental Secretariat for Asia
Sida	Swedish International Development Agency
SPS	Sanitary and phytosanitary (measures)
SME	small and medium-sized enterprise
TAFTA	Thailand-Australia Free Trade Agreement
TDRI	Thailand Development Research Institute
TEI	Thailand Environment Institute
TIFA	trade and investment framework agreement
UNDP	United Nations Development Programme
USTR	United States Trade Representative
WEEE	Waste Electrical and Electronic Equipment (EU Directive)
WTO	World Trade Organization

Preface

This project set out to test and refine a methodology—the *Rapid Trade and Environment Assessment* (RTEA)—aimed at providing decision-makers with advice on how to set a course for sustainable development in an era of rapid economic growth and trade liberalization. The RTEAs seek to answer the following questions:

- What impact will current and contemplated trade negotiations have on the environment and sustainable development?
- How can one best integrate environmental considerations with trade and investment liberalization?
- Are there green growth opportunities?

This is not a simple task; export-led growth involves dynamic processes and entails economy-wide impacts. While complex, the process of trade liberalization can deliver development gains if set in a sound domestic framework.

With the launch of pilot Rapid Trade and Environment Assessments in the Lao People's Democratic Republic (PDR) and Thailand in October 2006, the work of the International Institute for Sustainable Development (IISD) on trade, investment and sustainable development has expanded in the Greater Mekong Subregion (comprising Cambodia, the People's Republic of China (Yunnan and Guangxi), Lao PDR, Myanmar, Thailand and Vietnam). This project builds on the key elements of IISD's work on sustainable development to raise awareness of the environmental impacts of trade liberalization. To conduct the RTEAs, IISD joined forces with IUCN – The World Conservation Union's Asia Regional Office and with local partners. The project was funded by the Swedish International Development Agency (Sida).

The choice of Thailand and the Lao PDR for the pilot phase of the RTEA was deliberate. Thailand has been on a fast track to economic growth for over four decades. Notwithstanding decades of unbridled export-led growth, Thailand has chosen to base its recently-released *Tenth Economic and Social Development Plan* on the philosophy of the "sufficiency economy"—i.e., opting for quality over quantity of growth.

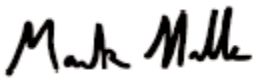
Lao PDR has only recently come into contact with the forces of globalization. While the framework for trade liberalization is currently being developed, Lao PDR is committed to open its economy to trade, to accede to the WTO and to graduate from the list of least-developed countries. It is clear that trade is expected to be the engine of growth and development in Lao PDR. Trade will change the structure of the economy and the rate of growth in Lao PDR which, in turn, will have an impact on the environment. This impact will not be inconsequential given the resource intensity of trade and investment.

There are myriad concerns raised by trade liberalization—mainly revolving around an increase in the scale of production placing an increased burden on the natural resource base without a sufficiently stringent regulatory framework and enforcement mechanism. Yet, the RTEA has also found mounting evidence of the potential for adding value in certain sectors and expanding green niche markets, such as silk handicrafts, organic agricultural products (rice and coffee), and sustainably-managed forest products.

Whether Thailand and Lao PDR can take advantage of the export potential of green niche sectors will also depend, to a great extent, on private sector initiatives. The ability of the private sector to capture opportunities arising from trade liberalization, in turn, depends on the institutional and regulatory setting in the country. To the extent that the RTEA can contribute to the policy coordination process, it will be a step in the direction of increasing awareness on how to move towards development that is sustainable in a dynamic subregion.

The proliferation of overlapping bilateral and regional trade and investment agreements is complicated to navigate, and the environmental implications are just beginning to be understood. It is indeed one of the main objectives of the RTEA to provide the understanding on which better policy coordination might be based—a task that is crucial but essential to setting a sustainable trade policy framework that embeds environmental considerations.

This is an important juncture for the Greater Mekong Subregion—the emerging dynamics are in the process of being defined and trade has become the currency of cooperation. In this light, the objectives of the RTEA are all the more relevant. Mechanisms such as the RTEA are worthwhile endeavours to assist governments in placing trade-led economic development on a sustainable path and to unravel some of the complexities involved in the policy linkages between trade and environment.



Mark Halle
Director
Trade and Investment Program
IISD

Introductory statement

In order to gain a greater understanding of the interface between trade, development and the environment, the International Institute for Trade and Development (ITD) joined forces with the International Institute for Sustainable Development (IISD) to carry out the *Rapid Trade and Environment Assessment* (RTEA) project in Thailand. This report and the National Workshop have contributed to outlining the challenges Thailand faces in order to put in place development that is sustainable.

In pursuing trade and economic growth, it is vital to ensure that economic development and environmental sustainability do not conflict but rather complement each other in order to achieve sustainable development. Openness to trade has changed the structure of the economy and the rate of growth in Thailand; it has impacted significantly on the environment. Thailand's export-oriented growth over the past decades has been facilitated by its abundant natural resource base. The intention of the project was to highlight key areas of environmental concern in order to stimulate further research, as well as contribute to the policy-making dialogue in Thailand. This debate is particularly important given Thailand's engagement in numerous bilateral and regional trade agreements with potential environmental consequences.

This project builds on the work of ITD to constructively engage the policy-making community on the *sufficiency economy*—a philosophy granted by His Majesty King Bhumbol Adulyadej over the past four decades. Sufficiency economy can be viewed as the Thai expression of sustainable development in that the concept provides direction for a "middle path" and rationale thinking to achieve growth. In the face of complex and rapid changes resulting from globalization, the sufficiency economy is predicated on the need for balance, moderation and integrity of good governance. Moreover, Thailand's current *Tenth Economic and Social Development Plan* is set in the context of the sufficiency economy philosophy. The climate change debate has added new urgency to the planet's need to address the way in which development is approached. In this respect, the sufficiency economy can act as a guiding principle to orient development that establishes a workable balance with nature, particularly in Thailand and the Mekong region.

To this end, the RTEA project highlighted areas of potential opportunities for "greening" the supply chain in key sectors of the Thai economy (e.g., electronics, automotive and textiles), as well as expanding the use of sustainable agricultural and fisheries methods (e.g., farmed fish and shrimp; fruits and vegetables). As is often pointed out, Thailand has in place a solid institutional and regulatory structure for sustainable development. What remains to be accomplished is for this regulatory framework to be implemented and enforced to bring about development that is sustainable. What is called for is development that enables the Thai people to better cope with external and internal shocks and to lead a more sustainable lifestyle.

A primary goal of ITD's seminars and training programs is to feed into the policy coordination process not only to increase awareness and understanding of key areas relevant to trade and development, but to actively engage the private sector. The Thai private sector is a valuable partner and a driving force for change. As illustrated in this report, the extensive measures being put in place to ensure that the life cycle of products is taken into account represents a step towards sustainability. Thailand needs to build on linkages between the private and public sectors to capture win-win opportunities towards sustainable development.

The current research on trade and environment linkages examined in this report will help to guide Thailand as a leader in trade and investment in the region that takes into account the environmental basis for continued growth and prosperity. From this perspective, the evidence set out in this report is valuable input to Thailand's ongoing endeavours to implement the sufficiency economy.

Dr. Sorajak Kasemsuvan
Executive Director
ITD

Executive Summary

Thailand is a leader in the Southeast Asian region. The country is by far the most advanced in the Greater Mekong Subregion, with a per capita Gross Domestic Product (GDP) adjusted for purchasing power parity of US$9,100 in 2006 (World Bank, 2007). The United Nations Human Development Index placed Thailand in the "Middle Human Development" category, ranking 74 out of 177 countries. Since the 1970s, the Thai economy has been completely transformed from a predominantly agricultural base to an export-led industrial boom, fuelled by accelerated influxes of foreign direct investment in the mid-1980s, which led to a steady rise in manufactured exports to OECD countries. By the late 1990s, Thailand had become integrated in global supply chains for three main export sectors: electrical and electronic appliances; automobiles and automotive parts; and computer parts. Over four decades, sustained economic development has been facilitated by government policies to stimulate export-led growth, initially in agriculture and then manufacturing.

Trade and investment context

Thailand joined the General Agreement on Tariffs and Trade (GATT) in 1982, the World Trade Organization (WTO) in 1995 and launched the Association of Southeast Asian Nations (ASEAN) Free Trade Area (AFTA) in 1992. The country has also been actively engaged in bilateral free trade agreements (FTAs) since 2001, finalizing 11 bilateral or regional trade agreements, eight of which have entered into force even if for only an initial Early Harvest (EH) phase. A further six agreements are currently under negotiation, mainly ASEAN+ FTAs as part of Thailand's efforts to enhance its trade with the region. Negotiations to finalize the U.S.-Thailand FTA have been suspended. Thailand also benefits from trade preferences under the Generalized System of Preferences (GSP) schemes of 34 trading partners and approximately 30 per cent of Thailand's merchandise exports received GSP treatment in 2006 (19 per cent in 2002) (WTO, 2007).

Foreign direct investment (FDI) in Thailand has been an important source of growth. One main goal of investment is to sustain a more knowledge-based economy, as Thailand's Tenth National Economic and Social Development Plan emphasizes. Thailand is considered to have a relatively open foreign investment regime. However, foreigners are not permitted to invest in various sectors for cultural or national security reasons, such as telecommunications (newspapers, radio and television), upland and lowland farming, forestry and fisheries. In 1998, in the wake of the Asian financial crisis, Thailand undertook reforms to partially open several sectors, such as banking, energy and telecommunications to foreign investment. The government has large infrastructure development projects planned for 2007, including a large-scale transport system and urban transit project, which will require significant investment. A government plan to deal with the exchange rate appreciation is also being addressed to ease investor fears.

Environmental context

Thailand's growth-centered development has been heavily reliant on its natural resource base, including forests, fisheries, coastal areas and biodiversity. Rapid, sustained growth in combination with "almost total failure to impose controls" resulted in a consequent rapid environmental decline (UNDP, 2007). This decline is strikingly apparent in the loss of two-thirds of Thailand's forest cover during this time due to the extensive expansion of agricultural lands which led to large-scale deforestation and soil and watershed erosion. Thailand's environmental decline is also manifest in rising urban pollution and waste disposal, with declining marine stocks, biodiversity and wetlands (Kaosa-ard and Wijukprasert, 2000). Thailand has become increasingly aware of the relationship between natural resources, development and environment as manifest by the broad array of environmental policies and legislation in place since the mid-1980s.

To a great extent, Thailand's move to sustainability was inaugurated with the incorporation of the concept of "people as the centre of development" in the Eighth National Economic and Social Development Plan

(1997–2001). The Ninth Economic and Social Development Plan (2002–2006) built on the framework of integrating a balance between economic, social and environment dimensions through the concept of the "sufficiency economy" to promote sustainable development. This concept was all the more relevant in the context of the financial crisis in 1997. The recently released Tenth Economic and Social Development Plan (2007–2011) addresses the challenges, opportunities and constraints currently faced by Thailand. Another recently released five-year plan—the Environmental Quality Management Plan (2007–2011) points to the need to encourage more sustainable patterns of production and consumption in order to manage natural resources and protect the environment.

The evidence indicates that implementation and enforcement of environmental rules and regulations remain the most challenging issue in Thailand. Harnessing the benefits of the trade and investment liberalization, as a direct result, will depend on the commitment of Thailand to re-consider the trade-offs between growth and the environment. This will require enhanced coordination to critically examine the sustainability of the framework for trade, investment and the environment. Such a reform process offers a vital complement to Thailand's "dual track" development approach of strengthening the domestic economy while integrating into the global economy.

Environmental impacts of trade liberalization in key sectors

In considering the linkages between trade and environment, it is helpful to keep in mind that countries that pursue trade liberalization agreements are ultimately seeking economic restructuring, which they anticipate will be beneficial on the whole for their economies and people. Whether trade and trade liberalization will in fact bring net benefits may vary from case to case. What is certain, however, is that whenever there is economic restructuring there are environmental impacts. These impacts may be positive or they may be negative, but there is no disputing the fundamental truth: trade is linked to environment because economic change has environmental impacts. If we accept that trade can be both good and bad for the environment, the need to analyze the environmental impacts becomes obvious. Where trade is liberalized, policy-makers need to be prepared to capture the positive opportunities and avoid any negative outcomes that may result.

The Rapid Trade and Environment Assessment (RTEA) aims to provide policy-makers with the kind of information they need to better understand these kinds of implications. To this end, the RTEA examined six key economic sectors: electronic and electrical equipment; automotive vehicles and parts; rubber; textiles; fisheries; and fruits and vegetables. Rather than focusing on lengthy quantitative assessments (as is the case for most assessment methodologies), the RTEA provides a relatively fast assessment to identify and prioritize those trade policies, negotiations and sectors that have potential to negatively impact or benefit the environment, and deliver the associated policy advice. In some cases, this may be sufficient information; in others, it may be the basis for more detailed analysis of policies, institutional capacities and information gaps. Table 1 summarizes the results of the RTEA in Thailand.

Overview of the RTEA methodology

The evolving methodology of the RTEA tool is based on a six-step process:

- Step I: Partnership building with key government and non-governmental actors in the country (establishment of a National Expert Advisory Panel to guide the research);
- Step II: Setting the context through statistical, empirical and economic analysis;
- Step III: Expert input through broad-based stakeholder interviews and a literature review;
- Step IV: Scenario building to establish the potential economic impact of liberalization agreements;
- Step V: Analysis of the economic impact scenarios to identify the potential environmental and social results of trade liberalization; and
- Step VI: Conclusions and strategic policy recommendations, culminating in a National Workshop.

Table 1: Environmental impacts of trade and investment liberalization

Sector	Trade and investment drivers	Main environmental impacts	Mitigating factors (environmental management framework)
Electrical machinery and equipment	This sector is part of a global chain of supply in which producers are responsible for the end-of-life management of products. Potential increased FDI	-ve: impacts of chemical solvents on human health and environment +ve: possible market incentives and related increases in foreign direct investment (FDI) for products based on eco-design, eco-efficiency and life-cycle management; producer responsibility	-ve: lack of implementation and enforcement +ve: adoption of cleaner technology; standards in export markets Waste Electrical and Electronic Equipment (WEEE), Home Appliances Recycling Law (HARL), corporate social responsibility (CSR), Foreign investor responsibility for e-waste and recycling; life-cycle management
Non-electrical machinery and parts	This sector is part of a global chain of supply in which producers are responsible for the end-of-life management of products. Potential increased FDI	-ve: chemical solvent use and disposal +ve: possible market incentives and related increases in FDI for products based on eco-design, eco-efficiency and life-cycle management; extended producer responsibility	-ve: lack of implementation and enforcement +ve: adoption of cleaner technology; life-cycle management
Automotive vehicles and parts	This sector is part of a global chain of supply in which producers are responsible for the end-of-life management of products. Potential increased FDI	-ve: air pollution; chemical solvent use and disposal; electricity consumption +ve: possible market incentives and related increases in FDI provide opportunities for eco-designed, fuel-efficient cars and pollution prevention in parts manufacturing	-ve: lack of implementation and enforcement +ve: Industry Act, factory permit, adoption of cleaner technology; life-cycle management
Organic chemicals	Reductions in export tariff barriers Potential increased FDI	-ve: chemical residuals in water supply; land and water contamination +ve: corporate social responsibility enhanced through FDI flows encourages sustainable management	-ve: lack of implementation and enforcement +ve: EIA (for factories), Industry Act, factory permit, adoption of cleaner technology
Mineral fuels and oils (petroleum)	Reduction in import and export tariff barriers; GMS and ASEAN economic cooperation	-ve: air pollution from the refining process; electricity use +ve: corporate social responsibility through enhanced FDI flows encourages sustainable management	-ve: lack of implementation and enforcement +ve: EIA (for refineries), Industry Act, refinery permit, CSR; adoption of cleaner technology
Rubber and articles	Reductions in export tariff barriers Potential increased FDI	-ve: land-use change for plantations; less land for food crops; mono-cropping; soil erosion; pesticide use; water consumption +ve: sustainable management of plantations and processes	-ve: lack of implementation and enforcement +ve: EIA (for land use and factories); certification of sustainable management
Plastics and articles	Reductions in export tariff barriers Potential increased FDI	-ve: air pollution from the industrial process; electricity use +ve: possible market incentives and related increases in FDI for pollution prevention, or hazardous chemical substitution	-ve: lack of implementation and enforcement +ve: EIA (for factories); Industry Act, adoption of cleaner technology
Textiles	Reductions in import and export tariffs and non-tariff barriers; decreased competitiveness post-ATC	-ve: water use; chemical residues and dyeing agents contaminate water; land reduced due to less production +ve: less pollution from natural dyes	-ve: lack of implementation and enforcement +ve: EIA (for factories); adoption of cleaner technology

Sector	Trade and investment drivers	Main environmental impacts	Mitigating factors (environmental management framework)
Fisheries and products	Lower tariffs combined with global growth in demand for fish and fish products may increase fisheries exploitation and aquaculture production	-ve: unsustainable use of mangrove and coastal areas; fishing beyond sustainable limits; antibiotic residues +ve: value of products coupled with sustainable fishing can help preserve marine systems	-ve: lack of implementation and enforcement +ve: mangrove forests classified as National Forest Reserves
Vegetables and fruits	Reductions in export tariff barriers; sanitary and phytosanitary measures (SPS) regulations in main export markets	-ve: increasing chemical fertilizer and pesticide use; water consumption and contamination +ve: value of products coupled with sustainable and integrated agricultural practices	-ve: lack of implementation and enforcement +ve: SPS requirements in export markets; adoption of integrated agricultural management practices

Source: Compiled by the authors primarily based on the background research papers prepared for the RTEA project – Adis, 2007; Baumüller, 2007; Charit and Jantarasarsophon, 2007, as well as MONRE, 2007; UNDP, 2007; UNEP, 2003; ICEM, 2003; Kaosa-ard and Wijukprasert, 2000.

Conclusions

The following general conclusions are highlighted from the research.

- *First*, as Thailand implements liberalization commitments, there will be corresponding environmental impacts—for the better and for the worse. Analysis of the potential environmental impacts reveals a mixed and variable outcome for several export sectors. For manufacturing exports—electrical and electronic equipment, automotive vehicles and parts—liberalization is likely to expand the industrial base, with adaptation to shifting comparative advantage in a rapidly integrating region. In turn, the degree and extent of the environmental impacts will depend on the regulatory framework in place. The same is likely to be the case in the rubber, textiles, fruits and vegetables and fisheries sectors. The RTEA puts forward a preliminary analysis of the potential environmental impacts of trade and investment liberalization. There is a need to study in greater detail specific policy linkages and monitor the implementation of liberalization commitments to ensure trade and environment policies are integrated.
- *Second*, an important factor for market access in many export sectors is emerging non-tariff measures and industry standards. These measures and standards may influence governmental regulations and private sector practices towards sustainable development. These measures include, for example, sanitary and phytosanitary requirements and certification of fruit, vegetables and fisheries products (e.g., Good Agricultural Practices), or requirements in the electronics sector (e.g., ISO 26000, the EU and Japanese standards on electronics). The Thai private sector, thus, is a key stakeholder to ensure that exports can meet these increasingly strict standards, and the government has a clear role to play in helping to equip exporters with the information and institutional support they need.
- *Third*, in pace with sustained economic growth, Thailand has put in place a comprehensive institutional and regulatory framework for managing natural resources and maintaining environmental quality. The evidence indicates that implementation and enforcement of environmental rules and regulations is crucial and remains the most challenging issue in Thailand. In order to meet this challenge, increased knowledge and capacity both in the public and, importantly, private sector are vital to ensuring positive outcomes.
- *Fourth*, openness to foreign direct investment, particularly in the manufacturing sector, continues to act as a key driver of export growth, providing opportunities for "learning by exporting" (Diao, *et al.*, 2005). The fact that a large share of FDI emanates from companies that meet and are accountable to higher international standards, including relating to the environment, for example in the

electronics sector, is an aspect that the government can build on to encourage sustainable investment in Thailand and stimulate transfer and use of environmentally-sound technologies, particularly in the manufacturing sector.

Strategic policy recommendations

A number of *general recommendations* emerged from the research on how environmental impacts of trade and investment liberalization could be addressed:

- **Raise awareness** about the practical benefits of implementing sustainable development among key policy-makers and other affected stakeholders in Thailand, including specific environmental and social impacts and possible mitigating measures.
- Enable an **inclusive, integrated and transparent domestic trade policy-making process** that allows for input from key stakeholders.
- Encourage **private sector actors** to include environmental and social consideration in trade and investment decisions, which will also be vital to maintaining and enhancing market access for key export sectors. The move towards more sustainable production could benefit from providing incentives for and facilitating access to environmentally-sound technologies.
- Contribute to the **capacity of the various government ministries and authorities** to develop and coordinate policies related to trade and environment based on an assessment of capacity-building needs.
- Strengthen **regional cooperation** to address the environmental impacts of economic integration, in particular among ASEAN countries given the many overlapping economic and environmental interests in the region. Particular attention needs to be paid to the increasing impact of China's "footprint" in the region, specifically in the manufacturing and agricultural sectors.

In addition, *sector-specific recommendations* were identified, including among others:

- The Thai government should take steps to urgently enact the draft Thai Waste Electrical and Electronic Equipment (WEEE), "e-waste," Act as a framework for the public and private sectors involved in the **EEE sector**.
- The Thai **EEE industry** needs to play a proactive role in strengthening innovation in product design. These efforts need to be supported by government policies, such as investment promotion incentives, and tax deductions for research and innovation expenditures related to clean production.
- Capacity building efforts in the **EEE sector** should focus on the end of the EEE product life-cycle, including demanufacturing and recycling, given that Thailand mainly acts as an assembler of products designed elsewhere.
- The Thai government needs to pay greater attention to reducing wastewater discharge and water consumption in the **textile industry**, including by improving the textile production process overall and waste treatment processing and recycling in particular.
- Laws and regulations need to be strengthened to facilitate closer monitoring of pesticide utilization in the **fruit and vegetable sector**, including during production, distribution, marketing, storage, use as well as disposal of containers. Efforts should continue to encourage farm owners to adopt "Good Agricultural Practices."
- Enforcement needs to be strengthened to prevent illegal encroachment of forest reserve areas for **rubber plantations**. Continued research will be required in the area of wastewater treatment technology that is suitable to local conditions.
- In **capture fisheries**, fishing efforts should be reduced through the implementation and effective enforcement of comprehensive management schemes. The use of less-destructive fishing gear that

is better adapted to the marine environment should be strongly encouraged, e.g., through regulations and/or subsidy schemes.

- In the **aquaculture sector**, access to more environmentally-benign (and affordable) technologies should be facilitated, including alternative feed that does not rely on trash fish. The viability of various certification schemes should be explored further to identify and take advantage of "green market" opportunities.
- Efforts should continue to reduce tariff escalation in key markets in order to facilitate exports of value-added **fisheries products**, thereby obtaining more value for fewer resources. The nature and scale of environmental impacts of the Thai fish processing industry should be examined to identify possible needs for additional standards, regulations and enforcement mechanisms.

Section 1: Introduction

1.1 Background and methodology to the RTEA project

The Rapid Trade and Environment Assessment (RTEA) for Thailand is a pilot project to assess the potential environmental impacts of trade liberalization. Research on the environmental impacts is based on three background papers on six key economic sectors identified through the RTEA methodology (Annex II). These background papers were used as input to the RTEA National Workshop in Bangkok on 19 June 2007 and are available on the Web site of IISD (www.iisd.org).

Box 1: Overview of the RTEA methodology

The evolving methodology of the RTEA tool is based on a six-step process:

- Step I: Partnership building with key government and non-governmental actors in the country (establishment of a National Expert Advisory Panel to guide the research);
- Step II: Setting the context through statistical, empirical and economic analysis;
- Step III: Expert input through broad-based stakeholder interviews and a literature review;
- Step IV: Scenario building to establish the potential economic impact of liberalization agreements;
- Step V: Analysis of the economic impact scenarios to identify the potential environmental and social results of trade liberalization; and
- Step VI: Conclusions and strategic policy recommendations, culminating in a National Workshop.

An Expert Advisory Panel to this project was established to assist in the development of the assessment process. The Panel was chaired initially by Ambassador Krirk-Krai Jirapaet, Executive Director, International Institute for Trade and Development (prior to being appointed as Minister of Commerce) and Thanpuying Dr. Suthawan Sathirathai, President, Good Governance for Social Development and the Environment Institute, with membership from the main ministries involved in trade and environment-related issues (see Annex I). The Panel convened twice during the project and was consulted regularly by the project's research team in between these formal meetings.

The assessment was divided into two phases. Phase I consisted of a scoping phase, defined by partnership building and establishment of the Expert Advisory Panel, key stakeholder engagement, background research and identification of economic scenarios (Steps I to IV of the methodology set out in Box 1). This phase yielded a picture of the current negotiations, what key elements are involved and stakeholder views of important issues of concern. It also provided initial insights into the scenarios that might unfold in current or planned trade negotiations.

The RTEA project was conducted over a 10-month period from September 2006 to June 2007, culminating in a National Workshop on 19 June 2007 in Bangkok (Annex VIII contains the workshop agenda). Reflecting the involvement of and interest in this project, the Thai Chamber of Commerce and Board of Trade of Thailand circulated a questionnaire for industry to obtain information on the how the private sector is integrating trade and environment to enhance sustainable development in Thailand. They also invited the research team to make a presentation of the project in July 2007 (see Annex VII).

The results of Phase I set the context and boundary of the assessment, as a foundation for the further analysis of the scenarios in Phase II (Steps V and VI of the methodology set out in Box 1). During this second phase, research was commissioned on the environmental impacts of six key economic sectors: electronic and electrical equipment, automotive vehicles and parts; rubber; textiles; fisheries; and fruits and vegeta-

bles. This research was then used as background information for the assessment and to illuminate sector-specific recommendations. The background research papers were also presented at the National Workshop.

1.2 Outline of the Report

This National Report describes the work undertaken pursuant to the Rapid Trade and Environment Assessment (RTEA) project in Thailand. Following the introduction to the project outlined above, Section 2 sets the context for the project. It highlights the linkages between trade and the environment and the rationale for assessing the policy interaction between these two key areas of decision-making. To assist in the analysis, a *matrix on trade and environment linkages* is presented. It then provides background on Thailand's economy, environment, trade performance and current and planned trade liberalization initiatives.

The expected economic impacts of trade and investment liberalization are put forward in Section 3. This section also explains the methodology used to select the sectors to be included in this trade and environment assessment project. Section 4 addresses how the expected economic impacts could play out in terms of the environmental impacts. This analysis is based on background papers commissioned for the project and includes both positive and negative environmental impacts. The potential regulatory impacts of investment liberalization commitments are also discussed. Finally, a summary of the research findings is provided.

Section 5 puts forward selected strategic policy recommendations and suggests areas where national capacities may need strengthening to meet these new challenges. It also suggests a way forward for future research. A bibliography is contained at the end of the Report.

Annex I provides the composition of the Expert Advisory Panel. The methodology for this assessment is outlined in Annex II. The Thai trade statistics underlying the RTEA methodology are contained in Annex III. Annex IV provides the list of stakeholder interviews carried out for the project. A table summarizing Thailand's market access gains through tariff reductions in FTA partners is contained in Annex V. Annex VI contains the report on the National Workshop. A report on the meeting with the Thailand Board of Trade and Chamber of Commerce is provided in Annex VII. Annex VIII contains the agenda of the National Workshop.

Section 2: Setting the Context

2.1 Trade and environment linkages

In considering the linkages between trade and environment, it is helpful to keep in mind why trade, and trade liberalization, are so important. Why do countries expend such energies to pursue trade liberalization agreements? The answer is: they are seeking economic restructuring, which they anticipate will be beneficial on the whole for their economies.

Whether trade and trade liberalization do in fact bring net benefits will vary from case to case. What is certain, however, is that whenever there is economic restructuring there are environmental impacts. When new factories open, for example, they contribute to pollution (though they may be cleaner than what they have replaced). As will be discussed below, these impacts may be positive or they may be negative, but there is no disputing the fundamental truth: trade is linked to environment because economic change has environmental impacts.

Different taxonomies have been applied to structure types of possible environmental impacts (see for example, Copeland and Taylor, 2003; OECD, 1994). The present analysis breaks down impacts into the following types:

- scale effects;
- structural effects;
- technology effects;
- direct effects; and
- regulatory effects.

Scale effects are the result of straightforward changes in the volume of economic activity. When a country liberalizes, it will have a much larger potential market to serve than its own domestic market. Meeting this demand may allow it to utilize resources that had previously not been used, increasing the national scale of economic activity. As well, the increased wealth that trade liberalization can bring may eventually increase the country's capital stock, meaning again that a greater amount of activity is possible. The increased scale of economic activity results in increased raw material use, and an increased amount of process-related pollution. This is a relatively simple equation—the more economic activity, the more environmental damage, other things being equal.

When trade is liberalized, we can expect to see increased efficiency in the economy overall, the result of comparative advantage—each trading partner produces those items at which it is relatively more efficient. In those sectors where a country has comparative advantage, production will increase. There will also be sectors, however, where a country scales back its production and instead imports from a more efficient producer. The result is a changed economic structure for the country as a whole. If the new economic structure has a greater share of low-polluting sectors and a lower share of polluting sectors, the *structural effect* is environmentally positive, and vice versa. The final result of this impact is of course completely dependent on the economic characteristics of the countries in question and the specifics of the liberalization, which will determine which sectors rise and which fall.

Of course, a central point of trade liberalization is that it increases efficiency. This can come through comparative advantage, as noted above. It can also come through the importing of new technologies, through new foreign direct investment, or through the innovation of domestic firms that are forced to become more efficient when their tariff protection is removed. In all these cases, the basic equation that links production and environmental impacts is changed for the better. Efficiency means less use of raw materials and/or less

waste and pollution created in the production process. This dynamic is known as the *technology* (or technique) *effect*.

Direct effects are a rather limited class of environmental impacts that are the direct result of trade itself. The most obvious of these is the pollution that results from transporting traded goods, such as air pollution from trucks and ships. Another such impact is invasive species of pests that are transported with traded goods (e.g., on fruits and vegetables or in packing materials). Trade in endangered species, and other forms of illegal trade, also fall into this category.

Regulatory effects are environmental impacts caused by trade-induced regulation. The most positive type of these impacts comes from higher environmental standards that result when the country's citizens become increasingly wealthy as a result of trade liberalization.[1] Negative linkages result, on the other hand, when the provisions of investment law allow environmental regulations to be challenged as indirect expropriation.

These various linkages are illustrated in Table 2, which shows a matrix of trade and environment linkages, complete with the driving force that prompts the initial change, and the mitigating factors that might alter the final environmental impact for better or for worse. This matrix is used as a framework for understanding the linkages addressed in the RTEA, as described in subsequent sections. Note that the matrix does not attempt to be exhaustive in listing all the possible types of linkage, but rather simply illustrates a few linkages in the form of examples to help better convey the nature of the trade-environment relationship described in this section.

This section has aimed to convey the nature of the linkages between environment and trade, showing the various ways in which the two are related. Ultimately, as argued above, the relationship hinges on the fundamental links between economic activity and the environment—links that can be either positive or negative, depending on the specifics of the case.

If we accept that trade can be both good and bad for the environment, the need to analyze the environmental impacts becomes obvious. Where trade is liberalized, policy-makers need to be prepared to exploit the positive opportunities and avoid the negative consequences that may result. Otherwise, the social welfare improvements that are sought through trade policy may be either cancelled out, or condemned to amount to less than they may be otherwise. The aims of the RTEA are precisely to provide policy-makers with the kind of information they need to better understand these sorts of implications.

Table 2: Matrix on trade and environment linkages

Category	Driving force	Pressure	Impacts	Mediating factor(s)	Example
Scale effects -ve and +ve	-ve: increased foreign market access from reductions in tariffs, non-tariff barriers to trade	-ve: increased scale of production	-ve: increased consumption of natural resources; increased production-related pollution (air, water, soil)	-ve: if environmental regulatory regime is adequate, there is little negative effect. If not, then negative effects ensue	-ve: increase in forest product exports leads to accelerated and unsustainable deforestation
	+ve: lowered domestic tariffs and non-tariff barriers on goods and services	+ve: increased efficiency of production	+ve: reduced consumption of natural resources; reduced production-related pollution (air, water, soil)	+ve: use of environmentally sound technologies enhances environmental benefits	+ve: domestic pulp mills increase efficiency to meet international competition; improve processes to use less energy, produce less polluting waste

Category	Driving force	Pressure	Impacts	Mediating factor(s)	Example
Structural effects -ve and +ve	-ve: greater openness to and attractiveness for FDI due to better foreign market access	-ve: higher polluting firms migrate from higher-standard countries to lower-standard countries	-ve: increased consumption of natural resources; increased production-related pollution (air, water, soil)	-ve: this "pollution haven" effect willnot occur if a strong environmental regulatory regime is in place	-ve: increase in factory farming operations with problems of waste management leads to water contamination, human health issues
	+ve: increased foreign market access from reductions in tariffs, NTBs and subsidies	+ve: increased demand for "green" goods means cleaner overall production mix in the economy	+ve: reduced consumption of raw materials and energy inputs; reduced production-related pollution (air, water, soil)	+ve: national certification of process and production methods (PPMs) enhances effects	+ve: increased share of organic producers in export-oriented agricultural production means less water pollution, less harm from pesticides
Technology effects +ve	+ve: greater openness to and attractiveness for FDI due to better foreign market access	+ve: new investment brings in cleaner technology, PPMs, adherence to higher standards	+ve: reduced consumption of raw materials and energy inputs; reduced production-related pollutions (air, water, soil)	+ve: if the environmental regulatory regime is strong, it increases the likelihood that imports of new technology will be best available	+ve: best available technologies improve eco-efficiency of production, reducing pollution and increasing efficiency of resource use
	+ve: lower domestic tariffs and non-tariff barriers	+ve: increase in imports of "cleaner" technologies and intermediate goods	+ve: reduced consumption of raw materials and energy inputs; reduced production-related pollutions (air, water, soil)	+ve: if the environmental regulatory regime is strong, it increases the demand for "clean" imports	+ve: agricultural producers are able to import "direct seeding" machinery leading to reduced soil erosion, reduced use of energy in production
Direct effects -ve	-ve: liberalization of trade and investment creates increased trade flows, economic activity	-ve: increased trade-related transportation activities	-ve: increased air pollution, particularly along major transportation corridors; habitat loss from transportation infrastructure; climate change impacts	-ve: this effect will always occur, but will be less intense in direct proportion with the stringency of transportation-related emissions regulations	-ve: increased trade with neighbour countries means increased transport traffic, pollution along corridors and border zones
Regulatory effects -ve and +ve	-ve: standard international investment agreements	-ve: provisions on indirect expropriation constrains the ability of regulatory authorities to regulate	-ve: weaker enforcement of environmental laws; reluctance to draft new environmental laws ("regulatory chill") in order not to lose FDI	-ve: if private investors successfully argue that regulation amounts to indirect expropriation, there will be a regulatory chill	-ve: domestic ban on a toxic substance is challenged by the foreign-based manufacturer as an indirect expropriation of its investment
	+ve: rising income from trade and investment liberalization	+ve: increased public awareness and demand for higher environmental quality	+ve: stronger enforcement of environmental laws; pressure to draft new environmental laws; requirements to meet export standards	+ve: this effect is stronger if the decision-making process and institutional structures are transparent and inclusive of stakeholders	+ve: regulations on sanitary and phytosanitary (SPS) better ensure that agricultural products comply with export standards

Source: Adapted from IISD/UNEP, 2005.

2.2 Background on the economy of Thailand

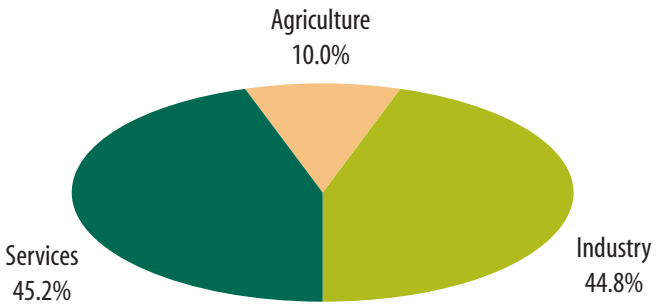
Thailand is a leader in the Southeast Asian region, with a population of 65 million and a Gross Domestic Product (GDP) of US$206 billion in 2006; the economy has achieved an average growth rate of 4.6 per cent between 2005 and 2007, driven predominantly by exports (BOT, 2007; World Bank, 2007). Thailand is by far the most advanced in the Mekong Subregion, with a per capita GDP of US$3,168 in 2006, which, adjusted for purchasing power parity, is the equivalent of US$9,100 (World Bank, 2007). Thailand is placed in the "Middle Human Development" category of the *Human Development Index*, ranking 74 out of 177 countries (UNDP, 2006). Thailand has a population density of 127 people per km^2, compared to 26 in Lao PDR, 78 in Cambodia and 256 in Vietnam (ASEAN, 2007).

In the early 1970s, Thailand shifted its economic policy from import substitution to export-led growth. Since then, the government has continuously implemented outward-oriented market reforms as a basis for economic development. Notwithstanding the Asian financial crisis in 1997, Thailand has put in place measures to reduce and eliminate barriers to trade and investment in the context of multilateral trade liberalization following its accession to the General Agreement on Tariffs and Trade (GATT) in 1982 and the World Trade Organization (WTO) in 1995, as well as more recently in a wide array of bilateral and regional free trade initiatives (Talerngsri and Vonkhorporn, 2005). Between 1957 and the financial crisis in 1997, Thailand achieved a consistent average annual growth in GDP of 7.6 per cent. Per capita income saw a seven-fold increase during this period (World Bank, 2006a).

Thailand has followed the classic path to economic development whereby the revenue generated from the growth of the agricultural sector has been invested in building industrial and manufacturing capacity (Dixon, 1996). In the 1950s and 60s, Thailand expanded agricultural production through rice paddy cultivation to become one of the leading exporters of high quality Jasmine rice in the 1970s, as well as rubber and sugar. This was supported by import substitution policies. As a result, by the 1970s, agricultural commodities represented 73 per cent of Thailand's exports. By the mid-1980s, non-agricultural commodities were increasingly dominating exports. From 1985 to 1995, manufactured exports increased twelve-fold and exports seven-fold (Pasuk and Baker, 1998:4), overtaking agricultural exports in 1985. By 1995, manufacturing was responsible for over four-fifths of exports *(ibid)*.

At the time of the Asian financial crisis in 1997, the proportion of manufacturing and agricultural exports had reversed from 1970, with the agricultural exports accounting for 27 per cent of total exports. For 2006, Figures 1 and 2 set out the composition of GDP by sector in 2006.

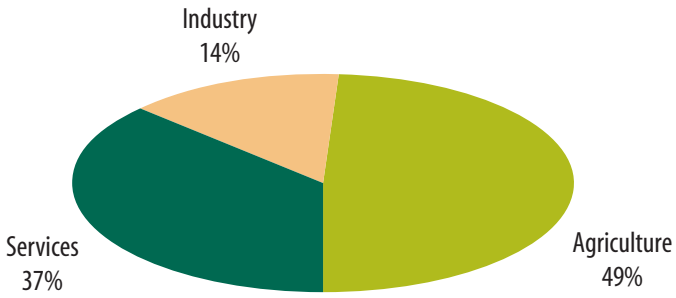
Figure 1: GDP composition by sector



Source: World Bank, 2007.

Figure 2 depicts the percentage of the labour force by sector in 2006. The rising sector in terms of both contribution to GDP and employment is the services sector, which in 2006 eclipsed the industrial sector in both respects.

Figure 2: Labour force by occupation



Source: World Bank, 2007.

Foreign direct investment has been a key driver of export-led industrialization in Thailand. The Industrial Estate Authority of Thailand oversees 10 industrial estates that contain export processing zones, which provide privileges to export-oriented manufacturers; investors in these zones may import duty-free raw materials and machinery used in the production of exports (BOI, August 2005). The rapid growth in the tourism sector has also been instrumental in providing foreign currency earnings to finance growth. By the mid-1990s, the contribution of total trade to GDP had increased from 54 per cent in 1982 to 89 per cent in 1994 (Pasuk and Baker, 1998:76). Thailand was the second largest exporter of agricultural products amongst Asian countries and the 15th largest agricultural exporter in the world in 2004 (FAO, 2005). The agricultural sector has undergone a significant shift to large-scale commercial, export-oriented agribusiness. Contract farming, which is expanding in the Greater Mekong Subregion (GMS), has benefited from increasing yields due to the adoption of more efficient technologies and increasing use of chemical inputs (Pasuk and Baker, 1996:148).

It is notable that recent reports from several international organizations—the Asian Development Bank, the United Nations Development Programme and the UN Economic and Social Commission for Asia and the Pacific—focus on the human face of trade-oriented development, sufficiency economy or "green growth" (ADB, 2006; UNDP, 2007; ESCAP, 2007). These reports deal with the nature of growth and the dynamic links between growth and human development to achieve a sustainable balance. As illustrated in these reports, socio-environmental factors underpin the current paradigm shift towards sustainability. These reports emphasize trade and investment liberalization as vital components of sustainable development—which is the focus of the RTEA project.

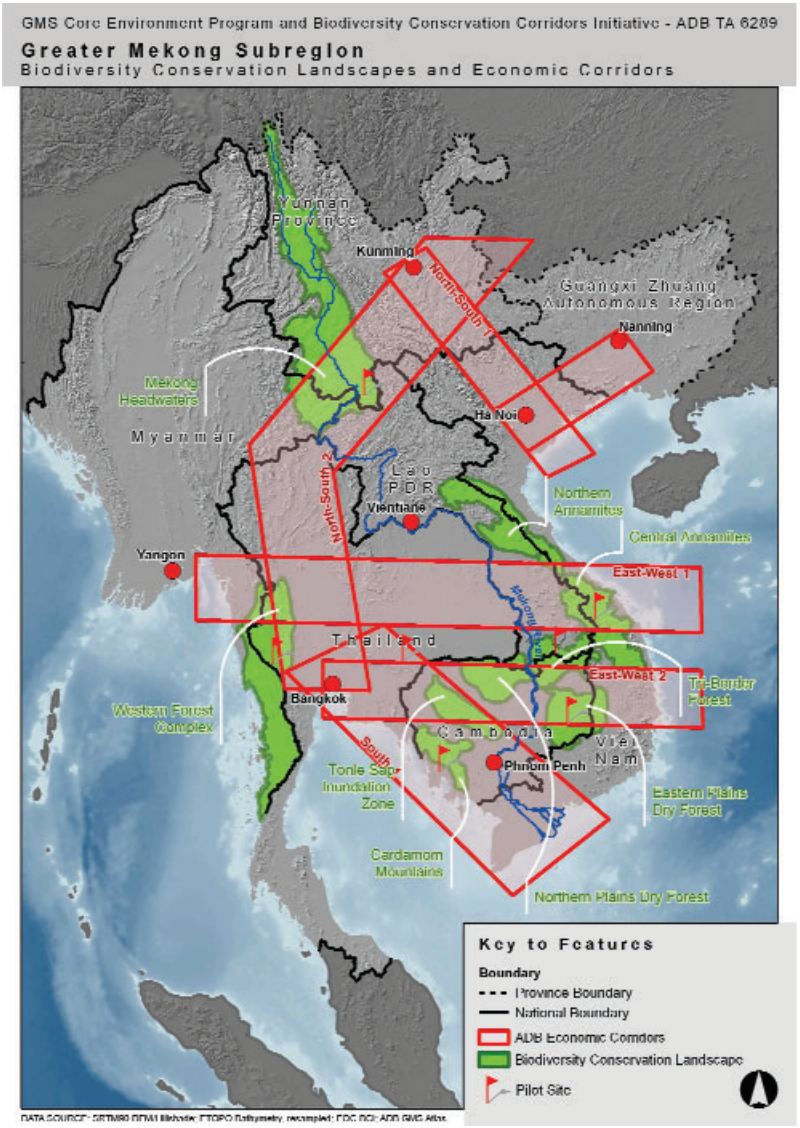
Thailand is a key player in the economic integration currently underway in the Greater Mekong Subregion; the ABD's economic cooperation initiative will serve to increase cross-border road connections and stimulate commercial activities in the six economic corridors. The ABD Regional Cooperation Strategy[2] aims to assist GMS countries in "strengthening connectivity and competitiveness, and developing a greater sense of community in the region" (ADB, 2004a). To this end, the regional economic corridors set out in Figure 3 will have a role to play in Thailand's development efforts—increasing economic activities, transport, telecommunications and tourism. Moreover, the performance of the economic corridors will also depend on maintaining the natural resource endowments (ADB, 2005). The Asian financial crisis also served to strengthen Mekong regionalism, accentuating the benefits of creating economies of scale to secure foreign direct investment in the region as a whole (Dore, 2003:411; Than, 2006).

The next Section addresses the links between the economic and biodiversity corridors in the GMS currently under development by the ADB.

Annex III provides select statistics on the structure of trade of Thailand.

2 The GMS countries adopted a Strategic Development Framework in 2001 to guide the next 10 years of development cooperation focusing on five areas: (i) infrastructure; (ii) cross-border trade and investment; (iii) private sector participation; (iv) human resource development; and (v) environmental protection.

Figure 3: Biodiversity conservation landscape and economic corridors in the GMS



Source: GMS Environment Operations Centre, www.gms-eoc.org.

2.3 Background on the environment of Thailand

Thailand's path to development over the past half century has been firmly rooted in its wide range of natural resources, including forests, fisheries, coastal areas and biodiversity. Rapid, sustained growth in combination with "almost total failure to impose controls" resulted in a consequent rapid environmental decline (UNDP, 2007). Similarly, a comprehensive assessment of *The State of the Environment in Thailand: A Decade of Change* notes the tendency to "give priority to achieving economic growth and pay attention to environmental protection only when the damage is visible" (Kaosa-ard and Wijukprasert, 2000:4)—the classic strategy of "grow now, clean up later." The study warns that "neglecting to manage the environment properly will eventually lead to an accumulation of problems rendering environmental problems much more difficult, expensive, or even too far progressed to tackle" (*ibid*).

Simply put, development has occurred at the expense of the environment and the natural resource base. Thailand's environmental decline is manifested in rising urban pollution and waste disposal, and declining forests, marine stocks, biodiversity and wetlands (Kaosa-ard and Wijukprasert, 2000; Hirsch, 1996).

Thailand has become increasingly aware of the relationship between natural resources, development and environment as manifest by the broad array of environmental policies and legislation put in place since the mid-1980s. As one review of Thailand's conservation efforts states, while "conservation issues were viewed as being separate from economic development," this perspective "is changing" (ICEM, 2003). The growing awareness is also evident in the rise of Thai social movements and advocacy protests over "uneven economic development" and environmental damage (Dechalert, 1999:1; Pasuk and Baker, 1995; Pongsapich, 1995). With the increase in agricultural exports in the 1980s as a prime driver of growth, vast areas of land were cleared for the expansion of production. In the 1990s, there was rising concern over the negative impacts on rural livelihoods of the planned government expansion of commercial eucalyptus plantations. According to many reports, the extensive expansion of agricultural lands has led to large-scale deforestation and soil and watershed erosion (UNDP, 2007; FAO, 2005; UNEP, 2003; Pasuk and Baker, 1998). Decreased soil fertility resulting from continuous cultivation has had a direct impact on decreasing agricultural yields and increased use of chemical fertilizers and pesticides. In 1989, a logging ban was put in place as a response to significant rates of deforestation which caused serious flooding and landslides in the South.

Awareness of environmental issues and the links with livelihoods and sustainable development were heightened by controversy over a number of large-scale dam projects, such as the Nam Choan dam. Local communities were active in the eventual cancellation of Nam Choan in 1988; the dam would have disrupted local livelihoods and flooded designated wildlife reserves. The "Assembly of the Poor," formed in 1995, organized a large-scale demonstration in early 1997 to protest mega-development projects and to demand community rights in managing natural resources (Dechalert, 1999:12).

There has also been considerable controversy over the extent to which lax environmental regulation has attracted polluting industries as predicted by the "pollution haven hypothesis." Empirical evidence in support or against the hypothesis remains somewhat unclear, with varying methodologies yielding varying results (Copeland and Taylor, 2004). Some recent studies have provided support for the pollution haven effect in specific sectors where industry is highly mobile and pollution intensive with significant control costs (Ederington and Minier, 2003). A study of Thailand notes that while foreign direct investment (FDI) has helped to promote exports, this development has brought with it a range of negative environmental impacts associated with a shift from agricultural to manufactured exports, the increased capital intensity of exports and weak and ineffectively enforced environmental regulations (Mukhopadhyay, 2006).

In response to some of these concerns, just prior to the financial crisis in 1997, the *Eighth National Economic and Social Development Plan* (1997–2001) launched a new strategy to shift from "growth orientation to people-centered development." The Ministry of Agriculture and Cooperatives was tasked with implementing "sustainable agriculture" through community development to promote environmentally-sound production methods for integrated, organic farming and agro-forestry. The *Ninth National Economic and Social Development Plan* (2002–2006) also set out the guiding principle of "sufficiency economy" based on a "middle path" or balanced development and economic strategy to "overcome the current economic crisis that was brought about by unexpected change under conditions of rapid globalization, and to achieve sustainable development" (NESDB, 2007). This philosophy is further accentuated in the government's latest *Tenth National Social and Economic Development Plan* (2007–2011). The recent *Thailand National Human Development Report* focuses on how Thailand is applying the "sufficiency economy" philosophy to enhance sustainable development (UNDP, 2007).

The recently released *Environmental Quality Management Plan* (2007–2011) of the Ministry of Natural Resources and Environment (MONRE) contains broad priority objectives underpinned by the conceptual framework of sufficiency economy; these objectives are summarized by area in Table 3.

Table 3: Thailand Environmental Quality Management Plan (2007–2011)

Area	Objective
Forests	To prevent forest destruction at any rate whilst increasing forest cover by at least 0.5 per cent from the current level within five years
Biodiversity and wildlife	To reduce biodiversity loss and illegal wildlife trade whilst setting up a National Biodiversity Database Center
Land	To resolve land ownership for at least 700,000 poor agriculturalists whilst restoring degraded agricultural land by at least two per cent of the total area of the country per year
Water	To promote integrated watershed management for the 25 watershed areas, focusing on demand-side management while ensuring a safe water supply for every village
Natural disasters	To establish an early warning system for high risk areas particularly from natural disasters and geo-hazards
Fisheries	To rehabilitate and restore coastal and marine resources in every coastal area

Source: MONRE, 2007.

Fisheries – Marine and coastal resources make an important contribution to fisheries, trade and local livelihoods. Entitled *Blue Waters in Peril*, the latest *Thailand Environment Monitor* highlights that the loss and degradation of the country's marine and coastal resources is "not only an environmental issue, but also an issue with significant economic implications" (World Bank, 2006b). The Thai government has been acting to sustainably manage marine and coastal resources, particularly mangrove rehabilitation and marine park management, through the development of national policies (MONRE, 2007). However, "effective implementation has been undercut by the complexity of the challenge as well as by natural process, overlapping laws, insufficient coordination among agencies, and limited resources" (World Bank, 2006b).

Forests – With the proportion of land area covered by forests estimated at approximately 28 per cent in 2005, forests have been depleted at an alarming rate over the past half century. However, as set out in Table 4, forested areas have remained relatively constant since the 1990s (ADB, 2007b). Deforestation has occurred due to logging and unregulated commercial exploitation, unsustainable exploitation practices, shifting agriculture and poverty, as well as lack of sufficient enforcement of forest management policies and regulations (World Bank, 2006b; Kaosa-ard and Wijukprasert, 2000). Forests continue to provide an important source of income to rural communities in Thailand. Government efforts have been put in place to address the practice of shifting agriculture which has led to declining land productivity, soil erosion and nutrient depletion, as well as to deal with slash and burn agricultural techniques that encroach on forests (World Bank, 2006b). In 1989, a ban was placed on the export of raw logs and shortly thereafter exports of sawn wood from natural forests, with provision for specific export quotas. The ban is credited with stimulating development of the downstream wood processing and furniture industry in Thailand.

Table 4: Selected environmental sustainability indicators in Thailand

Environmental indicators	Proportion of land area covered by forest (%)		Ratio of area protected to maintain biodiversity by surface area (%)		Carbon dioxide emissions (per capita metric tons)		
	1990	2005	1990	2005	1990	2000	2003
Thailand	31.2	28.4	13.0	19.0	1.8	3.3	3.9

Source: ADB, 2007b.

Biodiversity and protected areas – First established nearly forty years ago, protected areas in 2005 reached 19 per cent of surface area in Thailand as set out in Table 4 (ADB, 2007b). By 1999, over 100 national parks and 20 wildlife sanctuaries were protected (ONEP, 2007). In line with the objectives of the Convention on

Biological Diversity, since 1998, Thailand has implemented a National Policy, Strategies and Action Plan on the Conservation and Sustainable Use of Biodiversity (MONRE, 2004).

Of particular relevance is the ADB's biodiversity corridors initiative to complement the development of economic corridors in the GMS as set out in Figure 3 above. An increase of transport projects in the GMS will act to increase transit trade even further through Thailand. While facilitating trade and investment, economic integration will rely on "linked natural systems" as set out in Box 2. Increased transportation links (e.g., roads and bridges) may have unintended negative spill-over effects, such as the increase of illegal exports (timber, endangered wildlife and plant species) and imports (drugs, disease). For example, the recently opened Thailand-Lao PDR "Friendship Bridge" over the Mekong River between Mukdahan and Savannakhet will facilitate commercial exchange between the two countries, while, at the same time, placing a new source of stress on local biodiversity (Lazarus *et al*., 2006).

Despite the attention to sustainable management of the country's natural resources and recognition of the principles of sufficiency economy, including in the government's *Tenth National Social and Economic Development Plan* (2007–2011), the state of the environment in Thailand has been significantly impacted by over forty years of economic growth and lack of sufficient enforcement of environmental laws. As outlined above, several environmental threats are critical: deforestation, encroachment on protected areas, threats to mangroves and coastal areas, depletion of fisheries resources, as well as severe and rising urban environmental concerns related to air, land, water and waste (World Bank, 2006b). As will be discussed further in this report, toxic and hazardous waste management related to the electronics industry—a key export sector has become an issue of increasing concern, notably with the signing of the Japan-Thailand Economic Partnership Agreement (Charit and Jantarasarsophon, 2007).

Box 2: Economic and biodiversity corridors in the GMS

The economy as well as the environment of the GMS will be transformed as the economic corridors are constructed over the next decade as illustrated above in Figure 3. The ADB has already indicated some trends to illustrate the dependence of productivity in the following sectors on "linked natural systems" (ADB, 2005):

- *Forestry* – increasing forest product demand with increasing cost of production and 50 per cent decline in resource base;
- *Fisheries* – increasing effort but decreasing catch per unit effort (due to the decline of stocks in coastal and freshwater systems);
- *Hydropower* – increasing demand and investment in electricity supply, and increasing real cost per unit of energy (due to a failure to fully account for watershed maintenance and other environmental services);
- *Agriculture* – increasing production costs (due to soil loss, chemical inputs, and fluctuation in water supply);
- *Industry* – increasing cost of water supply and treatment (due to reduced water quality and access); and
- *Nature-based tourism* – rapidly increasing demand and investment, leading to diminishing quality of "products."

Source: ADB, 2005.

Efforts at the national level are being supported at the regional level to address these environmental threats. The key intergovernmental regional environmental body—the GMS Working Group on Environment[3]—has recognized the need to address potential environmental stresses from economic development, specifically in the economic corridors, to ensure environmental issues are properly addressed in pace with regional integration (ADB, 2004b). In this respect, good governance and effective enforcement remain key challenges for sustainable development on the road to further regional integration (Dore, 2003).

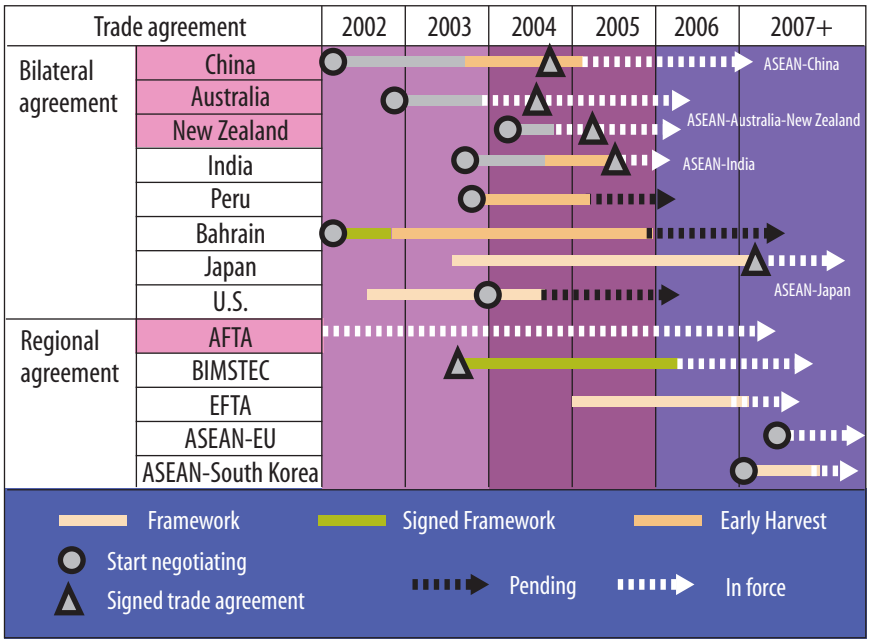
3 This Working Group was established in 1995 to help mainstream environmental considerations in the GMS Economic Cooperation Program. Each GMS country is represented by two officials from the environment or natural resource management agency.

2.4 Background on the current trade context in Thailand

The framework for trade in Thailand was initiated nearly four decades ago. As will be discussed in greater depth below, Thailand is actively engaged in bilateral, regional and multilateral trade negotiations. Thailand joined the GATT in 1982 and the WTO in 1995, and launched the ASEAN Free Trade Area (AFTA) in 1992. The country has been actively engaged in bilateral trade agreements since 2001 and, to date, has finalized 11 bilateral or regional preferential trade agreements (see Figure 4). Eight have entered into force, even if for only an initial Early Harvest (EH) phase—the Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS), Australia, Bahrain (EH), China (EH), India (EH), New Zealand, Peru (EH) and, most recently, Japan. A further six agreements are currently under negotiation, mainly ASEAN+ FTAs; negotiations to finalize the U.S.-Thailand FTA have been suspended. While all pending FTA negotiations were temporarily suspended in late-2006 in the wake of the political crisis, they were re-launched, including with Peru, Japan and in the context of ASEAN. In April 2007, the Japan-Thailand Economic Partnership Agreement (JTEPA) was signed and is expected to come into force in November 2007.

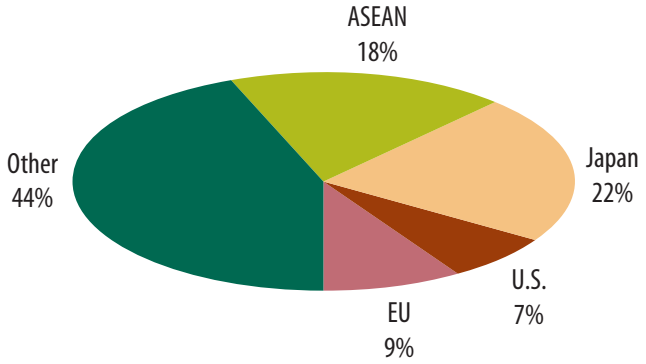
Thailand's main exports and fastest growing exports over the past five years are set out in the statistical Annex III.The main exports consist of three categories of manufactured products between 2001 and 2006: electrical machinery and equipment, non-electrical machinery, and vehicles and parts. While the U.S., EU and Japan are Thailand's main export markets, ASEAN countries represent the largest market in combination (see Figure 5).

Figure 4: Thailand's trade agreements



Source: Compiled by the authors, as of September 2007.

Figure 5: Main destinations for Thai exports by region, 2006 (as a percentage of total value)

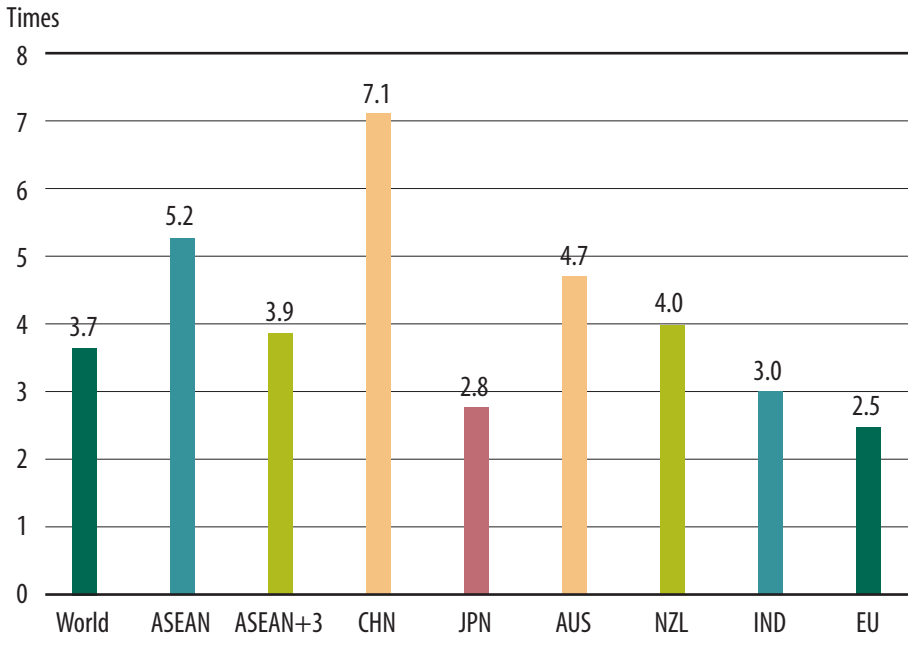


Source: Compiled by the authors based on MOC data for 2006.

A key feature of Thailand's efforts to expand its FTAs is to enhance its trade within the region. The Ministry of Commerce notes that "FTAs can greatly expand Thailand's trade and exports, and thus growth opportunities. Thai companies, especially in the manufacturing sector, can also expand and diversify their resource and production base and, therefore, gain economies of scale, boost productivity, and increase specialization" (www.thaifta.com). While the U.S. and the EU are major trading partners for Thailand, one assessment undertaken by Chulalongkorn University finds that between 1990 and 2000 trade between Thailand and Asian countries was higher than with other regions (Mallikamas, 2002). As set out in Figure 6, trade between Thailand and China expanded seven-fold, while that between Thailand and other ASEAN members grew over five-fold (*ibid.*). Trade with Japan is significant.

Annex III provides further information on the structure of trade of Thailand (main exports, fastest growing exports, imports and main FDI recipient sectors).

Figure 6: Thailand's regional trade, 1990–2000



Source: Mallikamas, 2002.

In line with its efforts to strengthen regional ties, Thailand is also a leader in developing economic relations in the GMS that brings together Cambodia, China (Yunnan Province), Lao PDR, Myanmar and Vietnam as a means of promoting economic and social development and contributing to the joint aim of halving poverty by 2015 (ADB, 2007b). With the assistance of the Asian Development Bank (ADB), the GMS will be linked with transport networks to facilitate the movement of goods and people, be marketed as a single tourism destination, and be integrated in electricity and telecommunications provision (GMS Declaration, 2002) (see Figure 3 above).

In addition to these trade liberalization initiatives, Thailand benefits from trade preferences under the GSP schemes in 34 trading partners. Approximately 30 per cent of Thailand's exports received GSP treatment in 2006, mainly to the EU (33.9 per cent), the U.S. (21.7 per cent) and Japan (20.2 per cent) (WTO, 2007).

Critics of liberalization argue that it will make the country much more vulnerable to outside forces and global instabilities. Thai companies will encounter increasing competition, which could hurt less competitive firms and industries. In order to effectively address the costs associated with trade liberalization, the Ministry of Commerce notes the need for proper preparations, adjustments, reforms, and intensified cooperative efforts in order to take advantage of the opportunities of participating in the globalization and trade liberalization process (MoC, 2007). It has also been noted that proper preparations have been lacking in the rapid expansion of FTAs by Thailand (Sally, 2007; Fink, 2007).

Moreover, concerns have been raised that the continued growth in FTAs will create a "spaghetti bowl" of overlapping trade rules that erode the principle of non-discrimination and raise the transaction costs of doing business (Fink, 2007; Sen, 2006). Critics have also noted that FTAs in Thailand "have been driven by vague foreign-policy goals, while credible economic strategy has been lacking. The residual commercial logic is narrowly mercantilist and "trade-light," seeking an exchange of concessions in a narrow range of sectors rather than comprehensive, trade-creating FTAs. Weak and partial unbalanced FTAs are the result" (Sally, 2007). The exception, it is argued, has been the Thailand-U.S. FTA negotiations, which were suspended in 2006 following the Thai political crisis. Moreover, it is put forward that the necessary regulatory reforms to accompany this trade strategy are lacking (*ibid*).

The following section is a summary of the key elements of each of Thailand's key trade agreements in force and planned.[4] The expected economic impact scenarios arising from trade liberalization developed in the next section are based on tariff reductions—conferring market access opportunities for Thai exports—arising from the commitments undertaken in, or preferences flowing from the following initiatives:

2.4.1 Trade agreements in force

1. World Trade Organization (WTO)

Thailand joined the GATT in 1982 and is an active member of the WTO since the entry into force of the agreement in 1995. As set out in Table 5, as of 2003, Thailand's average bound tariff rate was 28.4 per cent, with 72 per cent of tariff lines bound (WTO, 2003). Under the minimum access quotas in the WTO Agreement on Agriculture, Thailand removed import quotas on 23 basic commodities in 2004.

Thailand is considered to be well-integrated into the multilateral trading system. Agricultural liberalization is the focal point of interest for Thailand in the Doha Round negotiations. Thailand is negotiating to enhance market access liberalization for agricultural exports, such as rice and sugar. In this regard, Thailand was involved in the dispute settlement panel against the EU on sugar export subsidies. Thailand also has significant export interests in liberalizing tariffs on industrial goods, notwithstanding its relatively high tariffs on certain key import-competing manufactured goods. In the services negotiations, Thailand is generally reluctant to open its services sectors to further liberalization following the Asian financial crisis, with the exception of tourism and Mode Four (cross border movement of temporary workers) (Sally, 2007; Talerngsri and Vonkhorporn, 2005).

4 This Section draws on information from the Thai Ministry of Commerce, www.thaiftas.com, BOI, 2007; www.bilaterals.org, the *Bangkok Post* and ICTSD *Bridges*, as well as other sources mentioned directly in the text.

2. ASEAN Free Trade Area (AFTA), entry into force in 2010

The ASEAN Free Trade Area was launched in 1992 to eliminate tariffs and integrate regional economies into a single production base and regional market of 550 million people between the 10 member countries of the ASEAN. Established in 1967, ASEAN consists of Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam. Thailand is one of the six original members—ASEAN-6. Trade within ASEAN is already relatively liberalized with more than 99 per cent of traded goods either duty free or with maximum tariffs of five per cent (www.aseansec.org). ASEAN is increasingly becoming a key market for Thai exports, which increased by 29 per cent from 2003 to 2004 to US$21 billion. Thailand's main exports to ASEAN countries are computers and related parts and components valued at US$2.3 billion, along with autos and auto parts and components valued at US$1.5 billion (BOI, July 2005).

Under AFTA's Common Effective Preferential Tariff (CEPT), Thailand reduced tariffs to zero to five per cent in 2003. Table 6 provides a comparison of average CEPT rates in Thailand and the average in ASEAN-10.

Table 5: Structure of Most-favoured Nation (MFN) tariffs in Thailand, 2003 (per cent)

		1999	2002	2003	U.R.[a]
1.	Bound tariff lines (% of all tariff lines)[b]	71.6	72.1	72.1	72.1
2.	Duty free tariff lines (% of all tariff lines)	3.5	4.0	4.0	2.6
3.	Non-*ad valorem* tariffs (% of all tariff lines)	21.5	23.1	23.0	25.5[c]
4.	Tariff quotas (% of all tariff lines)	0.9	1.0	1.0	1.0
5.	Non-*ad valorem* tariffs with no AVEs (% of all tariff lines)	20.8	22.1	22.0	25.5[c]
6.	**Simple average bound rate**	**33.1**	**29.6**	**28.4**	**27.1**
	Agricultural products (HS01–24)	38.6	34.3	33.1	31.8
	Industrial products (HS25–97)	32.0	28.4	27.2	25.9
	WTO agricultural products	41.5	37.0	35.7	34.4
	WTO non-agricultural products	31.4	27.8	26.6	25.4
	Textiles and clothing	51.9	38.4	33.6	28.9
7.	"Nuisance" bound rates (% of all tariff lines)[d]	0.1	0.2	0.2	0.2
8.	**Simple average applied rate**	**17.0**	**15.0**	**14.7**	**..**
	Agricultural products (HS01–24)	32.7	26.0	25.4	..
	Industrial products (HS25–97)	14.6	13.1	12.9	..
	WTO agricultural products	33.1	26.3	25.7	..
	WTO non-agricultural products	14.7	13.1	13.0	..
	Textiles and clothing	24.7	22.5	21.7	..
9.	Domestic tariff "spikes" (% of all tariff lines)[e]	3.6	1.6	1.6	..
10.	International tariff "spikes" (% of all tariff lines)[f]	45.5	43.6	43.5	..
11.	Overall standard deviation (SD) of tariff rates	16.3	13.6	13.2	..
12	"Nuisance" applied rates (% of all tariff lines)[d]	7.1	16.1	16.2	..

Notes:

a Final bound calculations are based on the 2003 tariff schedule. Including ITA.

b Representing fully bound rates. Partially bound rates also exist, representing 1.8% for 2003 and 2002, and 1.6% for 1999.

c Based on fully and partially bound lines only.

d "Nuisance" rates are those greater than zero, but less than or equal to 2%.

e Domestic tariff spikes are defined as those exceeding three times the overall simple applied rate (indicator 8).

f International tariff spikes are defined as those exceeding 15%.

Note: Excludes in-quota rates and includes AVEs provided by the authorities for specific rates, as available. The *ad valorem* part of alternate rates are taken into account for the calculations. The 1999 tariff is based on 8-digit HS96 nomenclature; the 2002 and 2003 tariff is based on 7-digit HS02 nomenclature.

Source: WTO Secretariat calculations, based on data provided by the Thai authorities (WTO, 2003:35–36).

Table 6: Average Common Effective Preferential Tariff, 1998–2003

	1998	1999	2000	2001	2002	2003
Thailand	10.56	9.75	7.4	7.36	6.02	4.64
ASEAN	5.37	4.77	3.87	3.65	3.25	2.68

Source: US-ASEAN Business Council, http://www.us-asean.org/afta.asp.

As set out in Table 7, the only products not included in Thailand's CEPT Scheme are certain agricultural products in the sensitive list. ASEAN has agreed to eliminate tariffs completely on all imports by 2010 for the original members and by 2015 for the four new members (Cambodia, Lao PDR, Myanmar and Vietnam).

Table 7: Common Effective Preferential Tariff (CEPT) List, 2001

Country	Inclusion list	Temporary exclusion list	General exception list	Sensitive list	Total
Brunei	6,284	0	202	6	6,492
Indonesia	7,190	21	68	4	7,283
Malaysia	9,654	218	53	83	10,008
Philippines	5,622	6	16	50	5,694
Singapore	5,821	0	38	0	5,859
Thailand	**9,104**	**0**	**0**	**7**	**9,111**
ASEAN-6					
Total	43,675	245	377	150	44,447
Percentage	98.26	0.55	0.85	0.34	100.00
Cambodia	3,115	3,523	134	50	6,822
Laos	1,673	1,716	74	88	3,551
Myanmar	2,984	2,419	48	21	5,472
Vietnam	4,233	757	196	51	5,237
New Members					
Total	12,005	8,415	452	210	21,082
Percentage	56.94	39.92	2.14	1.00	100.00
ASEAN					
TOTAL	55,680	8,660	829	360	65,529
PERCENTAGE	84.74	13.40	1.28	0.55	100.00

Source: ASEAN Secretariat.

Pursuant to the ASEAN Integrated System of Preferences (AISP), founding ASEAN members such as Thailand provide trade preferences to new members of zero to five per cent (Cambodia, Lao PDR, Myanmar and Vietnam (CLMV countries). Table 8 illustrated the extent to which Thailand's preferential tariff rates on imports from CLMV countries increased from 2002–2005 (MFA/UNDP, 2005).

The trade in goods agreement between ASEAN and China took effect on July 1, 2007, creating the world's largest free trade area of 1.7 billion consumers, a regional gross domestic product of approximately US$2 trillion and total trade estimated at US$1.2 trillion (www.aseansec.org). Thai exports of tapioca, biochemicals, plastics and medical equipment are expected to profit from the FTA. Tariffs will be phased out between 2010 and 2018.

Table 8: Thailand's AISP preferences, 2002–2005

New ASEAN member	Number of product categories			
	2002	2003	2004	2005
Cambodia	48	49	309	340
Lao PDR	26	27	187	300
Myanmar	72	72	160	850
Vietnam	19	19	34	63

Source: MFA/UNDP, 2005:28.

The ASEAN Plus Three process was institutionalized in 1999 to purse cooperation with China, Japan and South Korea. As noted below, Thailand and China accelerated the ASEAN-China FTA through an Early Harvest Programme to reduce tariffs on meat, fish, dairy products, other animal products, trees, vegetables, fruits and nuts in July 2005.

The ASEAN-South Korea FTA framework agreement was signed in May 2006, effective July 2006, with Thailand opting out to continue negotiations on agriculture (particularly rice). On January 15, 2007, ASEAN and China signed the Cebu Agreement on Trade in Services pursuant to the China-ASEAN Free Trade Area (AFTA-China).

In addition to ASEAN Plus Three, ASEAN is in the process of negotiating FTAs to include Australia/New Zealand and India.

3. ASEAN Investment Area (AIA), entry into force in 2010

The objective of the AIA signed in 1998 is to remove barriers to intra-regional investment, liberalize and streamline regulations and to offer incentives to boost regional investment. The basic concept is to substantially increase the flow of investment into ASEAN from both ASEAN and non-ASEAN sources by enhancing the region's competitiveness. The AIA provides for the removal of restrictions or controls through granting National Treatment and Most-favoured Nation treatment to ASEAN investors by 2010 in the original six members (including Thailand) and 2015 for new members, with potential extension to non-ASEAN investors by 2020.

As of January 1, 2010, the AIA will liberalize investment into ASEAN-6 (Brunei, Indonesia, Malaysia, the Philippines, Singapore and Thailand) from non-ASEAN investors in most sectors including manufacturing, agriculture, fishery, forestry, mining and related services. The AIA will also facilitate freer flows of capital, skilled labour, professional expertise and technology within ASEAN. In 2003, the AIA liberalized investment in manufacturing for members in ASEAN-6 and Myanmar. Investors will also benefit from initiatives to harmonize customs codes and develop common product certification standards. Product standards have been harmonized for 20 priority items including electrical and electronic equipment.

4. Thailand-China Early Harvest Agreement (merged with AFTA-China)

Prior to the establishment of AFTA-China, Thailand and China signed an Early Harvest (EH) Agreement that took effect in October 2003. Tariff reductions began on January 1, 2004, with tariffs reduced to zero by the end of 2006. In a first phase, effective on October 1, 2003, customs duties were eliminated on 188 types of fruits and vegetables, including HS 07 (edible vegetables and certain roots and tubers) and HS 08 (edible fruit and nuts; peel of citrus fruit or melons). According to the Ministry of Commerce, Thailand increased agricultural trade by US$200 million to China from October 2003 to February 2005 (BOI, 2005).

This is the first time China has agreed to this type of an agreement with an ASEAN neighbour. Thailand was the only ASEAN member country to accelerate the implementation of the ASEAN-China FTA in line with the Early Harvest Programme set out in Article 6 of the FTA. As of July 1, 2005, Thai customs duties were reduced for products under six categories of the Harmonized System (HS): (HS01) live animals; (HS02) meat; (HS03) fish; (HS04) dairy products; (HS05) other animal products; and (HS06) trees and cut flowers (www.aseansec.org). Negotiations regarding additional items are on hold, as they will be covered under AFTA-China.

5. Thailand-Bahrain Free Trade Agreement, Early Harvest in force December 2002

In December 2002, Thailand and Bahrain finalized a framework agreement for a closer economic partnership. The agreement has two phases. Under the Early Harvest program, three per cent of the 625 tariff lines covered were immediately eliminated, including rice, food products, gasoline, plastic products and clothes. Remaining items are separated into three groups: fast track, normal track and other products. They are expected to be liberalized by 2010.

6. Thailand-Peru Free Trade Agreement, Early Harvest in force October 2003

In October 2003, Thailand and Peru signed a framework agreement on a closer economic partnership, which aims to eliminate tariffs in both countries, with exceptions for certain sensitive items. Under the two-phase agreement, an Early Harvest agreement eliminated tariffs on 50 per cent of Thai items and 54.6 per cent of Peru's items. Over the next five years, Thailand will eliminate tariffs on 23.5 per cent of the remaining items, while Peru will do so for 17.1 per cent of the remaining items. Remaining tariffs will be phased out over 15 to 25 years.

Negotiations on a Thailand-Peru FTA have been ongoing since October 2003, with Thailand intending to expand exports through Peru to Brazil and Argentina. Currently trade between the two countries is modest, with a potential for Peru to export raw materials and Thailand to export technological and automotive products. Negotiations resumed in November 2006.

7. The "One Way Free Trade Agreement" of the Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS)

This economic subregional cooperation framework including Cambodia, Lao PDR, Myanmar, Thailand and Vietnam was established in November 2003 to "act as a building block and move ASEAN forward at a more even pace, on the basis of self-reliance and mutual prosperity" (www.acmecs.org). The objectives are to bridge the economic gap between the five countries and to promote prosperity on a sustainable level. One of the main aims is to build partnerships to transform the border areas of the five members into zones of economic growth and social progress and achieve sustainable development through South-South cooperation. The ACMECS framework has initiated over 40 common development projects as well as over 200 bilateral projects to enhance trade and investment, agriculture and industry, transport linkages, tourism and human resources development.

In the framework of ACMECS, Thailand provides "One Way Free Trade" with Cambodia, Lao PDR, Myanmar and Vietnam (CLMV countries), which entails the application of a zero to five per cent tariff rate on nine agricultural exports from CLMV countries: corn, eucalyptus logs, cashew nuts, castor oil beans, soy beans, maize, potatoes and pearl barley (BOI, June 2007; MFA/UNDP, 2005). Thailand also provides technical assistance to promote market incentives for contract farming and increased agricultural productivity.

8. The Tenth Joint Commission of Cooperation and the ADB Economic Corridors Initiative in the Greater Mekong Subregion

Subregional integration is increasing. The GMS, through its program of infrastructure development and promotion of freer flow of goods and people has emerged as a significant regional forum for cooperation across a variety of issues, including trade, investment, energy and the environment.

In September 2006, Lao PDR, Thailand and Vietnam reached a series of cooperative trade and investment agreements in the context of the Tenth Joint Commission of Cooperation. This trend towards regional integration is set to continue with the Asian Development Bank intent on stimulating investment through the "Economic Corridors" initiative that will build transportation networks to connect the GMS countries (ADB, 2006).

9. Thailand-Australia Free Trade Agreement (TAFTA), in force January 1, 2005

The Thailand-Australia comprehensive free trade agreement entered into force on January 1, 2005, based on a Closer Economic Relations (CER) arrangement agreed to in 2002. This FTA represents Thailand's first trade agreement with an industrialized country and its first comprehensive FTA, covering trade in goods,

services, intellectual property and investment. It is Australia's second FTA with an ASEAN country (the first was Singapore). By 2010, 93 per cent of trade between Thailand and Australia is expected to be liberalized. There is provision to phase-out the remaining tariffs and tariff rate quotas to zero by 2015 or 2020.

Tariffs will be eliminated on nearly 3,000 products, accounting for almost 53 per cent of items. Australia reduced 83 tariff lines to zero effective on January 1, 2005, with gradual tariff elimination for other listed products to zero over the period 2010 to 2015. Thailand eliminated tariffs on 49 tariff lines in January 2005, covering 53 per cent of current Australian imports, with remaining tariffs phased-out gradually within 20 years. Under TAFTA, Thailand and Australia agreed to special safeguards on imports of sensitive goods and services, such as meat, pork, milk, tea and coffee for Thailand, and textiles and garments for Australia. The Agreement eliminated tariffs on 83 per cent of Thai exports and 80 per cent of Australian exports, and by 2010, 95 per cent of trade between Australia and Thailand is expected to be tariff free. Duties on all Thai agricultural products were eliminated, except for tuna, skipjack and bonito, which will be phased out by 2007 (BOI, 2006).

The Thai Ministry of Commerce states that TAFTA helped to boost bilateral trade to US$2 billion in the first four months of 2005, up 50.4 per cent over the same period in 2004 (MoC, 2006). A recent study led by Thammasat University (Rangsan Thanapornpan) claims that TAFTA has benefited only a small group of industries, adversely affecting the Thai agricultural sector (www.thaifta.com). The study states that Thailand had a trade surplus with Australia during 1998–2004. With the enforcement of the TAFTA in 2005, Thailand had a trade deficit with Australia of approximately US$87 million. Concern has been expressed specifically with respect to dairy and meat sectors. In 2005, imports of milk and dairy products from Australia increased by 57 per cent. Beef imports also increased due to the tariff reduction from 51 per cent to 40 per cent (Bangkok Post, 9 June 2006). Although the volume of Thai exports to Australia grew by 28.5 per cent in 2005 because of tariff reductions, Thai goods are considered to have become less competitive as Australia has expanded its preferential trade agreements with other countries. TAFTA also provides incentives to attract Australian foreign direct investment. Australian investors can now own up to 60 per cent in Thai SMEs in such sectors as telecommunications, computers, construction, education, distribution, tourism and mining.

10. Thailand-India Free Trade Agreement, Early Harvest in September 2004

The ASEAN-India FTA on trade in goods was scheduled to be finalized by June 30, 2005, with negotiations on services starting in 2005 and ending in 2007. Negotiations ground to a halt in June 2006 when India released its "negative list" of items to be excluded from tariff reductions—with 900 products, both industrial and agricultural, on the list. While India had reduced its initial negative list of 1,410 items, India's negotiating position has been based on trying to exclude commodities like rubber, pepper, tea, coffee and palm oil from the FTA. As of August 2006, India had further reduced its negative list to 560 items. The FTA was to enter into force on 1 January 2007.

An Early Harvest Scheme, part of a broader India-Thai FTA, took effect on September 1, 2004 and stimulated a 129 per cent increase in Thai exports (BOI, July 2005). The EH reduced tariffs on 82 agricultural and industrial products by 50 per cent including various fruits, wheat, sardines, salmon, mackerel and processed crab. It also covers other major Thai exports such as gems and jewellery, household electrical appliances, integrated circuits, furniture and auto parts. Tariffs on these items were eliminated on September 1, 2006. The EH will be fully effective in 2010.

11. Thailand-New Zealand Free Trade Agreement, in force July 1, 2005

The Thailand-New Zealand FTA came into effect on July 1, 2005, covering trade in goods, services and investment, based on a Closer Economic Partnership Agreement (CEPA) signed in April 2005. Thailand is not expected to get any significant gains in market access flowing from this agreement, given the already low tariff rates in New Zealand and its small market size.

Duties on 71 per cent of goods traded between these two partners are to be eliminated. New Zealand eliminated tariffs on most Thai imports immediately, specifically on 79 products, including light trucks, canned tuna, plastic, jewelry and precious stones, frozen shrimp, electrical appliances, glasses and glass tableware. Remaining tariffs will be reduced by 2010, except for garments, clothing, and shoes, which will be reduced by 2015.

Thailand eliminated tariffs on 54 items, including baby food, wood and wood products, fur, plastic, paper, machineries, sugar, vitamins, animal foods, vegetables and fruits. Ten per cent of all import tariffs will be eliminated by 2010. Thailand and New Zealand also agreed on special safeguards for economically sensitive goods and services, such as milk and dairy product, meat, pork, onions and seed vegetables. These safeguarded products will be liberalized from 2015 to 2020.

12. Japan-Thailand Economic Partnership Agreement (JTEPA), signed in April 2007[5]

In April 2002, Thailand and Japan agreed to set up working group on a Japan-Thailand Economic Partnership Agreement to promote cooperation in trade and investment and create a free trade agreement between the countries. In September 2005, a framework was agreed. On April 3, 2007, the JTEPA was concluded after three years of negotiations.

The agreement with Japan will have the largest impact on the Thai economy. JTEPA will remove tariffs on more than 90 per cent of trade between the two countries on over 7,000 products over the next 10 years (BOI, August 2005). Both sides will eliminate or reduce tariffs comprehensively on agricultural, forestry and fishery products, including steel, auto parts, luxury cars, agricultural goods and textiles (*ibid*). Both sides will also cooperate in the field of agriculture, forestry and fisheries, e.g., on food safety. Japan will eliminate 92 per cent of its tariffs on Thai imports—including most tariffs on agricultural, forestry and fishery products—within 10 years from the date of the entry into force of the JTEPA. Thai agricultural exports are projected to gain significantly, as well as textiles, shrimp and fruits for which tariffs will be eliminated immediately. Japan excluded the rice sector from the agreement. Thailand will remove tariffs on 97 per cent of Japanese goods over the next 10 years, including steel, automobiles and auto parts. JTEPA also sets out a cooperation framework on labour, technology and environment issues.

The Thai Ministry of Foreign Affairs commissioned the Thailand Development Research Institute (TDRI) to undertake a study on the potential impacts and opportunities of JTEPA on the Thai economy (TDRI, 2006a). The results were released in October 2006 and indicated that there would be no adverse impacts of the agreement. To the contrary, the study noted the potential for Thailand to benefit from the economic cooperation in the nine areas set out in the agreement (agriculture, forestry and fisheries; education and human-resource development; business environment; finance; information and communications technology; science, technology and energy environment; small and medium-sized enterprises (SMEs); tourism; and trade and investment promotion). The TDRI assessment also concludes that Japan's implementation of strict rules of origin requirements is likely to impede Thai exports (TDRI, 2006a). Using a restrictiveness index for preferential rules of origin, TDRI calculates that Japan is highly restrictive. This means that in order to benefit from preferential tariffs under JTEPA, Thai exports are required to be accompanied by a proof of origin. This is particularly acute for fisheries exports, for which 75 per cent of the fishing crew is required to be from ASEAN countries.

According to research conducted by the APEC Secretariat, tariff elimination pursuant to the JTEPA would contribute 2.43 per cent to Thailand's GDP (*Bangkok Post*, July 16, 2006). Based on the results of a Computable General Equilibrium model prepared for the Task Force Report of the Japanese Ministry of Foreign Affairs, JTEPA is predicted to contribute 20.09 per cent to real GDP growth in Thailand and increase exports by over 25 per cent (Kawasaki Report, 2003).

Japan is the second largest market for Thai exports after the U.S., the main source of FDI and a significant source of tourism (BOI, July 2006). Thailand serves as the base for the Japanese car industry. The proposed amendments to the Foreign Business Act are expected to impact Japanese investment in Thailand.

In terms of environment-related provisions, Chapter 13 of JTEPA sets out the details of Cooperation in the Field of Science, Technology, Energy and Environment, and establishes a Sub-Committee to deal with these issues. In Article 111 of Chapter 8 on Investment, Japan and Thailand recognize that "it is inappropriate to encourage investment by relaxing its environmental measures." In this respect, both parties "shall not waive or otherwise derogate from such environmental measures as an encouragement for investment activities in its Area."

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5 Information available at www.mfa.go.th/jtepa/en.

Fierce criticism surrounded the signing of the agreement due to concerns that it will allow an increase in Japanese exports of e-waste into Thailand. FTA Watch—a Thai non-governmental organization (NGO)—petitioned for a legal injunction to prevent the agreement from being finalized and sent a letter expressing its concern to the Japanese Prime Minister (FTA Watch, 2005). There was also criticism raised concerning the lack of transparency of the process and publicly available information on the agreement (*Bangkok Post*, April 2, 2007).

2.4.2 Trade agreements under negotiation

1. Thailand-United States Free Trade Agreement, framework agreement signed in October 2002, negotiations started in June 2004

Negotiations on a comprehensive Thailand-U.S. FTA started in June 2004, covering goods (including agriculture), investment, services, government procurement and intellectual property. The negotiations built on the U.S.-Singapore FTA model agreed to in 2003. The last round of talks took place in January 2006.

In October 2002, Thailand and the U.S. signed a trade and investment framework agreement (TIFA). This agreement was a precursor to a future FTA, which is expected to cover trade in goods and services, and investment, and includes a number of forms of economic cooperation in areas and sectors such as health, rules of origin, textiles, trade in services, financial services, banking services, telecommunication and government procurement. The current negotiations, which have been suspended, deal with agricultural products, industrial products, textiles and garments, trade-related aspects of intellectual property rights and services.

2. Thai-BIMSTEC Regional Agreement, Early Harvest in September 2004

Thailand signed a Memorandum of Understanding with the member countries of the Bay of Bengal Initiative for MultiSectoral Technical and Economic Cooperation (BIMSTEC, including Bangladesh, India, Myanmar, Sri Lanka, Thailand, Bhutan, Nepal) in March 2003 through which to set up a framework for an FTA. The FTA negotiations have been separated into two tracks: fast track and normal track, and neither track includes a negative list of sensitive items. Thailand and India plan to hold bilateral trade talks in 2007 to encourage progress in the FTA negotiations. Thailand would like to make progress on bilateral negotiations instead of focusing on the BIMSTEC Early Harvest agreement of September 2004 which covers 82 products (www.bimstec.org).

3. Thai-EFTA Regional Agreement, framework agreement signed in March 2004

In March 2004, Thailand agreed to negotiate an FTA with the European Free Trade Association (EFTA), which consists of Switzerland, Iceland, Norway and Liechtenstein. Two years later, there was a trade negotiation framework, covering agricultural and industrial products. Thailand's requests include liberalization in such items as frozen and processed chicken, sugar, and tapioca products, while EFTA's requests include lamps, cheese and horse meat.

4. ASEAN-ANZ Free Trade Agreement, under negotiation as of January 2007

On January 15, 2007, ASEAN agreed to expand an FTA with Australia and New Zealand addressing barriers to trade in goods, services and investment (ASEAN-ANZ FTA).

5. ASEAN-EU Free Trade Agreement, under negotiation as of April 2007

In April 2007, the EU approved negotiating mandates for trade agreements with ASEAN, India and Korea for comprehensive liberalization of trade in goods and services and investment. Other key goals will be to open up public procurement and reduce non-tariff barriers. Negotiations started in mid-2007. Research commissioned by the EU forecasts that the agreements could boost EU exports by more than EUR 40 billion annually, representing an increase of 0.13 per cent to GDP. It is also predicted that EU exports to ASEAN would grow by 24.2 per cent, to Korea by 47.8 per cent, and to India by 56.8 per cent, representing a 3.72 per cent rise in total EU exports. EU exports of business services are expected to increase by 29 per cent to ASEAN. Exports from ASEAN to the EU are forecast to rise by 18.5 per cent, India by 18.7 per cent and Korea by 36 per cent. These predictions are based on scenarios in which ASEAN and the EU would eliminate barriers to trade in nearly all goods, and 50 per cent of barriers to services (EC, 2007).

6. Thai-South Korea FTA, under negotiation as of June 2007

Thailand opted out of the ASEAN-South Korea FTA mainly due to lack of agreement over rice and fruits and vegetables, which are key Thai exports to Korea. In June 2007, negotiations towards a bilateral FTA resumed according to the Ministry of Foreign Affairs (*Bangkok Post*, June 5, 2007).

Generalized System of Preferences

Thailand benefits from trade preferences under the Generalized System of Preferences (GSP) schemes of 34 trading partners, with approximately 30 per cent of Thailand's merchandise exports receiving GSP treatment in 2006 (19 per cent in 2002). The majority of GSP exports go to the EU (33.9 per cent of the total), the U.S. (21.7 per cent) and Japan (20.2 per cent) (WTO, 2007).

In December 2006, the U.S. Congress approved an extension of the Generalized System of Preferences for Thai manufactured exports until 2008. The Office of the U.S. Trade Representative (USTR) downgraded Thailand to its Priority Watch List of countries following Thailand's compulsory licensing of certain HIV drugs. This action was taken despite the acknowledgement by the U.S. that compulsory licences are legal under WTO rules pursuant to the Doha Declaration on Public Health. Intellectual property protection is one of many criteria for GSP eligibility. Thailand is the second biggest user of GSP, with over 20 per cent of its total exports to the U.S. under GSP treatment.

Thailand's GSP privileges were reviewed by the U.S. Congress in mid 2007. Jewelry is the main export impacted by the loss of GSP status; the normal or MFN tariff rate of five per cent will now be applied to Thai jewelry exports instead of tariff-free treatment previously under the GSP. Thai export industries that currently benefit from GSP in the U.S. include garments, gems and jewelry, and seafood and food processing. A major U.S. Shrimp Association has called for eliminating Thailand's GSP privileges for shrimp (*Bangkok Post*, June 7, 2007) to protect against import surges. Thailand is the largest shrimp exporter to the U.S., comprising 42 per cent of Thailand's total shrimp exports. Thai shrimp exports are currently subject to anti-dumping duties imposed by the U.S. in 2005; Thailand subsequently challenged the duties at the WTO (ICTSD, 2006). In 2003, Thailand challenged the EU administration of a tariff quota for imports of canned tuna from Thailand at the WTO (Xuto, 2005).

Bilateral trade relations between the EU and Thailand are set in the framework of the EU GSP, which extends tariff preferences to approximately 74 per cent of Thai exports into the European market, including mainly motor vehicles and electronics, making Thailand one of the top recipients of the EU GSP regime (EU, 2007).

2.4.3 Summary

The following Table 9 is presented by way of summary of the trade agreements and preferences for Thailand set out above.

Table 9: Thailand's trade agreements and preferences, 2007

Trade agreement/ preference	Type of agreement	Entry into force	Fully effective	Membership
ASEAN	FTA	Joined in 67	2010	Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Vietnam
WTO	Multilateral trade agreement	Joined the GATT in 1982 and the WTO in 1995	1982	150 WTO Members

Trade agreement/ preference	Type of agreement	Entry into force	Fully effective	Membership
ASEAN Free Trade Area (AFTA)-China	AFTA Early Harvest Program	2015	2018	ASEAN members, China
AIA	ASEAN Investment Area Framework	2015	2015	Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Vietnam
Thailand-China	AFTA Early Harvest Program	January 2004	December 2006	Thailand, China
Thailand-Australia	FTA	January 1, 2005	2010	Thailand, Australia
Thailand-India	FTA – Early Harvest Scheme	September 1, 2004	To be negotiated	Thailand, India
Thailand-New Zealand	FTA	July 1,2005	2010–2020	Thailand, New Zealand
Japan-Thailand Economic Partnership Agreement (JTEPA)	FTA	Expected to enter into force in October 2007	2010	Thailand, Japan
Ayeywady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS)	Economic partnership agreement	2003	2010	Cambodia, Lao PDR, Myanmar, Thailand, Vietnam
Tenth Joint Commission of Cooperation	FTA	September 2006	N/A	Lao PDR, Thailand, Vietnam
Thailand-U.S.	Trade and Investment Framework Agreement TIFA	Negotiations started in June 2004, suspended	To be negotiated	Thailand, U.S.
Thailand-Bahrain	FTA	Early Harvest 2002	2010	Thailand, Bahrain
Thailand-BIMSTEC	FTA	Framework MOU in March 2003	To be negotiated	Bangladesh, India, Myanmar, Sri Lanka, Thailand, Bhutan, Nepal
Thailand-Peru	FTA	Early Harvest 2004	15–25 years from entry into force	Thailand, Peru
Thailand-EFTA	FTA	Negotiations started in March 2004	Not yet agreed	Thailand, Switzerland, Iceland, Norway, and Liechtenstein
Thailand-Korea	FTA	Under negotiation	Under negotiation	Thailand, South Korea
ASEAN-ANZ	FTA on goods, services and investment	Started negotiations January 15, 2007	To be negotiated	ASEAN, Australia, New Zealand
ASEAN-EU	FTA on goods, services and investment	Started negotiations April 2007	To be negotiated	ASEAN, EU

Trade agreement/ preference	Type of agreement	Entry into force	Fully effective	Membership
Various GSP schemes	Preferential treatment	Preferential access as set out in each GSP initiative	Preferential status for developing countries	34 countries extend GSP to Thailand, including the U.S. (since 1976) extended Dec 2006–Dec 2008; EU (since 1971), Japan (since 1971), Australia (since 1966), New Zealand (since 1972), Canada (since 1974), Norway (since 1971)

Source: Compiled by the authors as of August 2007.

2.5 Background on the current investment context in Thailand

Foreign direct investment in Thailand has been a key driver of export-led industrialization in Thailand. One main goal of investment is to sustain a more knowledge-based economy, as Thailand's *Tenth National Economic and Social Development Plan* emphasizes. Thailand is considered to have a relatively open foreign investment regime. However, foreigners are not permitted to invest in various sectors for cultural or national security reasons, such as telecommunications (newspapers, radio and television), upland and lowland farming, forestry and fisheries (BOI). In 1998, Thailand undertook reforms to partially open several sectors, such as banking, energy and telecommunications to foreign investment (Kohpaiboon, 2003). The government has large infrastructure development projects planned for 2007, including a large-scale transport system and urban transit project, which will require significant investment (World Bank, 2007).

The ASEAN Investment Area described above will promote flows of FDI from both ASEAN and non-ASEAN sources into Thailand by streamlining investment procedures, enhancing transparency, and reducing investment regulations and conditions. The AIA provides for opening all industries to foreign investment and phasing out exclusions. The AIA provides for the removal of restrictions or controls through granting National Treatment and Most-favoured Nation treatment to ASEAN investors by 2010 for Thailand, with potential extension to non-ASEAN investors by 2020. The National Treatment provisions extend to pre-establishment treatment—something not granted to most of the parties to Thailand's existing partners under bilateral investment treaties (BITs). In other words, ASEAN investors (other than those in sectors specifically listed by Thailand as exceptions) by 2010 will have free rights to establish investments no different than rights accorded to domestic investors. This is a major difference from post-establishment national treatment, which simply says *after* an investment has entered Thailand it will be accorded equal treatment. The AIA does not, however, establish an investor-state dispute resolution mechanism—a feature that exists in most of the other bilateral investment treaties to which Thailand is a party—nor does it offer explicit protection against expropriation.

The research undertaken for this project highlights the following issues:

- the *World Investment Report* notes that FDI into Thailand reached US$3.7 billion in 2005, ranking Thailand as fourth in Southeast Asia after Singapore, Malaysia and Indonesia (UNCTAD, 2006b);
- FDI has been a major driver of the growth of the manufacturing sector in Thailand, with Japan as the largest source of investment (BOI, 2007); and
- U.S. investors receive preferential treatment under a 1966 Treaty exempting U.S. investors from most FDI restrictions. The 1966 *Treaty of Amity and Economic Relations Between the United States and Thailand* provides national treatment to each other's investors in the establishment, acquisition, and the right to do business, except in some major services sectors. Thailand requested a MFN exemption under General Agreement on Trade in Services (GATS) to continue granting national treatment

under this bilateral treaty based on the fact that non-U.S. foreign investors are also able to benefit from fewer FDI restrictions on establishment in Thailand by applying to the Board of Investment for investment promotion measures (BOI, 2006).

The Board of Investment in cooperation with the National Committee on Environment Protection revised the conditions to promote investment in environmental conservation in Thailand. Environmental protection scheme privileges include exemption from import duties on machinery and equipment, and a three-year maximum corporate income tax deduction for a proportion of capital expenditures on environmental protection (BOI, July 2005).

2.5.1 Investment barriers: amendment to the Foreign Business Act

Investor confidence in Thailand has been impacted recently due to security uncertainties, apprehension regarding the Central Bank's capital controls on foreign investment inflows and the amendments to the Foreign Business Act (FBA). Challenges lie ahead if Thailand is to resolve the crisis of confidence affecting investment following the proposed amendments to the FBA in early 2007.

Under the proposed reform of the FBA, foreign businesses in violation of the 49.99 per cent shareholding limit must report their structures within 90 days and will have one year to review capital structures. Voting rights will also be used to help define foreign companies. If a company holds a majority of foreign voting rights, they have one year to restructure ownership; firms operating under List 3 of the FBA—covering mainly service industries and all types of retail and wholesale trade—will be exempt under a grandfather clause. Other companies in violation of the voting limit and operating under List 1 (including media, rice/animal farming, forestry and national security-related sectors) and List 2 (including transport, culture, mining and national security-related sectors) are required to reduce their voting rights to a minority within two years. Companies can seek exemptions to hold majority shareholdings through petition to the Ministry of Commerce. The National Legislative Assembly is currently reviewing the amendments to the FBA (BOI, 2007; Auansakul, 2007).

Section 3: Expected Economic Impacts

The methodology for selecting the economic sectors to be included in the assessment takes into account the main exports and imports of Thailand, as well as the fastest growing export sectors and top sectors for FDI (see Annex II on the methodology). In addition, potential environmental impacts of different sectors were assessed to identify those sectors that are likely to have greatest adverse impacts or potential for "green" exports. The structured process of selecting the sectors for analysis was augmented by qualitative methods that take into account government and non-governmental expert opinion—provided in this case by the Expert Advisory Panel as well as a through broad ranging stakeholder interviews and a literature review. This is an important flexibility, allowing the RTEA to ensure that it is considering all of the sectors that are likely to raise environmental concerns or show potential for green growth.

This methodology resulted in the inclusion of the following sectors (see Annex III for details on the selection of sectors):

- electrical machinery and equipment HS 85
- non-electrical machinery and parts HS 84
- automotive vehicles and parts HS 87
- organic chemicals HS 29
- mineral fuels and oils HS 27
- rubber and articles HS 40
- plastics and articles HS 39
- textiles HS 61 – 65
- fish and fish preparations HS 03 & 16
- vegetables and fruits HS 07 & 08

3.1 Emerging economic scenarios

This section builds possible economic scenarios based on the current and planned trade and investment liberalization commitments of Thailand in the agreements set out in Section 2. It also brings together the recent literature on development in Thailand. There is a large body of academic literature on the impacts of trade and investment liberalization on the Thai economy, but analysis of the concomitant impacts on the environment is only beginning to emerge.

The expected economic scenarios developed in this section are based on the potential to increase exports in light of facilitated market access in the main export markets of Thailand. This potential is based on a pragmatic examination of the scope and extent of tariff reductions and preferential treatment for the export sectors covered by the analysis. Annex V sets out the main tariff reductions for the 10 sectors included in this Report. There is also an attempt to include the potential impacts of imports and trade diversion in building the economic scenarios. While gaining access to export market is important, it needs to be emphasized that a host of non-tariff barriers to trade and rules of origin are capable of eroding even the most favourable treatment extended to Thailand by its main trading partners (UNCTAD, 2006a). There is also the issue of the actual utilization of tariff preferences and the potential for preference erosion to threaten market share. Political considerations also come into play in maintaining secure trading relations, such as exemplified by suspension in October 2006 of the U.S.-Thailand FTA negotiations.

This assessment is intended to be indicative and qualitative. The purpose is to provide some initial broad strokes to paint a picture of the expected economic impacts and, in turn, the potential environmental impacts of liberalization commitments. Given the on-going negotiations and phased-in implementation of commitments in individual sectors, it will be necessary to re-assess the actual economic and consequent environmental impacts to determine the nature and extent of the linkages. It is useful, at this juncture, to recall that there is vociferous debate over whether the increase in FTAs will be able to meet the expectations of contributing substantial gains to global trade with minimal trade diversion effects. Moreover, there are important mitigating factors when it comes to the potential environmental impacts. The response of environmental management to changes in the structure of the Thai economy stimulated by export opportunities is a key factor—both positively and negatively.

This assessment benefits from three econometric modelling exercises and one empirical analysis undertaken by independent Thai research institutes to estimate the results of trade liberalization in Thailand's bilateral and regional trade agreements:

- The most comprehensive project was carried out using a Global Trade Analysis Project (GTAP) model by the Faculty of Economics at Chulalongkorn University in 2002 and encompasses all the trade agreements included in this Report (Mallikamas, 2002).[6]
- Three studies were prepared by the Thailand Development Research Institute. Two use the TDRI computable general equilibrium (CGE) model for the Thailand-Japan FTA in 2006 and the Thailand-U.S. FTA in 2003 (TDRI, 2006b and 2003). The third examined the potential and actual impacts of Thailand's agreements with Japan (JTEPA), China, Australia, New Zealand and India, particularly for the automotive and textiles and clothing sectors, which benefit from significant tariff preferences under most of the FTAs (TDRI, 2006a). This study analyzed the rates of utilization of tariff preferences under the three agreements which had already been implemented in 2005, i.e., with Australia, China and India.

These quantitative modelling exercises illustrate full liberalization in all sectors under negotiation; the actual agreements are not as comprehensive and the tariff cuts not necessarily as deep. Notwithstanding these imperfections and data limitations, these inputs help to illustrate the general direction of the potential impacts from liberalization.

Further research and analysis is needed to illuminate the impacts of trade and investment liberalization on the GMS economies in general and specifically the Thai economy. Modelling of specific trade agreements will serve to better enable Thailand to understand the possible impacts flowing from trade agreements (Strut and Lim, 2005).

With the above considerations in mind, the following section outlines select expected economic scenarios for Thailand flowing from the trade and investment agreements described above. These scenarios are constructed for each sector identified by the RTEA methodology. Market access facilitated through the trade agreements and preferences is considered to be a key determinant of export opportunity.

1. Electrical machinery and equipment

The electrical and electronics equipment sector has expanded dramatically over the past decade and has been among the main sectors contributing to export-led growth in Thailand. SMEs are the main manufacturers of EEE components or producing low-technology EEE products (Charit and Jantarasarsophon, 2007).

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6 This exercise takes into account six effects: (1) *trade effect* – FTA tariff reduction will increase export demand; (2) *cost effect* – domestic tariff reduction will reduce the cost and price of domestic goods and stimulate higher demand and output; (3) *activity effect* – upward and downward linkages with expanding or lower cost sectors will benefit from the FTA; (4) *substitution effect* – reductions in domestic tariffs will lead to an increase in imports, replacing domestic production; (5) *extra competition effect* – tariff cuts in FTA partners will increase export competitiveness of those countries, with an adverse effect on domestic exports and outputs; and (6) *structural effect* – outputs of certain sectors may decline due to resources shifting to other more competitive sectors resulting from FTA opportunities (Mallikamas, 2002).

The main export market for Thai EEE products are ASEAN countries, representing 16.5 per cent of total exports in 2006 (www.thaieei.com). As a result, AFTA is expected to increase exports in this sector, as well as increase imports of lower-cost electrical parts for assembly in Thailand. The Sectoral Mutual Recognition Agreement (MRA) for Electrical and Electronic Equipment, endorsed by ASEAN in 2006, is likely to stimulate regional trade in this sector.

JTEPA is expected to increase investment flows for the electrical machinery and electronics sector. Moreover, JTEPA will likely result in increased imports of Japanese industrial goods to Thailand, particularly electronic parts. It is forecast that these industrial imports would be used in the manufacturing sector which, in turn, would improve production capability and the quality of products manufactured in Thailand, resulting in export gains. While tariffs reductions on steel imports from Japan may impact negatively on local Thai steel manufacturers, reductions would entail cheaper steel inputs for the electrical appliances sectors.

The Thailand-India EH scheme has already resulted in a growth in exports of electrical and electronics parts, which increased to US$59 million compared to US$11 million for the same period in 2005 compared with 2004 (BOI, 2006). Foreign investors in Thailand have benefited from increased exports, as they are heavily invested in this sector.

The Thailand-New Zealand FTA eliminated tariffs in July 2005, which creates market opportunities for exports of Thai electrical appliances. The Thailand-Australia FTA is expected to increase export potential for selected electrical and electronic equipment included for immediate tariff elimination in 2005.

2. Non-electrical machinery and parts

Increased investment flows are anticipated as a result of ASEAN and JTEPA, including for non-electrical machinery. As noted above for the electrical sector, JTEPA would likely result in increased imports of Japanese industrial goods to Thailand, including non-electrical parts, which would enhance competitiveness in the sector.

AFTA tariff reductions are expected to increase Thai exports of non-electrical machinery. The Thailand-India EH agreement is expected to increase exports of non-electrical machinery to India. The Thailand-New Zealand FTA eliminated tariffs in July 2005, which creates market opportunities for exports of Thai non-electrical machinery. The Thailand-Australia FTA is expected to increase export potential for selected non-electrical machinery included for immediate tariff elimination in 2005.

3. Automotive vehicles and parts

Thailand has been transformed into the Detroit of Asia and the hub of automotive vehicles and parts manufacturing in ASEAN (Adis, 2007). As a result, ASEAN CEPT and the progression towards AFTA are likely to increase Thailand's exports of automotive vehicles and parts in the region. The AIA is expected to increase investment opportunities in Thailand in this sector.

The Thai auto-industry is projected to gain from investment incentives agreed in JTEPA. Technical training of auto industry employees will be enhanced. The JTEPA increases the likelihood that Thailand may be a hub of production for the energy saving cars for which demand is expected to increase significantly. JTEPA will likely result in increased imports of Japanese industrial goods to Thailand, including auto parts. It is forecast that these industrial imports would be used in the manufacturing sector, which in turn would improve production capability and the quality of products manufactured in Thailand, resulting in export gains. The tariff negotiations to open up the Thai steel sector would impact on investment in the auto industry as a whole. While tariffs reductions on steel imports from Japan may impact negatively on local Thai steel manufacturers, reductions would entail cheaper steel inputs for the auto parts, construction and electrical appliances sectors. It is hoped that the net result would be to increase the competitiveness of the Thai steel sector and force local steel manufacturers to change their manufacturing processes to improve the quality of domestically produced steel.

Partly due to the fact that automotive parts have been competitively produced in Thailand since the mid-1990s, this sector is already deemed to have benefited considerably from the Thailand-Australia FTA

(TDRI, 2006b). The Board of Investment notes that in the first four months after the Thailand-Australia FTA took effect on January 1, 2005, eliminating Australia's five per cent import tariff on autos and parts, Thailand's exports of autos and auto parts to Australia surged by 55 per cent to US$400 million (BOI, July 2005). This benefited foreign investors who have significant investments in Thailand's auto industry.

The Thailand-India EH tariff elimination, which came into effect in September 2006, is expected to increase exports of auto parts to India. The Thailand-Peru EH is also expected to increase exports of automotive parts. A potential U.S.-Thailand FTA would be complementary in the spare parts industries. Thai automobile assemblers and manufacturers of auto parts are likely to expand their exports to the U.S. resulting from tariff reductions. Thailand is also expected to be able to attract increased U.S. investment in the automotive sector.

4. Organic chemicals

Increased investment flows are anticipated as a result of AFTA and JTEPA, including for organic chemicals, as well as create opportunities for increased exports of organic chemicals. Tariffs in the Thailand-Australia and Thailand-New Zealand FTAs are low and scheduled to be phased-out by 2008 for Thai exports of organic chemicals. The Thailand-India EH tariff elimination, which came into effect in September 2006, is expected to increase exports of organic chemicals to India.

5. Mineral fuels and oils

Thailand imports mineral fuels and oils (petroleum) to be refined into a finished product for export predominantly to countries in the region. Tariffs have been phased-out for Thai imports of mineral fuels and oils under the Thailand-Australia and Thailand-New Zealand FTAs. Other than some lubricating oils for the automotive sector, tariffs were eliminated in this sector under AFTA and the ASEAN-China FTA. The Thailand-India EH tariff elimination reduced tariffs by 50 per cent for mineral fuels and oils in September 2006. JTEPA significantly reduces or eliminates tariffs in this sector.

6. Rubber and articles

Rubber is a long-standing cash crop of primary importance in Southern Thailand, with most rubber plantations grown on smallholdings. Thailand remains among the world's largest suppliers of natural rubber (World Bank, 2007). Over the past decade, world rubber prices have consistently declined. To remain competitive and economically viability, the government has initiated programs to replace older rubber trees and provided incentives for smallholder rubber production. While rubber grows better on poor soils than do many cash crops such as sugarcane and maize, rubber entails high establishment costs, which makes it a difficult crop for smallholders. Rubber trees need five to six years before they can be tapped and require replanting every 25–30 years (Adis, 2007).

AFTA has significantly reduced tariffs in this sector. Flowing from the Thailand-China EH and the ASEAN-China FTA, exports of rubber are likely to increase significantly to take advantage of reductions in China's high tariff rates. Thailand is likely to increase rubber exports to India resulting from the elimination of India's high tariffs in this sector. Tariffs have been eliminated or will be phased-out by 2008 or 2010 for rubber products in the Thailand-Australia and Thailand-New Zealand FTAs.

7. Plastics and articles

Thailand is the main plastics producer in ASEAN and has risen significantly to meet the domestic demand for plastic inputs for key industrial export sectors, such as the automotive vehicles and parts, and food. The Thai plastics industry produces a wide range of products, such as packaging materials for the food industry, parts and components for industrial application and consumer goods. Packaging is the largest sub-sector of the industry, including plastic beverage containers and containers for household products. The industry is dominated by over 5,000 mainly SME manufacturers producing the plastic parts and components used in key industrial sectors. For example, the Thai Plastics Industry Association estimates that 100 per cent of plastic motorcycle parts, 70–80 per cent of plastic auto parts and 90 per cent of plastic packaging is produced locally (www.tpia.org; BOI, July 2005).

AFTA has significantly reduced tariffs in the plastics sector. Tariffs have been eliminated or will be phased-out by 2008 or 2010 in this sector in the Thailand-Australia and Thailand-New Zealand FTAs. Thailand is likely to increase plastics exports to India resulting from the elimination of India's high tariffs in this sector. The Thailand-Bahrain EH FTA is expected to increase market opportunities for Thai exports of plastics.

8. Textiles

Under the WTO Agreement on Textiles and Clothing (ATC), Thai exports of textiles and clothing were restricted by quotas imposed by four major trading partners: the EU, U.S., Canada and Norway (WTO, 2003). The Ministry of Commerce considers that since the elimination of ATC quotas in January 2005, Thailand has faced increased competition in the garment sector from countries with lower labour costs, such as China, Indonesia and Vietnam, in its major markets, e.g., the U.S., EU and Canada. However, many of Thailand's ATC quotas in these main markets were under-utilized, which suggests that it is taking advantage of preferential agreements with other trading partners, such as Japan, or that this sector is not competitive (WTO, 2003).

The Thailand-India FTA is expected to lower Thailand's domestic market competitiveness in the textiles sector relative to China and India. Nevertheless, AFTA is expected to benefit the Thai textiles sector through an expansion into less-developed ASEAN countries, such as Vietnam and Cambodia (TDRI, 2006a).

While increased investment in the textiles manufacturing sector was expected from the Thailand-Australia FTA given Thailand's relative advantage in labour intensive goods, a recent TDRI study notes that "TAFTA has not produced significant advantages for Thai textiles and apparel producers as expected" (TDRI, 2006a). The study attributes this to Australia's unilateral tariff reductions, which "significantly reduces the tariff preferences enjoyed by Thai exporters under TAFTA" (*ibid*). The Thailand-New Zealand FTA has significantly reduced or eliminated tariffs in the textiles sector. Flowing from JTEPA, exports of textiles are expected to increase to take advantage of reductions in current high tariff rates in those markets.

9. Fisheries

Thailand's fisheries sector constitutes an important source of export earnings, livelihoods and domestic food supply. The country ranks second among the world's leading fish exporting nations after China. Thailand is also one of the world's largest importers of fish, primarily in the form of low-value fish for processing and re-export to China, Japan, Singapore and the U.S. The expansion in fishing efforts and aquaculture production has been fuelled by significant export interests. In line with increased catches and aquaculture output, production volumes of different commodities (i.e., fresh, frozen, canned, dried and salted fish) have increased more or less steadily since the mid-1970s (Baumüller, 2007).

While Thailand is a world leader in aquaculture with increased sales over the past 15 years, the prospects for continued growth in this sector are hampered by non-tariff barriers to trade, such as rules of origin, sanitary and phytosanitary requirements, labelling and certification. Notwithstanding strict sanitary and phytosanitary (SPS) requirements in major markets, fisheries exports in general, specifically shrimps are likely to rise as a result of trade agreements with Australia, New Zealand as well as the U.S. and the EU in the future. Import tariffs were largely eliminated under the Thailand-Australia and Thailand-New Zealand FTAs for fisheries products. Under AFTA, countries are scheduled to phase-out tariffs for fisheries products by 2010.

Through JTEPA, Japan will eliminate tariffs on the date of entry into force for prepared, preserved and frozen shrimp products, with tariffs to be eliminated in five years for fish fillets and prepared, preserved tuna, skipjack, other bonito and crab. In five years, Thailand has committed to eliminate import tariffs on yellowfin and skipjack tuna and sardines from Japan, which is expected to benefit the fish processing industry through cheaper raw material inputs. Import tariffs will be eliminated immediately for herring and cod from Japan (Bangkok Post, 17 July 2006).

The Thailand-India EH eliminated tariffs in September 2006 on sardines, salmon, mackerel and processed crab, which creates market access opportunities for fisheries exports to India.

Aquaculture production is likely to increase in response to new export opportunities. Shrimp farming in particular is likely to increase given the high economic returns and strong demand. Similarly larger fish catches (e.g., through high seas fishing), increased aquaculture production (and the associated demand for feed) and increased imports of fish for re-processing (e.g., due to lower tariffs) would provide additional input into the fish processing industry.

The Thailand-New Zealand FTA eliminated tariffs in July 2005, which creates market opportunities for Thai fisheries exports, particularly frozen shrimp.

As recommended in the background research paper prepared for this report, increased export opportunities for "green" products might provide an incentive for sustainable production as demand for certified seafood products continues to increase. The aquaculture sector, notably sustainably farmed shrimp where demand is expected to grow rapidly, might provide the most promising opportunities in the short term. Several certification schemes already exist that could be explored. To make certification viable and attractive for producers, the economic returns from sustainable shrimp farms will need to be sufficiently high to recover additional expenses for compliance with the standards.

10. Vegetables and fruits

Thailand is a leader in fruit and vegetable production with a long history of exporting fresh and canned agricultural products. As a direct result, a Thai Quality Management System has been developed since 2001 to ensure safety and quality control of food, particularly fresh fruit and vegetables. The Thai system is based on the concept of Hazard Analysis and Critical Control Point (HACCP) and ISO to ensure quality control throughout the production cycle (Adis, 2007).

The Thailand-China EH agreement is widely held responsible for the large influx of fruit and vegetable imports from China into Thailand following the removal of tariffs on 188 types of fruits and vegetables (HS 07 and HS08) in October 2003 (Zamroni, 2006; FTA Watch, 2005). Tariffs have been eliminated for Thai exports of fruits and vegetables in the Thailand-Australia and Thailand-New Zealand FTAs. The Thailand-India EH agreement reduced tariffs by 50 per cent in September 2006 on various fruits, which creates market access opportunities to increase exports to India. AFTA has significantly reduced tariffs for fruits and vegetables.

As a result of JTEPA, Japan is scheduled to eliminate tariffs on the entry into force for mangoes, mangosteens, durians, papayas, rambutans, okra and coconut. Mixed fruit, fruit salad and fruit cocktail preservations will benefit from immediate tariff elimination. Bananas and pineapples will be duty free but subject to a tariff rate quota. Tariffs will be eliminated within five to ten years for fresh and frozen vegetables. Thailand has agreed to eliminate import tariffs on entry into force of JTEPA for apples, pears and peaches (BOI, July 2006).

The sanitary and phytosanitary (SPS) requirements for fruits and vegetables in Thailand's main export markets are increasingly stringent and are acting as significant non-tariff barriers to trade, particularly in the processed food sector (ESCAP, 2006). To address these issues in JTEPA, Japan and Thailand have agreed to establish a special Sub-Committee on Food Safety with the participation of relevant government agencies to facilitate mutually acceptable solutions, and strengthen quality control, inspection and certification system, and the application of risk analysis.

Meeting stringent Japanese food safety standards will raise the value of Thai product and the quality of produce exported to Japan. The Thai Ministry of Agricultural Cooperatives certification of Good Agricultural Practices (GAP) is a useful way to ensure quality of agricultural exports and take advantage of market openings in Japan for Thai fruit and vegetable produce, although its usefulness is contingent on acceptance by the importing country.

3.2 Summary

The trade and investment-induced economic impact scenarios are summarized in Table 10.

Table 10: Trade and investment-induced economic scenarios for Thailand

Sector	Current or planned trade agreement	Expected economic scenario resulting from increased market access for exports from Lao PDR
Electrical machinery and equipment	+v: ASEAN, AIA, JTEPA; Thai-New Zealand FTA; Thai-India EH	+ve: incentive to take advantage of tariff reductions and FDI liberalization; cheaper inputs from Japan
Non-electrical machinery and parts	+ve: ASEAN, AIA, JTEPA; Thai-Australia FTA; Thai-India EH	+ve: incentive to take advantage of tariff reductions and FDI; cheaper inputs from Japan; –ve: liberalization
Automotive vehicles and parts	+ve: ASEAN, AIA, JTEPA, Thai-India EH; possible U.S.-Thai FTA (auto assembles, parts manufacturers, U.S. FDI in the assembling and parts suppliers); Thai-Peru EH; EU GSP -ve: ASEAN-China	+ve: incentive to take advantage of tariff reductions in the U.S.; increased U.S. FDI; requirement to meet ISO 9000; cheaper inputs from Japan; -ve: need to remain competitive with China; need to meet high safety and environmental standards in U.S.
Organic chemicals	+ve: AFTA; Thai-India EH; ASEAN-China FTA; JTEPA; Thai-Australia FTA; Thai-New Zealand FTA	+ve: incentive to take advantage of tariff reductions and FDI liberalization
Mineral fuels and oils (petroleum)	+ve: ACMECS, ASEAN	+ve: incentive to take advantage of tariff reductions and FDI liberalization
Rubber and articles	+ve: Thai-China EH, ASEAN-China FTA, Thai-India FTA; EU GSP	+ve: incentive to take advantage of reduction in previously high tariffs in India, China
Plastics and articles	+ve: Thai-India EH; ASEAN-China FTA; Thai-Australia FTA; Thai-New Zealand FTA; JTEPA; Thai-Bahrain; EU GSP; U.S. GSP	+ve: incentive to take advantage of reductions in previously high tariffs in India
Textiles	+ve: Thai-Australia FTA; Thai-New Zealand FTA; JTEPA, U.S. GSP, Thai-Korea FTA; EU GSP; Japan GSP -ve: ASEAN-China FTA; Thai-India FTA	+ve: incentive to take advantage of tariff reductions -ve: competition from India and China; quotas under the WTO Agreement on Textiles and Clothing
Fisheries	+ve: JTEPA; Thai-New Zealand FTA (frozen shrimp); Thai-Australia FTA; Thai-India EH; EU GSP; U.S. GSP -ve: JTEPA (quality and SPS requirements)	+ve: incentive to take advantage of tariff reductions, elimination of SPS NTBs; cheaper fish inputs from Japan -ve: rigid SPS requirements in main export markets; strict non-tariff measures, such rules of origin and SPS in Japan
Fruits and vegetables	+ve: JTEPA, possible U.S.-Thai FTA; Thai-New Zealand; Thai-India EH; EU GSP; Japan GSP -ve: Thai-China EH, ASEAN-China	+ve: incentive to take advantage of tariff reductions; reduction in Japan's SPS NTBs likely to stimulate Thai exports -ve: SPS requirements in main export markets; Chinese imports of vegetable and fruit are likely to increase given high Thai tariffs

Source: Compiled by the authors based on an assessment of the tariff schedules and investment provisions of individual FTAs and GSP preferences (see Annex V), as well as various issues of the BOI Thai Investment Review; MoC (2007); TDRI (2003); and Mallikamas (2002).

While there are likely to be potential gains for Thailand from export opportunities arising from the implementation of liberalization commitments with trading partners, there may also be costs, including decreases in revenue from tariffs. Notwithstanding Thailand's tariff reforms since 1995 and the reduction in the average applied tariffs, tariffs remain high in Thailand compared to other developing countries; Thai MFN applied tariffs are still one of the highest in Asia for agricultural products (TDRI, 2003:43). The country will also face increased competition from its FTA partners in the form of imports in certain sectors (e.g., autos and auto parts, fertilizer and pesticides, processed food). The current analysis does not take into account the consequences of increased competition from imports as fully as would be worthwhile in a subsequent assessment.

Flowing from the establishment of the current and planned trade and investment liberalization initiatives described in this section, there is likely to be an increase in exports from trade liberalization in all the sectors studies in this assessment. There is also likely to be enhanced incentives for FDI flows into Thailand, notwithstanding the current political climate of instability. However, several recent reports emphasize that

Thailand will have to increase its competitiveness in these sectors in order to compete in its traditional and emerging markets, such as AFTA and the U.S. (EIU, 2007; World Bank, 2006). With the likely increase in trade flowing from a potential U.S. FTA, Thailand will also face mounting challenges of meeting U.S. demands to increase protection on intellectual property rights (IPRs) and to restrict the use of compulsory licensing requirements for pharmaceutical drugs in Thailand.

With its long and porous border with three Mekong Subregion countries, with significant rural populations settled along the borders, it is not surprising that Thailand continues to have an informal trade sector. This informal trade is centered on Thai exports of consumer goods, electrical equipment, automotive vehicles and agricultural products to neighbouring countries, which cross the border without inspection.

With these economic impact scenarios completed, the next section will assess the potential environmental impacts of the predictions on whether trade is expected to increase or decrease as a result of liberalization initiatives.

Section 4: Expected Environmental Impacts

4.1 Policy and institutional framework

In order to assess the expected environmental impacts of the trade liberalization scenarios, it is essential to discuss the current policies and regulations in Thailand which may help reduce or mitigate potential environmental impacts; and the institutional capacity of Thailand to deal with trade and environment issues. In general, the literature on the policy interplay between trade and environment emphasizes the importance of the domestic environmental framework and institutional capacity to manage trade-induced change in the natural resource base (Kaosa-ard and Wijukprasert, 2000). The legislation needs to be in place and, importantly, implemented. Empirical evidence to date confirms that the rigour of implementation acts to mitigate environmental harm and accentuate environmental benefit (UNEP, 2003).

Since 1981, environmental impact assessments (EIA) have been undertaken in Thailand as a tool for planning and management of development projects. EIAs have been extensively used to identify impacts of projects and establish appropriate mitigation measures (ONEP, 1998).

In 1992, Thailand enacted several key environment and health-related laws, including a comprehensive *Enhancement and Conservation of National Environmental Quality Act, Factory Act, Public Health Act, Energy Conservation and Promotion Act* and the *Wild Animal Preservation and Protection Act* (see also Table 11). It is no coincidence that these laws were put in place in the same year as the UN Conference on Environment and Development—the Rio Earth Summit—was held to develop the concept of sustainable development at the international level.

The *National Environmental Quality Act* (NEQA) introduced watershed changes to the structure of local environmental policy-making in Thailand; it tightened pollution standards, supported NGO initiatives and provided greater political recourse to people adversely impacted by environmental degradation (Hunsaker, 1998). The NEQA created a national centre for environmental policy—the National Environment Board, chaired by the prime minister, with a National Environmental Fund dedicated to developing local waste water treatment, solid waste disposal and air pollution abatement facilities. Indicating the extent of policy integration, decisions of this Board are made by permanent secretaries of the environment, agriculture and industry ministries, as well as the National Economic and Social Development Board (NESDB).

The Ministry of Natural Resources and the Environment (MONRE) was established in 2002 to integrate natural resource conservation and management for water, fisheries, agriculture, forestry, minerals and biodiversity, as well as control of air and water pollution and solid and hazardous waste. The main operational body of MONRE—the Office of Natural Resources and Environment Policy and Planning (ONEP)—develops environmental policies and plans.

It is evident from the wealth of government policies and regulations (mainly command and control) that Thailand has in place a solid framework for environmental and resource management (see www.pcd.go.th). Yet, the empirical evidence and academic literature illustrates that environmental management in Thailand is largely segmented according to specific resources, which has led to a lack of unity and direction in policy formulation and, importantly, implementation (UNDP, 2007; UNEP, 2003; ICEM, 2003; Kaosa-ard and Wijukprasert, 2000).

Thailand is a party to the main multilateral environmental agreements (MEAs), including the Convention on Biological Diversity, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the UN Framework Convention on Climate Change (Kyoto Protocol); the UN Convention to Combat Desertification; the UN Convention on the Law of the Sea; the Montreal Protocol for the Protection of the Ozone Layer; the Cartagena Protocol on Biosafety; the Basel Convention on the Transboundary Movement of Hazardous Wastes; the International Plant Protection Convention; the

Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade; and the Stockholm Convention on Persistent Organic Pollutants. Implementation of these MEAs provides an institutional framework to ensure that trade liberalization in specific areas takes into consideration environmental protection. For example, pursuant to the Basel Convention and CITES, Thailand prohibits the import and export of certain goods—hazardous chemicals, waste and endangered species—based on environmental considerations.

Table 11: Key environmental and socio-economic laws and regulations, Thailand

Year	Environmental policy, law or agency	Objective, function
1961	National Park Act	Defines land that is a national park and not allowed for cultivation. Promotes rehabilitation of degraded forests using native species
1961	First National Economic and Social Development Plan	Provides a framework for development
1981	Environmental Impact Assessment	Requirement to undertake an environmental assessment of development projects
1989	Ban on export of raw logs	To address deforestation and increase value addition in the wood processing industry
1992	Enhancement and Conservation of National Environmental Quality Act	Comprehensive national framework for environmental protection
1992	Factory Act	Controls factory operations regarding waste disposal, pollution emissions and contamination to minimize environmental impacts
1992	Hazardous Substances Act	Provides for handling, storage, transport and disposal of hazardous waste
1992	Wild Animal Preservation and Protection Act	Provides for species protection and establishes wildlife sanctuaries
1992	Public Health Act	Comprehensive national framework for public and occupational health
1992	Reforestation Act	Describes the types of land on which forest plantations may be registered and established. Supports reforestation of restricted tree species such as teak by the private sector on private land
1992	Navigation in Thai Waterways Act (amended)	Prohibits dumping of any refuse including oil and chemicals into rivers, canals, swamps, reservoirs, lakes or waterways that may pollute the environment
1992	Energy Conservation Promotion Act	To promote energy conservation
1997	Plan for Enhancement and Conservation of National Environmental Quality (1997–2018)	To integrate natural resources management and enhancement and conservation of national environmental quality with sustainable economic and social development and ensure quality of life
1997	Eighth National Economic and Social Development Plan (1999–2001)	Incorporates the concept of "people-centered development"
2002	Ministry of Natural Resources and Environment established	Ministry to integrate natural resource conservation and management and environmental quality
2002	Ninth Economic and Social Development Plan (2002–2006)	Built on the framework of integrating a balance between economic, social and environment through the concept of "sufficiency economy"
2007	Environmental Quality Management Plan (2007–2011)	Sets out conceptual guidelines for national natural resource and environmental management based on the concept of sufficiency economy
2007	Tenth National Economic and Social Development Plan (2007–2011)	Addresses the current development challenges, opportunities and constraints by further developing the sufficiency economy concept
2007	Draft Hazardous Waste Management Act	To promote management of electronic and electrical equipment waste

Source: Compiled by the authors as of August 2007.

To summarize, Thailand has put in place a comprehensive institutional and regulatory framework through which to promulgate sustainable resource management and environmental protection. As Kaosa-ard and Wijukprasert aptly note, "environmental problems are not simply the outcome of economic growth … they are due to a lack of proper institutional framework and effective management" (2000:7). However, as is also clearly evident in the case of Thailand, "mere reliance on laws, and command and control approaches will not enable the achievement of environmental quality management objectives" (*ibid*).

4.2 Potential environmental impacts: sectoral analysis

The following analysis sketches the possible environmental impacts of trade liberalization in the chosen sectors. Quantitative precision is not the objective. Rather, the analysis aims to identify key areas that will require particular attention and further study. Based on the research papers prepared for this project, this section will discuss how the expected economic impacts will play out in environmental terms (looking at both potential negative and positive effects) for each chosen economic sector and provides some strategies for minimizing potential negative impacts.

A summary of the main environmental impacts is contained in Table 12 (which is the same as Table 1 but reproduced here as Table 12 for the reader's convenience). An important component of the analysis in this report is the mediating factors, whereby government policies and regulations play a role in determining the impact of trade and investment drivers resulting from the liberalization scenarios outlined above. These mitigating factors are the basis of the conclusions and recommendations in the report charting a path forward.

Table 12: Environmental impacts of trade and investment liberalization

Sector	Trade and investment drivers	Main environmental impacts	Mitigating factors (environmental management framework)
Electrical machinery and equipment	This sector is part of a global chain of supply in which producers are responsible for the end-of-life management of products. Potential increased FDI	-ve: impacts of chemical solvents on human health and environment +ve: possible market incentives and related increases in foreign direct investment (FDI) for products based on eco-design, eco-efficiency and life-cycle management; producer responsibility	-ve: lack of implementation and enforcement +ve: adoption of cleaner technology; standards in export markets Waste Electrical and Electronic Equipment (WEEE), Home Appliances Recycling Law (HARL), corporate social responsibility (CSR), Foreign investor responsibility for e-waste and recycling; life-cycle management
Non-electrical machinery and parts	This sector is part of a global chain of supply in which producers are responsible for the end-of-life management of products; potential for increased FDI	-ve: chemical solvent use and disposal +ve: possible market incentives and related increases in FDI for products based on eco-design, eco-efficiency and life-cycle management; extended producer responsibility	-ve: lack of implementation and enforcement +ve: adoption of cleaner technology; life-cycle management
Automotive vehicles and parts	This sector is part of a global chain of supply in which producers are responsible for the end-of-life management of products; potential for increased FDI	-ve: air pollution; chemical solvent use and disposal; electricity consumption +ve: possible market incentives and related increases in FDI provide opportunities for eco-designed, fuel-efficient cars and pollution prevention in parts manufacturing	-ve: lack of implementation and enforcement +ve: Industry Act, factory permit, adoption of cleaner technology; life-cycle management
Organic chemicals	Reductions in export tariff barriers; potential for increased FDI	-ve: chemical residuals in water supply; land and water contamination +ve: corporate social responsibility enhanced through FDI flows encourages sustainable management	-ve: lack of implementation and enforcement +ve: EIA (for factories), Industry Act, factory permit, adoption of cleaner technology

Sector	Trade and investment drivers	Main environmental impacts	Mitigating factors (environmental management framework)
Mineral fuels and oils (petroleum)	Reduction in import and export tariff barriers; GMS and ASEAN economic cooperation	-ve: air pollution from the refining process; electricity use +ve: corporate social responsibility through enhanced through FDI flows encourages sustainable management	-ve: lack of implementation and enforcement +ve: EIA (for refineries), Industry Act, refinery permit, CSR; adoption of cleaner technology
Rubber and articles	Reductions in export tariff barriers; potential for increased FDI; various trade agreements and preferences	-ve: land-use change for plantations; less land for food crops; mono-cropping; soil erosion; pesticide use; water consumption +ve: sustainable management of plantations and processes	-ve: lack of implementation and enforcement +ve: EIA (for land use and factories); certification of sustainable management
Plastics and articles	Reductions in export tariff barriers from various trade agreements and preferences; potential for increased FDI	-ve: air pollution from the industrial process; electricity use +ve: possible market incentives and related increases in FDI for pollution prevention, or hazardous chemical substitution	-ve: lack of implementation and enforcement +ve: EIA (for factories); Industry Act, adoption of cleaner technology
Textiles	Reductions in import and export tariffs and non-tariff barriers in various trade agreements and preferences; decreased competitiveness post-ATC	-ve: water use; chemical residues and dyeing agents contaminate water; land reduced due to less production +ve: less pollution from natural dyes	-ve: lack of implementation and enforcement +ve: EIA (for factories); adoption of cleaner technology
Fisheries and products	Lower tariffs combined with global growth in demand for fish and fish products may increase fisheries exploitation and aquaculture production; various trade agreements and preferences	-ve: unsustainable use of mangrove and coastal areas; fishing beyond sustainable limits; antibiotic residues +ve: value of products coupled with sustainable fishing can help preserve marine systems	-ve: lack of implementation and enforcement +ve: mangrove forests classified as National Forest Reserves
Vegetables and fruits	Reductions in export tariff barriers in various trade agreements and preferences; sanitary and phytosanitary measures (SPS) regulations in main export markets	-ve: increasing chemical fertilizer and pesticide use; water consumption and contamination +ve: value of products coupled with sustainable and integrated agricultural practices	-ve: lack of implementation and enforcement +ve: SPS requirements in export markets; adoption of integrated agricultural management practices

Source: Compiled by the authors primarily based on the background research papers prepared for the RTEA project – Adis, 2007; Baumüller, 2007; Charit and Jantarasarsophon, 2007, as well as MONRE, 2007; UNDP, 2007; UNEP, 2003; ICEM, 2003; Kaosa-ard and Wijukprasert, 2000.

1. Electrical machinery and equipment

Background paper insight: electrical and electronic equipment

Environmentally sound technology and eco-design in the EEE sector is improving rapidly in Thailand to meet the environmental requirements in its main export markets. Encouraging eco-efficiency in this sector will enable Thailand to maintain its export competitiveness while at the same time addressing growing domestic concerns related to e-waste generation (Charit and Jantarasarsophon, 2007).

Electrical and electronic equipment (EEE) is a main export for Thailand and its environmental impacts are of increasing concern. Industry stakeholders are examining ways to improve eco-designs of products to reduce the risk of environmental damage from the disposal of EEE. The EEE sector is viewed as contribut-

ing a growing "ecological footprint" despite the fact that this sector is mainly comprised of assembly production in Thailand. There is increasing recognition that high levels of hazardous chemicals used in the production of electronic parts and equipment poses a threat to human health and the environment (GSEI, 2007). These impacts are particularly acute in recycling activities undertaken by the informal sector (Charit and Jantarasarsophon, 2007).

Meeting more rigorous requirements for producer responsibility throughout the life-cycle of EEE is not only relevant to address domestic health and environmental concerns, but in order to gain market access to the main export markets for Thailand. The EU, U.S. and Japan are putting in place strict regulations on EEE imports (Vossenaar, *et al*., 2006). The Federation of Thai Industries, in fact, has requested the government implement tougher regulations equivalent to EU standards for EEE (the Waste Electrical and Electronic Equipment (WEEE) and Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directives), in large part as a way in which to remain regionally competitive *vis-à-vis* China and Vietnam. The RoHS Directive came into effect in the EU on July 1, 2006 banning electrical and electronics imports that contain toxic substances above specified levels. The ability of SMEs in the electronics sector to acquire environmentally-sound technologies is cited as key to enhancing sustainability and competitiveness (Vossenaar, *et al*., 2006).

According to the Thai Electrical and Electronic Institute, the volume of e-waste is increasing due to technological innovation, which results in products being replaced sooner, and the expansion of market chains, which results in trade in waste to components being used in other countries (ESCAP, 2007).

2. Non-electrical machinery and parts

Compared to other export activities assembly and re-export of non-electrical machinery and parts is of less environmental concern than those industries that are engaged in primary manufacturing. As is the case with electrical and electronic equipment, non-electrical machinery and parts industries are associated with more modest environmental control concerns related to chemical solvent usage, water and land contamination from chemical residuals and, importantly, final use disposal. Thailand mainly imports non-electrical components for assembly for re-export, such as television receivers and parts and industrial-use non-electrical machines. This may lead to an increase in solid waste from packing materials for these components, potentially offset by the formal and informal recycling industry.

3. Automotive vehicles and parts

The automotive vehicles and parts assembly sector continues to play a significant role in Thailand's economy. International demand for these products, in particular from neighbouring countries, is high and growing. Environmental impacts of the automobile industry include air and water pollution and waste generation (TEI, 2001; GSEI, 2007). Industrial, automotive and electric machinery are the main sources of Polychlorinated Biphenyl (PCB) contaminated oils. PCBs belong to a group of pollutants known as "persistent organic pollutants" or POPs, which are considered the most hazardous substances in nature since they do not degrade readily and can travel thousands of miles.

Background paper insight: automotive vehicles and parts

Growing automobile production and assembly in Thailand to meet potentially increasing demand would entail a consequent increase in resource utilization. While the automobile assembly line may conform to required standards, there is concern regarding the environmental impacts from the production process of parts and components that are produced by local sub-contractors. The use of solvents during the assembly of parts and component can lead to negative impacts on the health of workers and the environment (Adis, 2007).

While the automobile assembly line may conform to the standards required by the Thai government or the Thai automobile industry, the impacts of operations by local sub-contractors have raised concerns. These sub-contractors are scattered throughout urban areas, mainly the Bangkok Metropolitan Area. Many of them are SMEs and their day-to-day operations cannot be easily monitored, especially with respect to

potential environmental impacts (Adis, 2007). The use of solvents in the assembly process for automotive vehicles and parts can lead to negative impacts on the local environment and pose health risks to workers.

Trade and investment liberalization in this sector has the potential to increase the possibility to leapfrog outdated technologies; use of more environmentally-sound technologies (ESTs) and eco-efficient methods of production and processing are also likely to more readily available with accelerated regional development (King and Mori, 2007). Initiatives, such as flowing from recent Japanese investments to make Thailand Asia's premier automobile hub has focused on developing energy efficient cars, will contribute to reducing urban pollution (BOI, July 2005).

4. Organic chemicals

Organic chemicals are chemical compounds whose molecules contain carbon. Thailand imports various such chemicals for direct use and production of further value-added products, such as petrochemicals, paints or plastics. Petroleum products are ranked as the most abundant chemicals imported, followed by industrial chemicals, fertilizers, pesticides (agricultural, public health and consumer use) and consumer chemicals (pharmaceuticals, cosmetics and disinfectants).

The chemical industry is associated with high polluting costs primarily related to use and disposal of chemicals during the petrochemical production process (Xing and Kolstad, 2002). The chemical sector is also one of the largest users of natural gas, which is required for energy and as a feedstock. There is little information available in Thailand on the impacts of this sector, but in the United States, the sector emitted more than 1.5 million tons of criteria air pollutants, of which more than 80 per cent were carbon monoxide (CO), sulfur dioxide (SO_2), and nitrous oxides (NO_x) (NEI, 2002). Nearly half of these emissions are energy-related. The chemical sector also manages a significant amount of chemicals; in the U.S. about five per cent of the more than 10 billion pounds of chemicals managed are disposed or otherwise released to air and water, while the rest goes to treatment, energy recovery and recycling (USEPA, 2007). While the scale of manufacture is different in Thailand, one would expect similar types of environmental impacts from this industry. The impacts could be mitigated through the use of pollution abatement equipment by manufacturers and compliance with Thai regulations.

5. Mineral fuels and oils (petroleum)

Thailand is dependent on external energy sources and imports crude oil to be processed into refined fuels for both domestic use and export. The environmental impacts of the process of refining mineral fuels and oils (petroleum) are linked to air pollution during the refining process. There are hazardous bi-products which must be managed properly in order to eliminate potential for land and water pollution. Wastewater containing benzene and other hydrocarbons poses grave environmental concerns if not treated and managed properly. Sludge from refining process contains similar hazardous components. Storage of crude oil and refined fuels offers potential for spills and leakage which may result in impacts on land and water quality. Shipping of these materials also has similar risk for spillage or leakage in environmentally-sensitive areas.

6. Rubber

Background paper insight: rubber

Rubber plantations have been expanding in all regions of Thailand and have made a significant contribution to rural livelihoods. Expansion of large-scale plantations for export is considered to have impacted negatively on forest and biodiversity resources. As rubber is a mono-crop it tends to reduce bio-diversity particularly when rubber plantations encroach on forest areas. There has been inadequate enforcement of resource management to address these issues (Adis, 2007).

Rubber plantations have expanded considerably since the 1980s in Thailand. Rubber plantations are largely concentrated in the southern region, but are expanding in the northern region in response to favorable rubber prices (Adis, 2007). While providing an important source of export earning, the growth of the sec-

tor has also led to deforestation to make way for plantations—including large-scale monoculture rubber plantations for export production—putting pressure on watershed management and biodiversity (ONEP, 1997).

In addition, rubber factories generate significant amounts of wastewater from rinsing rubber containers and equipments and from rubber processing itself which is often discharged into water streams without adequate treatment, resulting in negative environmental and health impacts.

7. Plastics

Thailand imports various chemicals to use in the petrochemical plastics industry, polyethers and epoxide resins, in primary forms, and exports finished plastic articles, such as bags, sacks and film. Over 2,000 different environmental contaminants are associated with the plastics industry such as asbestos; formaldehyde; peroxides; ammonia; flame retardants; and solvents (AIG, 2004).

According to the United States Environmental Protection Agency (EPA), five of the top six chemicals which are regulated as hazardous waste are commonly produced during the manufacture of plastic packaging. These include propylene (ranked first), phenol (third), ethylene (fourth) polystyrene (fifth) and benzene (sixth). Due to the variety of hazardous chemicals used in plastic manufacturing, at both the oil refinery and the manufacturing stages, strict controls must be in place to ensure chemical loss and waste treatment are properly addressed.

Production of plastics involves the use of water for cooling and processing plastics. The wastewater generated must be treated prior to discharging. Raw materials are often stored in above or underground storage tanks and transported through pipes, improper maintenance of this infrastructure offers potential for on-site spills and releases into the environment. Soil and groundwater contamination also arises from current or past on-site disposal practices such as landfills, land farms, wastewater lagoons or injection wells. Additionally, asbestos was often used in the past as an insulating material.

8. Textiles

The textiles sector is a long-standing contributor to export-led growth in Thailand and continues to play a vital role. A number of drivers are likely to diminish the importance of this sector, including increasing competition with the elimination of the WTO Agreement on Textiles and Clothing from other regional players, such as Vietnam and China. This is likely to result in reduced production in Thailand as only the cost-efficient producers are able to compete in a more open global market, which will lessen the impact of textiles production on the environment in Thailand. Thus, trade liberalization initiatives related to the textiles sector are likely to have a positive environmental impact.

Background paper insight: textiles

The Thai textile industry is comprised of both modern and environmental friendly factories producing outputs for the upper markets and the smaller and polluting factories producing output for the lower markets. Unlike the exporting textile factories that are regulated by quality standards, the polluting factories are less regulated and are frequently reported to release wastewater into public waterways. A more effective monitoring and enforcement of wastewater management is essential for curbing the negative impacts from these smaller factories (Adis, 2007).

The textiles sector is associated with significant water consumption and heavy local pollution resulting from the chemical bleaching, dyeing and treatment processes. Manufacturers of high-end textile products are required to meet quality control standards of foreign buyers, compliance with which is already closely monitored. Textile producers targeting lower markets, which are located predominantly in the greater Bangkok area, are less well regulated and have been found to release polluted wastewater into public waterways. Thus, expected increases in imports of textile to replace low-end producers might lead to reduced water pollution. There are also measures being put in place to ensure that smaller plants are located in textile industrial zones and are accompanied by an environmental impact assessment and approved waste water treatment facilities (BOI, July 2005).

9. Fisheries

Thailand's fisheries sector is a key source of export earnings, livelihoods and domestic food supply. However, most of the valuable marine fish stocks have been seriously overexploited. Factors contributing to fish stock decline include overcapacity of the fishing fleet, inappropriate fishing gear (notably trawlers), land and marine-based pollution that harms the marine environment, and weak management systems (World Bank, 2006b).

Background paper insight: fisheries

The expansion in fishing efforts and aquaculture production—not least fuelled by significant export interests—has brought with it a range of environmental challenges that threaten to undermine the long-term sustainability of the sector. In the absence of effective management schemes, reductions in tariffs and non-tariff measures in the fisheries sector are likely to encourage increased fishing efforts, leading to further declines in fish stocks and consequently trade losses (Baumüller, 2007).

While aquaculture production might provide a means to take some of the pressure of fish stocks, the industry has also significantly impacted the environment (Ahmed, *et al.*, 2007). Fish farming has significantly expanded since the mid-1980s which saw an increasing shift from extensive to mainly intensive and coastal aquaculture production. Aquaculture production has resulted in the destruction of mangrove forest ecosystems, contributed to the degradation of land and aquatic environments from effluent discharges and contamination of abandoned ponds, and put further pressure on fish stocks as a source of fish feed.

The fish processing industry has also had a number of environmental impacts, including use of significant amounts of fresh water, effluent discharges containing high levels of organic matter, phosphates and nitrates, and high energy demand. Data on the water use, effluent discharge and energy consumption of the Thai fish processing industry remain scarce, making it difficult to assess the scale of associated environmental impacts.

10. Vegetables and fruits

Background paper insight: vegetables and fruits

Pesticides, insecticides and chemical fertilizers are commonly used to increase farm productivity and hence deposit residuals in soil and wastewater. These chemical residuals can result in groundwater contamination. Improper use of chemicals in the agricultural sector has caused negative health impacts for farmers. To address this issue, the Ministry of Agriculture has initiated a Good Agricultural Practices (GAP) program. The increasing number of farmers participating in the GAP program will enhance sustainability of the Thai fruit and vegetables sector (Adis, 2007).

Fruit production has a long history in Thailand as a result of fertile soil and water availability which has led to expansion of fruit orchard plantations to grow rambutan, durian, tamarind, mango and coconut. Commercial agriculture, however, can cause a range of negative environmental impacts, such as deforestation, water depletion, land degradation, use of uncontrolled fires and agricultural runoff. Fruits and vegetables in particular are pesticide and insecticide intensive, leading to soil and groundwater contamination and adverse health impacts.

At the same time, the sector might provide opportunities for tapping into "green markets" as demand for products that meet high environmental and quality standards, including organic agricultural products such as fresh vegetables, fruits and herbs, continues to grow. The EU is Thailand's biggest export destination for organic products, along with Japan and the U.S. A major challenge in accessing the export market for organic foods is the complex inspection and certification requirements in place.

4.3 Potential impacts of the investment framework

Thailand is party to 39 bilateral investment treaties (BITs) as well as to the ASEAN Investment Area, as described above. The major environmental impacts from investment agreements fall into two broad categories: structural/scale impacts and regulatory impacts.

The structural/scale impacts stem from the flows of investment into the main economic sectors, such as electronics and automotive vehicles and parts. The impacts here are the same as those described elsewhere in this report with respect to the export of the products of that investment—mostly relating to air pollution, waste water management, land-use impacts and loss of biodiversity. It should be noted that Thailand's BITs are not so much a concern in this respect as they do not allow for pre-establishment rights for investors. Thus, if there is excess investment and undesirable impacts in these areas, the concern should focus on the domestic regulations covering these sectors, rather than on the investment agreements. Of course, those domestic regulations include the *Foreign Business Act* (as amended in 2007), which does not necessarily require an environmental impact assessment before granting approval to new investments. A basic result of integrating environmental and economic policies in Thailand would be that the law on investment should help to provide the basis for deciding whether an incoming investment makes environmental sense, or at least for making a judgment that balances environmental damage and economic development; thereby contributing to sustainable development.

The AIA may be a concern since it does grant pre-establishment rights to ASEAN investors after 2015. This will make it more difficult to implement measures unless the sectors are specifically listed as "sensitive."

The regulatory impact of investment agreements primarily comes from how they define expropriation. Most older BITs, including 20 of Thailand's existing BITs, which were signed in the 1990s, have an expansive definition, or a vague one. Some newer agreements are careful to specify that non-discriminatory measures of general application, undertaken in good faith, cannot constitute expropriation. This follows several successful arguments by investors that a measure (in several cases, an environmental measure) that made them less profitable amounted to expropriation, even if the measure was simply intended to promote a public good and had no discriminatory intent.[7] The language in Thailand's existing BITs, then, leaves it open to this kind of argument, which if successfully made can act to constrain the full exercise of environmental regulatory oversight, and the development of any new environmental measures that might have significant economic impacts on existing investors.

4.4 Summary of research findings

Thailand has made the transition from an agrarian economy to a manufacturer of industrial products. It has successfully achieved export-oriented labour-intensive growth. Environmental sustainability of growth has not been a priority in the development process until relatively recently. Despite the best efforts to design policies and enact legislation to incorporate environmental considerations, notably since 1992, these laws have been insufficiently implemented. As a result, there has been—and is likely to continue to be—significant pressure on the environment, including increased pollution, deforestation, land and water degradation and biodiversity loss resulting from trade liberalization initiatives.

With the above considerations in mind, the following summary of the research findings has been compiled based on the analysis contained in the background research papers, as well as input from the Expert Advisory Panel and the stakeholder interviews:

- Since Thailand's accession to the GATT/WTO in 1982, trade liberalization negotiated at the multilateral level has continued to lock in reforms and ease the administrative burden and predictability of the investment framework in Thailand.
- Following the Asian financial crisis in 1997, Thailand has increased its commitments to liberalize trade in a wide range of bilateral and regional agreements. Liberalization commitments to bring

7 See the discussion of the *Tecmed* and *Metalclad* cases in Cosbey, *et al.* (2004:Section 2.2.5).

down tariffs are expected to increase exports, while increasing lower cost imports for use in the manufacturing sector. This is particularly the case for preferential trade agreements between Thailand and other developing countries in which current tariff levels are high. The broad spectrum of trade agreements to which Thailand is a party—notably AFTA and the ASEAN-China FTA, as well as a rapidly expanding number of bilateral preferential agreements (Japan, Australia, New Zealand, India, as well as with pending with the U.S. and Korea)—are likely to further enhance market access for Thai exports.

- The ability of Thailand to take advantage of expanding market access opportunities lies predominantly in: (1) effectively utilizing the tariff reductions to increase Thailand's market penetration in its main export sectors; (2) attracting FDI through providing a secure domestic setting; and (3) meeting the host of potential non-tariff measures placed on its exports in the main traded sectors. These measures include, for example, sanitary and phytosanitary requirements and certification of fruit, vegetables and fisheries products (e.g., Good Agricultural Practices), or requirements in the electronics sector (e.g., ISO 26000, the EU and Japanese standards on electronics). The Thai private sector, thus, is a key stakeholder to ensure that exports can meet these increasingly strict standards.
- Openness to foreign direct investment, particularly in the manufacturing sector, continues to act as a key driver of export growth, providing opportunities for "learning by exporting." The fact that a large share of FDI emanates from companies that meet and are accountable to higher international standards, including relating to the environment, for example in the electronics sector, is an aspect that the government can build on to encourage sustainable investment in Thailand and stimulate use of environmentally-sound technologies, particularly in the manufacturing sector.
- As Thailand further liberalizes trade and investment, there are likely to be corresponding environmental impacts—for better and for worse. Analysis of the potential environmental impacts reveals a mixed and variable outcome for several export sectors. For manufacturing exports—electrical and electronic equipment, automotive vehicles and parts—liberalization is likely to expand the industrial base. The degree and extent of the environmental impacts in these sectors will depend on the regulatory framework in place. The same is likely to be the case in the rubber, textiles, fruits and vegetables and fisheries sectors.
- In pace with dramatic economic growth, Thailand has put in place a comprehensive institutional and regulatory framework for managing natural resources and maintaining environmental quality. The evidence indicates that implementation and enforcement of environmental rules and regulations is crucial and remains the most challenging issue in Thailand. In order to meet this challenge, increased knowledge and capacity both in the public and, importantly, private sector is vital to ensuring positive outcomes.
- The main environmental impacts in several main export manufacturing sectors dealt with in this assessment—electronics, non-electrical machinery, automotive vehicles and parts, organic chemicals, mineral fuels and oil, plastics and textiles—are centered on the use and disposal of chemical solvents and the consequent contamination of water, land and air, as well as human health.
- The main environmental impacts from rubber, agricultural (fruits and vegetables) and fisheries exports are focused on natural resource use, including land-use, deforestation, and integrated and sustainable agricultural management, as well as use of chemical fertilizers for agriculture and antibiotics for aquaculture.
- The private sector has a vital role to play in the sustainable development of Thailand. The success of the private sector in capturing opportunities arising from trade liberalization, in turn, depends on the institutional and regulatory setting of a country (King and Mori, 2007). The ADB report *Doing Business 2007: How to Reform* ranks Thailand 18 out of 175 economies in terms of the ease of doing business.[8]

8 The ADB index ranks economies based on the average of country percentile rankings in each of the following indicators: (i) starting a business; (ii) dealing with licences, (iii) hiring and firing workers; (iv) registering property; (v) getting credit; (vi) protecting investors; (vii) paying taxes; (viii) trading across borders; (ix) enforcing contracts; and (x) closing a business (ADB, 2007a).

- Based on the preliminary insights into the potential environmental impacts of trade and investment liberalization that emerged out of the RTEA, there is a need to study in greater detail specific policy linkages and monitor the implementation of liberalization commitments to ensure trade and environment policies are integrated.

Thailand is at a crucial stage in its path to development in light of the wide array of trade and investment liberalization agreements recently negotiated and under negotiation. Whether this process is a success depends on whether Thailand is able to take its long-standing strategies of openness and integration into the global economy one step further, while maintaining the sustainability of natural resources and the environment. Thailand has a pivotal role to play in promoting good governance as a leader in the Mekong region with the objective of implementing sustainable development as integration is strengthened.

Section 5: Strategic Policy Recommendations and Conclusions

The recommendations laid out in this section are a combination of those which emerged from the research, stakeholder interviews, input from the Expert Advisory Panel, and those gathered from the final National Workshop (see Annex VI). The recommendations are general in nature and are areas which Thailand may examine as a means to make patterns of production and consumption more sustainable for the environment and the Thai people.

These recommendations are not meant to be directive, but rather offer areas where policies may need to be reviewed and revised to meet the environmental challenges of further liberalization of the main export sectors examined in this report. It is hoped that the recommendations may provide an impetus for the relevant policy-makers and practitioners in each sector to examine policies to ensure they have the capacity to meet the emerging challenges. The recommendations also identify areas for further research to foster a better understanding of the complex linkages between economic growth, environment and development in Thailand.

The fundamental premise behind this "rapid" trade and environment assessment—as opposed to a more detailed and extensive analysis over a longer duration—rests in its ability to highlight areas of particular and immediate environmental concern arising from trade liberalization impacts. These are areas where further analysis is warranted to mitigate potential environmental damage or ensure environmental benefits. It must also be kept in mind that this project has not attempted to undertake a detailed institutional assessment of government capacity to reveal vital institutional gaps necessary to take on these recommendations. This is an aspect that is left for future research on trade and environment in Thailand.

5.1 General policy recommendations

The analysis of 10 main sectors of the Thai economy has shown that further trade liberalization can have both positive and negative impacts on the environment. A number of general recommendations emerged from the RTEA on how such impacts could be mitigated while expanding trade and investment opportunities through liberalization agreements with Thailand's trading partners:

(i) **Raise awareness about the practical benefits of implementing sustainable development:**

- while there is growing understanding of environmental issues and linkages between trade and environment policy among key policy-makers in Thailand, implementation of sustainable development in the dynamics of export-oriented growth in Thailand can be further strengthened; and
- further efforts should focus on raising awareness among stakeholders, including the private sector, of specific environmental and social impacts and possible mitigating measures.

(ii) **Enable an inclusive, integrated and transparent domestic trade policy-making process that allows for input from key stakeholders:**

- implementing well-thought through trade-oriented and environmental sustainable development strategies requires a delicate balance between various government bodies, as well as involvement of the private sector and non-governmental actors, such as research institutions (Cosbey, 2004); hence the priority given in the RTEA methodology to involving the key stakeholders in the trade and environment policy nexus, including in the Expert Advisory Panel to the project.

(iii) **Encourage private sector actors to include environmental and social considerations in trade and investment decisions:**

- meeting environment-related standards and regulations in several of Thailand's main trading partners will be vital to maintaining and enhancing market access for key export sectors;
- the move towards more sustainable production could benefit from providing incentives for and facilitating access to environmentally-sound technologies;
- importance should be given to supporting industry associations in order to provide input into the governmental policy-making framework;
- monitoring of environmental impact assessments of relevant projects and industries should be strengthened to ensure sustainable production and consumption, particularly in the manufacturing sectors; and
- increased participation in international standard setting bodies would facilitate the voice of developing country business being heard. This requires institutional support through industry association groups.

(iv) **Contribute to the capacity of the various government ministries and authorities to develop and coordinate policies related to trade and environment:**

- there is a need to assess the current capacities in key areas such as integrated management, strategic environmental assessment, and management of natural resources in order to determine where gaps in knowledge exist. From this assessment, it would be useful to further develop to capacity and strengthen the institutional ability to meet changing environmental management priorities in Thailand.

(v) **Strengthen regional cooperation to address the environmental impacts of economic integration:**

- as bilateral and regional trade and investment agreements continue to expand, further efforts need to focus on assessing their environmental implications which are only just beginning to be understood;
- regional policy coordination is crucial to setting a sustainable trade and investment framework which includes environmental considerations;
- the process of harmonization of trade and environment-related legislation should be intensified among ASEAN countries given the many overlapping economic and environmental interests in the region; and
- particular attention needs to be paid to the increasing impact of China's "footprint" in the region, specifically in the manufacturing and agricultural sectors, including through the prompt implementation of the China-Thailand Environmental Cooperation Agreement.

5.2 Sector-specific recommendations

The following set of recommendations by sector emerged from the background research, discussions with key stakeholders and from the National Workshop. These are meant to be illustrative of actions which could be taken to strengthen policy, identify research needs and enhance the capacity of relevant government agencies and stakeholders.

1. Electrical machinery and equipment

Government policies and initiatives could be developed to improve environmental sustainability and mitigate potential negative environmental impacts in the sector:

- Thailand should take steps to urgently enact the draft Thai WEEE ("e-waste") Act as a framework for the public and private sectors involved in the EEE sector;

- there is a need for further assessment and data collection pending enactment of the Thai WEEE Act to ensure government authorities build capacity to implement the Act;
- cleaner production in the EEE industry should be supported by government policies, such as investment promotion incentives, and tax deductions for research and innovation expenditures related to clean production; and
- the government should support the development of the domestic EEE demanufacturing industry through the use of Board of Investment incentives and other tax measures on waste discharge.

The private sector also has a key role to play in improving the environmental sustainability of the EEE industry in Thailand:

- Thai EEE associations, such as the Electrical, Electronics and Allied Industry Club of the Federation of Thai Industries, should continue to study the impacts of international standards in the EEE industry, in order to ensure input into the formulation of and compliance with further developments, for example, in the European WEEE and RoHS Directives and the Thai WEEE Act;
- the Thai EEE industry needs to play a proactive role in terms of building innovation in product design. Research and development can usefully be expanded to ensure that products consume fewer resources, recycle easily or are reusable. Moreover, industry should take the responsibility as the producer to promote green procurement and eco-design; and
- the Thai EEE private sector needs to continue to work with government agencies to meet the challenges of increasingly rigid environmental requirements in export markets other than the WEEE and RoHS Directives. Meeting these requirements will not only maintain export growth, but serve to establish health and environmental standards that benefit Thailand.

In terms of capacity building, there is a need to focus on the end of the EEE product life-cycle. This is not because the production phase is considered to be unimportant, but Thailand is acting mainly as an assembler of products designed elsewhere by firms in the home country with production facilities in Thailand. Domestic recycling in Thailand is still relatively undeveloped and inadequately equipped to deal with technologically advanced e-waste. It is here that there is a special need for capacity building to strengthen Thailand's domestic EEE demanufacturing industry:

- demanufacturers and recyclers need to be made aware of WEEE and proper waste management. They also require continuous training to understand sound waste treatment. The Ministry of Industry could usefully conduct training and issue certificates to guarantee qualifications in EEE sustainable management. Certified recyclers should be required to provide a compliance record, including environmental management systems, and undergo continuous monitoring as well as annual audits;
- e-waste information campaigns have the potential to be highly successful. They represent an inexpensive, but effective strategy to manage e-waste in Thailand and strengthen the development of sustainable consumption patterns; and
- technology transfer and knowledge management are shared at both the vertical and horizontal levels, as well as at the domestic, regional and international levels. It would be more effective if leading EEE companies would take the initiative to guide demanufacturers/recyclers on how to treat WEEE properly. Industries from the EU, the U.S. or Japan, for example, with advanced in EEE technology, should be given incentives to transfer technologies to assist in clean production and final disposal. Moreover, knowledge exchange at the regional level would raise awareness so that waste is not shifted between countries in a region.

2. Textiles

- The Thai government needs to pay greater attention to reducing wastewater discharge from the textile industry, including by improving the textile production process overall and waste treatment processing in particular.

- Given the significant consumption of water by textile factories, investment in water-saving devices should be increased.
- The government should support the dissemination of clean technology used in the textile industry, including by providing technical expert assistance, training in clean technology, information on new technologies and soft loans.

3. Automotive vehicles and parts

- Efforts to promote investment in this sector should be strengthened to stimulate eco-design initiatives to place Thailand at the forefront in manufacturing energy-efficient automobiles for the region.
- There needs to be a closer monitoring of automobile part factories particularly in terms of their use of Volatile Organic Compounds.
- Information dissemination regarding factory health risks need to be made available to the workers of the automotive part factories.

4. Vegetables and fruits

- Having recognized the need to monitor the environmental and health impacts of agricultural production, the Ministry of Agriculture has introduced the GAP (Good Agricultural Practice) program which requires that the agricultural practices conform to the standard in eight areas, namely water resource management, land-use management, use of toxic substances, pest control method, harvesting and post harvesting technology, storage facilities, transportation and book keeping. Efforts should continue and be strengthened to encourage farm owners to engage in the program.
- Laws and regulations need to be strengthened to facilitate closer monitoring of pesticide utilization in Thailand. These laws and regulations ought to cover production, distribution, marketing, storage, uses, as well as disposal of containers.
- Effective education is needed among farmers and rural citizens in Thailand, including on the appropriate use of pesticides.

5. Rubber

- Thailand needs to strengthen enforcement to prevent illegal encroachment of forest reserve areas for rubber plantations.
- There needs to be a closer monitoring of wastewater released from rubber processing plants so as to reduce local environmental problems.
- Continued research will be required in the area of wastewater treatment technology that is suitable to the local conditions.

6. Fisheries

Capture fisheries

- Fishing efforts should be reduced through the implementation and effective enforcement of comprehensive management schemes, such as restricting the number of licences for all types of fishing gears; regulating vessel sizes and fishing gears; limiting fishing seasons; introducing decommissioning schemes; developing strategic plans for specific areas or fisheries; strengthening co-management and decentralisation of fisheries management; addressing illegal, unregulated and unreported fishing; and strictly enforcing protected areas (see also Ahmed *et al.*, 2007).
- Any measures to limit fishing efforts will need to be supported by providing viable livelihood alternatives for fishermen, e.g., through retirement schemes or moving them into other sectors, and addressing possible conflicts over fishing rights that might arise.

- Current subsidy schemes should be reviewed to ensure that they do not contribute to enhancing fishing efforts beyond sustainable limits.
- Further efforts should be made to reduce the volume of trash fish, such as by regulating fishing gear (e.g., mesh sizes and design); limiting fishing in areas where juveniles are common; setting by-catch limits; and encouraging alternative aquaculture feed.
- The use of less-destructive fishing gear that is better adapted to the marine environment (such as more selective gear) should be strongly encouraged, e.g., through regulations and/or subsidy schemes.
- Priority should be given to the collection and analysis of additional data on the state of fish stocks and the marine environment to develop effective management schemes and inform policy-making.
- Fishing operators should be required to register all fishing gear (rather than only gear with large impact as is currently the case) and a single registration system for fishing vessels and gear should be considered to get a better understanding of and more effectively regulate current fishing capacities.
- Efforts to address land and marine-based pollution will need to be strengthened.

Aquaculture

- Access to more environmentally-benign (and affordable) technologies should be facilitated, including alternative feed that does not rely on trash fish.
- Ongoing government efforts to encourage wider compliance with the Code of Conduct for the marine shrimp culture industry should be strengthened, including through the development of supporting policies (such as incentive measures).
- New aquaculture operations should be required to submit an environmental impact assessment to identify potential environmental concerns and mitigating measures, including waste-water treatment which should be required of all aquaculture farms.
- Rehabilitation of ponds and mangrove forests should be stepped up.

Box 3: Summary of key background paper recommendations

- *Electrical machinery and equipment sector:* Enact the draft Thai WEEE ('e-waste') Act as a framework for the public and private sectors involved in the EEE sector.
- *Textiles sector:* Pay greater attention to reducing wastewater discharge from the textile industry, including by improving the textile production process overall and waste treatment processing in particular.
- *Automotive vehicles and parts sector:* Investment in this sector should be strengthened to stimulate eco-design initiatives to place Thailand at the forefront in manufacturing energy efficient automobiles for the region.
- *Vegetables and fruits sector:* Continue to encourage farm owners to engage in the Good Agricultural Practice program in order to ensure that exports meet requirements in export markets.
- *Rubber sector:* Strengthen enforcement to prevent illegal encroachment of forest reserve areas for rubber plantations.
- *Capture fisheries:* Reduce fishing efforts through the implementation and effective enforcement of comprehensive management schemes, such as restricting the number of licences for all types of fishing gears; regulating vessel sizes and fishing gears; limiting fishing seasons; introducing decommissioning schemes; developing strategic plans for specific areas or fisheries; strengthening co-management and decentralisation of fisheries management; addressing illegal, unregulated and unreported fishing; and strictly enforcing protected areas.
- *Aquaculture fisheries:* Facilitate access to more environmentally-benign (and affordable) technologies, including alternative feed that does not rely on trash fish.
- *Fish processing:* Continue to reduce tariff escalation in key markets in order to facilitate exports of value-added products, thereby obtaining more value for fewer resources.

Source: Compiled by the authors based on the background research papers prepared for the RTEA project, IISD/IUCN, 2007.

- Marketing campaigns for the "Thai Quality Shrimp" label should be strengthened to raise awareness among consumers abroad in an effort to stimulate demand for labelled shrimp.
- The viability of various certification schemes should be explored further to identify and take advantage of market opportunities.

Fish processing

- Efforts should continue to reduce tariff escalation in key markets in order to facilitate exports of value-added products, thereby obtaining more value for fewer resources.
- The nature and scale of environmental impacts of the Thai fish processing industry should be examined to identify possible needs for additional standards, regulations and enforcement mechanisms.

Taken together, these recommendations present a possible "road map" for Thailand to investigate and examine with the objective of strengthening the existing institutional capacity and regulatory framework for better integrating trade and environment policies. The suggestions aim to ensure that continued export-led growth can be accomplished in a sustainable manner. The recommendations also recognize the need for balance between trade and environment policies to manage natural resources and maintain environmental quality in order to contribute to sustainable development in Thailand.

5.3 Conclusions

The research in this preliminary assessment report maps largely uncharted territory. The assessment process has enabled an initial exploration of the impacts of trade liberalization on the environment and sustainable development in various sectors. In the case of Thailand, it emphasizes the need for a better understanding and a heightened awareness of the potential linkages between these interdependent variables. Further research is needed as to the functional management regimes and supporting policies to balance sector priorities. For example, how best to manage e-waste in the electronics sector given the economic value of electronic and electrical imports in the sector? How to address production-related pollution in the manufacturing sector, while continuing to attract FDI in the automotive and electrical sectors? How best to manage the increase in post-consumer electronic and electrical products at the end of their life-cycle? How can forest management be designed so as to sustain rubber plantations while maintaining watersheds and biodiversity? How best to manage the rise in aquaculture fisheries, whilst maintaining mangroves and coastal areas? These are challenging questions with multiple linkages within each sector and between sectors.

The structure and composition of Thailand's trade and investment will be shaped by ongoing trade and investment liberalization initiatives. The resulting changes will have significant environmental implications, which deserve to be further researched. Sustainable production and consumption is an underlying issue in the manufacturing sector, particularly with respect to the socio-environmental impacts of the disposal of electronic and electrical products at the end of their life-cycle.

With a sufficiently solid policy framework already in place, Thailand is in a good position at this stage of its development to put appropriate emphasis on the environmental quality of production and consumption patterns—the way in which goods are produced and dealt with throughout their life-cycle. Detailed research and policy analysis is needed at this present juncture to ensure these policies are sufficient to adjust to shifts in Thailand's comparative advantage as trade and investment liberalization commitments are phased-in. It will also help to determine where domestic standards and best practices can be strengthened in the agricultural and manufacturing sectors to ensure that Thailand is able to take advantage of market access opportunities created by trade liberalization.

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Annex I: Members of the Expert Advisory Panel

- Thanpuying Dr. Suthawan Sathirathai, President, Good Governance for Social Development and the Environment Institute
- Dr. Sorajak Kasemsuvan, Executive Director, International Institute for Trade and Development
- Dr. Watcharas Leelawath, Researcher, International Institute for Trade and Development
- Ms. Sunanta Kangvalkulkij, Director, Bureau of Agriculture Negotiations, Department of Trade Negotiations, Ministry of Commerce
- Dr. Ampan Pintukanok, Director, Office of International Cooperation on Natural Resources and Environment, Office of the Permanent Secretary, Ministry of Natural Resources and Environment
- Mr. Buntoon Wongseelashote, Chairman, Subcommittee on Trade Thai Chamber of Commerce and Board of Trade of Thailand
- Dr. Akajate Apikajornsin, Deputy Secretary General, Electrical, Electronics and Allied Industries Club, Federation of Thai Industries
- Dr. Sitanon Jesdapipat, Regional Coordinator, Worldwide Fund for Nature (WWF), Thailand
- Dr. Supachai Tepatanapong, Director, International Relations, Thai Industrial Standards Institute, Ministry of Industry
- Dr. Charit Tingsabadh, Director, Centre for Ecological Economics, Chulalongkorn University
- Dr. Raywadee Roachanakanan, Assistant Professor, Faculty of Environment and Resource Studies, Mahidol University
- Mr. Parate Attavipach, Sector Manager, Thai-German Programme for Enterprise Competitiveness (GTZ)
- Dr. Bunchorn Songsamphant, Researcher, Ministry of Finance
- Ms. Aban Marker Kabraji, Regional Director, Asia, The World Conservation Union (IUCN)
- Dr. Zakir Hussain, Director Constituency, The World Conservation Union (IUCN)
- Mr. Wyn Ellis, ITC Technical Assistance Programme, National Innovation Agency

Annex II: The Methodology

The methodology for undertaking the *Rapid Trade and Environment Assessment (RTEA)* is comprised of the following six steps.

Two indispensable prerequisites

- A dedicated project leader on the ground (in the country or region).
- A lead partner in country, preferably an institution with knowledge of trade and environment dynamics, and solid contacts with all the relevant stakeholders, particularly in the government.

Step I: Partnership building and establishment of an Expert Advisory Panel

- Contact the ministries of trade/commerce and environment to inform them of the project and requesting their assistance in establishing the Expert Advisory Panel.
- Contact the Chamber of Commerce to inform them of the exercise and seek private sector input and expertise from the outset of the project.
- Establish an Expert Advisory Panel composed of a representation of key stakeholders (governmental and non-governmental as well as private sector representatives).
- Describe the timeline, process and objectives of the RTEA, nature of trade and environmental linkages.
- Seek input on the methodology; advice on how it could usefully be adapted to the domestic context; advice on which stakeholders should be interviewed.

Step II: Setting the context

Given the large range of interactions between trade liberalization scenarios and potential economic and environmental impacts, the focus of the assessment needs to be on those areas of particular environmental importance. The context setting phase of the methodology is vital to distill a selection of key sectors for analysis from all potential interactions.

The role of the Expert Advisory Panel is essential to guide the initial scoping exercise based on a solid appreciation of the domestic trade and investment context and potential environmental consequences of liberalization initiatives.

- To set the context, undertake statistical and empirical research in order to prepare:
  - a brief economic profile of the country including main exports, fastest growing exports and FDI recipients, growth potential and challenges; and
  - a brief environmental profile of the country including status of natural resources and major environmental challenges.

Statistical research:

- identify top 10 exports; top 10 fastest growing exports; and top 10 sectors for FDI.

Empirical research:

- what agreements is the country currently party to?
- what commitments are scheduled as a result of those agreements (tariff reductions, commitments on investment, services and IPRs)?

- what trade/investment agreements are currently being negotiated or planned? If possible, list the sectors of interest in those agreements;
- what is the current legal investment framework? (What is the governing domestic investment law, what bilateral and regional agreements have been signed, what commitments do they contain on national/MFN treatment, rights of establishment, expropriation, minimum standards of treatment?); and
- in those agreements under negotiation or planned, what investment commitments are likely?

Step III: Expert input – stakeholder interviews and literature review

- Carry out a literature review.
  - What published sources have been written concerning the prospects for economic growth in this country? The challenges? What are the key points made in the literature? Have there been any studies undertaken on the possible economic scenarios resulting from trade liberalization? Any studies commissioned by the ministry of commerce/trade or the Chamber of Commerce?
  - What published sources can help determine the key environmental challenges in this country? What recommendations do they offer? Any studies or assessments undertaken by the ministry of environment/natural resources or key environmental NGOs, research institutes?
- Based on guidance from partner organizations and input from the Expert Advisory Panel conduct interviews with all the relevant stakeholders (government, non-governmental and private sector representatives), based on the following set of indicative questions:

Stakeholder interviews – economic (government ministries, trade experts including academia and research institutes, business community)

- What sectors are likely to see large import or export growth as a result of commitments in trade agreements, or likely commitments in ongoing negotiations?
- In those agreements under negotiation or planned, what investment commitments are likely or possible?
- What types of investments are likely as a result of investment commitments? What sectors? What volume? What host countries?
- What export sectors might be ripe for pursuit of green niche markets? What magnitude of potential is there? What obstacles would have to be overcome to achieve that success?

Stakeholder interviews – environmental (government ministries and environmental experts including NGOs, research institutes, academia)

- What are the key hotspots for environmental threats in the country at present? Locations, type of threats?
- What economic activities, social conditions and institutional failures might be driving those threats?
- What are the key threats for the future? What trends can be identified?
- What export sectors might be ripe for pursuit of green niche markets? What obstacles would have to be overcome to achieve that success? What would be the environmental costs and benefits?
- Are there any noteworthy success stories in environmental protection? How did they come about?

Step IV: Scenario building

Sector selection:

- from the top-ten lists identified in the statistical background work, identify environmentally-sensitive export sectors based on an environmental filter adapted from the Toxic Release Inventory (TRI)

of industrial pollution intensity (USEPA, 1994). This brings the current major sectors into the scope of the analysis;

- based on the stakeholder interview process, and the context of ongoing economic integration (empirical research, above), identify any sectors that are not currently important, but are likely to become key exports/imports/recipients of investment in the future. This brings prospective sectors into the scope of the analysis. This addition also allows for the inclusion of illegally traded sectors; and
- identify, as part of a separate list, any significant potential green niche export markets. This selection should be based on stakeholder interviews and the literature survey.

Scenario development:

- for the list of sectors identified, what are the likely trends in growth? Will planned or likely trade and/or investment liberalization increase or decrease activity in the sector? Have there been any studies undertaken to assess the potential impacts of trade and investment liberalization? Will other trends be important? What is the institutional structure in place (e.g., the infrastructure necessary to increase exports)? This step should reveal the potential future importance of the sector—the sector's scenario.

At this stage, there should be a clear picture emerging of the major sectors of environmental and economic importance, as well as their future growth paths. Check these results with, and ask for input from the Expert Advisory Panel.

Step V: Analysis of the impact scenario building

- For each chosen sector, identify the environmental implications of the scenario identified in the previous step.
- Ideally, this will involve the preparation of a background paper for each sector by an in-country consultant, including the previous economic analysis and the follow-on environmental implications.
- Analyze the nature of planned or likely investment regime commitments, and run them against the known risk areas, based on IISD's experience with international investment agreements and sustainable development.

Step VI: Preliminary conclusions and recommendations

Conclusions – As a result of the work and the input of the Expert Advisory Panel on the draft results, compile conclusions:

- in what traded sectors are there possible significant environmental impacts? Describe the nature and extent of those impacts, specifying in detail the conditions on which the conclusions depend (e.g., institutional factors, such as stringency of environmental regulatory regime);
- what environmental or social problems might result from the characteristics of the planned or likely investment legal regime? and
- what niche green market opportunities exist in the country?

Strategic policy recommendations – As a result of the analysis, and primarily based on input from the Expert Advisory Panel, compile recommendations:

- what sorts of policy measures or institutional strengthening might be employed to avoid or mitigate any identified environmental problems?
- what sorts of policy measures or institutional strengthening might be undertaken to help exploit any opportunities that have been identified?
- in what areas is there a need for additional research to help quantify the risks or opportunities identified? and

- convene a meeting of high-level stakeholders to contribute to discussions on trade/investment and environment, for example, a national workshop. The draft national report circulated in advance of the meeting should be essentially complete. The purpose of the meeting is to solicit comments on the draft national report, but more importantly, to present the background research papers and the results of the project and raise awareness of, and stimulate debate and discussion on the main emerging trade and environment issues.

Annex III: Statistical Trade Research for the Methodology

Based on the sectors identified through the statistical research of the RTEA methodology described in detail below, the following sectors were included in the assessment of this report:

Fish and fish preparations	HS 03 and 16
Vegetables and fruits	HS 07 and 08
Mineral fuels and oils	HS 27
Organic chemicals	HS 29
Plastics and articles thereof	HS 39
Rubber and articles thereof	HS 40
Textiles	HS 61 – 65
Non-electrical machinery and parts	HS 84
Electrical machinery and equipment	HS 85
Vehicles and parts	HS 87

The following methodological steps were undertaken to filter these sectors.

1. The basic starting point

The trade data underpinning the RTEA methodology was compiled from the Ministry of Commerce and the Board of Investment of Thailand, classified by value in Thai Baht. The 10 top exports, fastest growing exports, imports and top recipients of foreign direct investment (FDI) were taken into consideration and are identified below. The data provides an indication of the key trade sectors for Thailand based on which to operationalize the assessment of the potential environmental impacts of trade liberalization.

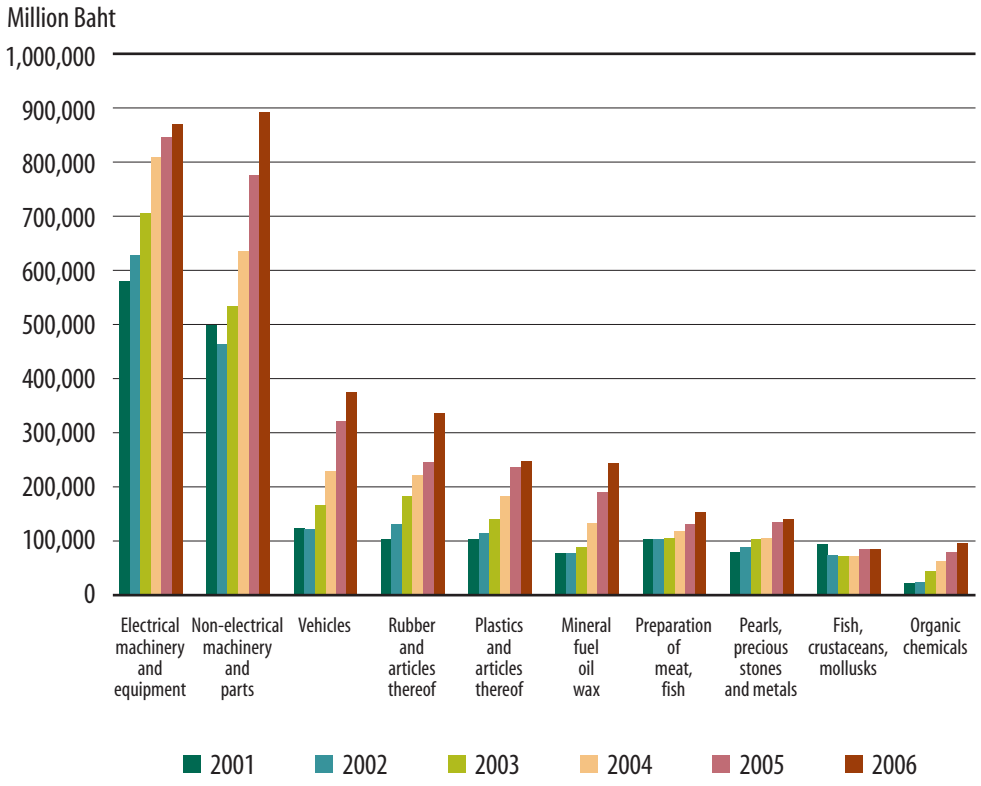
The starting point for the investigation was to examine the main exports over the past few years. As set out in Figure 7, Thailand's top 10 exports (by value at the two-digit HS level) in 2001–2006 were (ranked by average value over six years):

1. electrical machinery and equipment[1];
2. non-electrical machinery and parts[2];
3. vehicles and parts;
4. rubber and articles thereof;
5. plastics and articles thereof;
6. mineral fuel, oil and wax;
7. preparation of meat, fish;
8. pearls, precious stones and metals;
9. fish, crustacean and mollusks; and
10. organic chemicals.

1/ Top five exports under the electrical machinery and equipment HS 85 category: electronic integrated circuits (HS8542); reception apparatus for televisions (HS8528); printed circuits (HS8534); semiconductor devices (HS8541); and electrical apparatus for telephones (HS8517).

2/ Top five exports in the non-electrical machinery and parts HS 84 category are: hard disk drives (HS8471); parts of office machines (HS8473); air conditioning machines (HS8415); refrigerators (HS8418); and air or vacuum pumps, air or other gas compressors and fans (HS8414).

Figure 7: Top 10 exports in 2001–2006
(by value at the two-digit HS level, ranked by average value over six years)

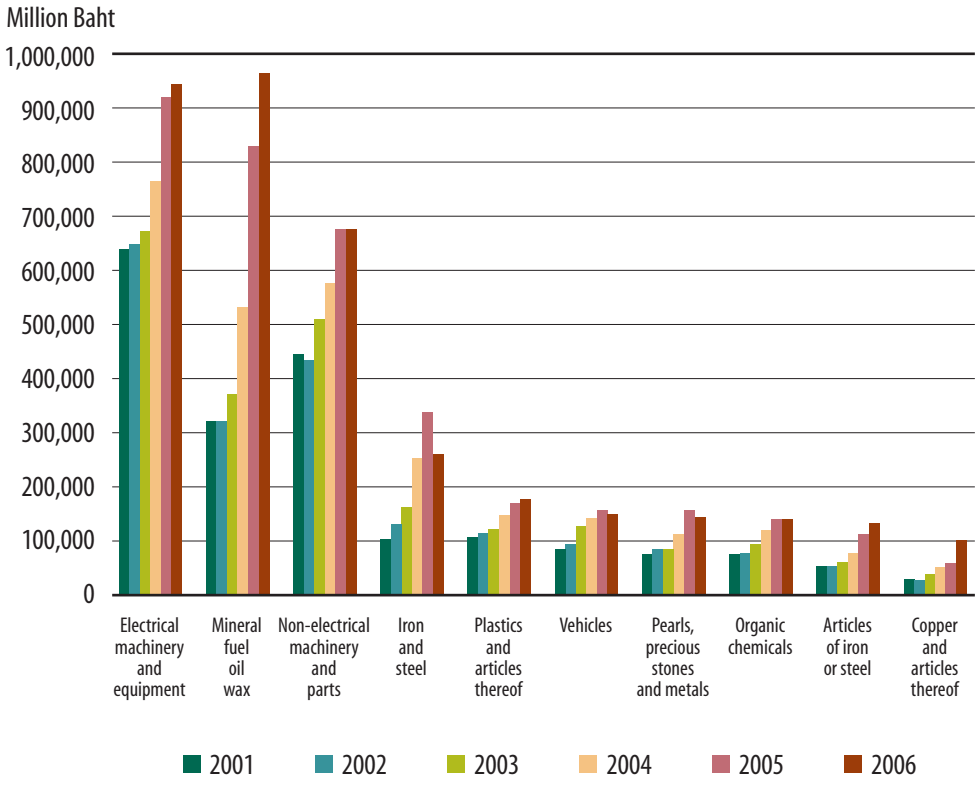


Source: Ministry of Commerce, as of January 25, 2007.

As set out in Figure 8, Thailand's top 10 imports (by value at the two-digit HS level) in 2001–2006 were (ranked by average value over six years):

1. electrical machinery and equipment;
2. mineral fuel, oil and wax;
3. non-electrical machinery and parts;
4. iron and steel;
5. plastics and articles thereof;
6. vehicles and parts;
7. pearls, precious stones and metals;
8. organic chemicals;
9. iron or steel and articles thereof; and
10. copper and articles thereof.

Figure 8: Top 10 imports in 2001–2006
(by value at the two-digit HS level, ranked by average value over six years)

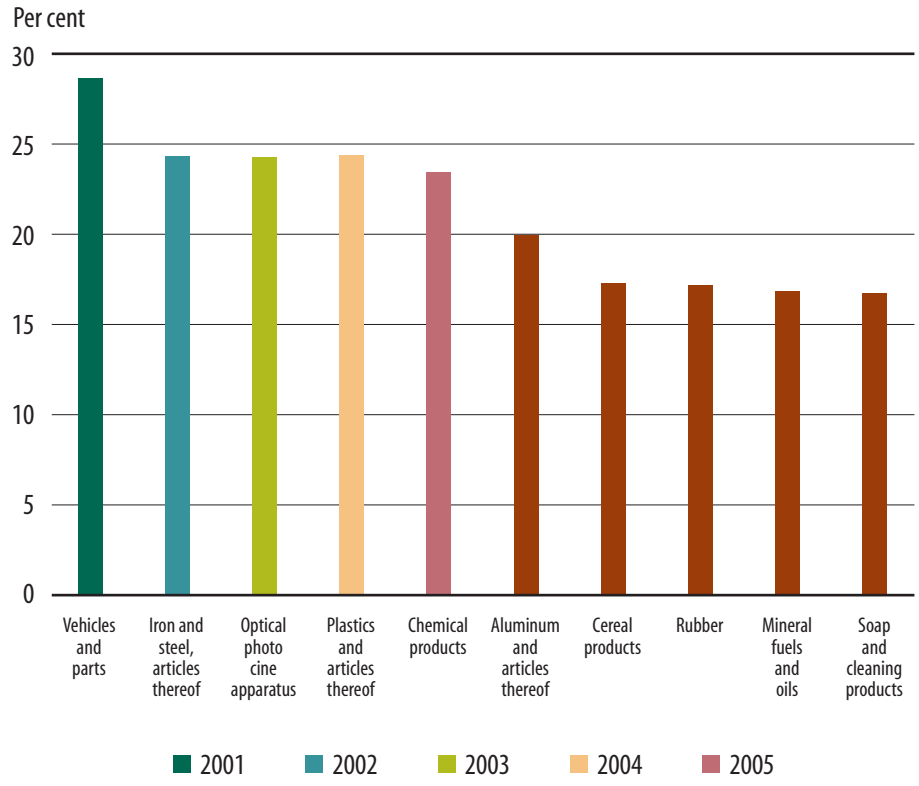


Source: Ministry of Commerce, as of January 25, 2007.

As set out in Figure 9, Thailand's top 10 fastest growing exports (by value at the two-digit HS level) in 2001–2005 ranked by four-year average growth rate were:

1. vehicles and parts;
2. iron, steel and articles thereof;
3. optical equipment;
4. plastics and articles thereof;
5. chemical products;
6. aluminum and articles thereof;
7. cereal products (including rice);
8. rubber;
9. mineral fuels and oils; and
10. soap and cleaning products.

Figure 9: Top 10 fastest growing exports in 2001–2005 (by value at the two-digit HS level, ranked by average four-year growth rate)

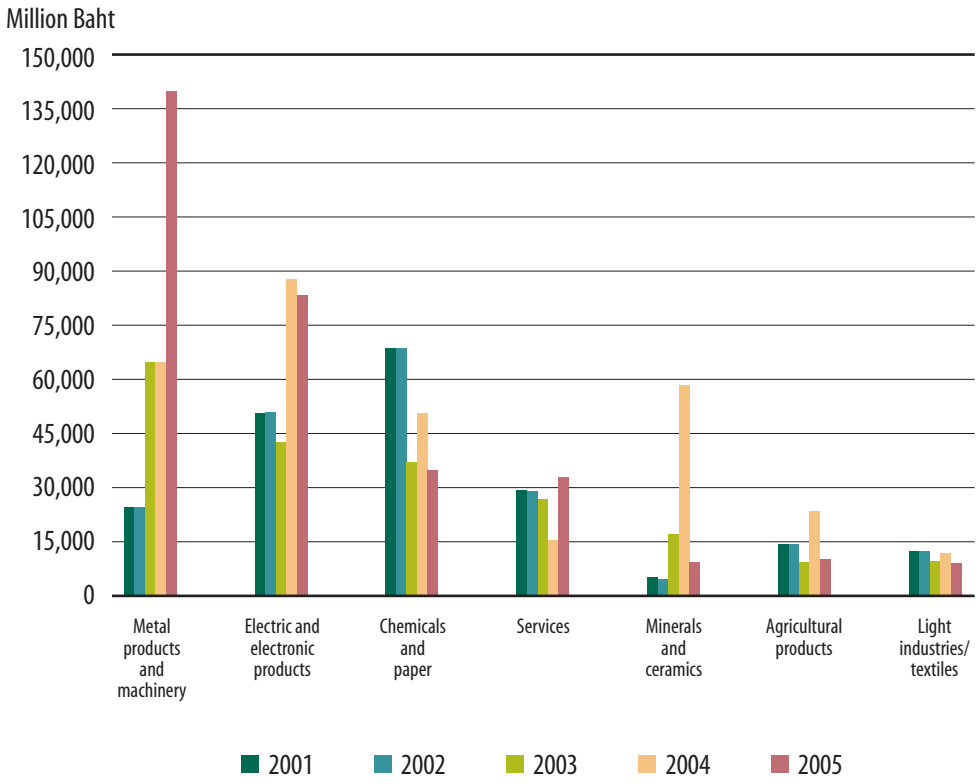


Source: Ministry of Commerce, as of January 25, 2007.

As set out in Figure 10, Thailand's top sectors for FDI in 2001–2005 ranked by five-year cumulative total value of investment in Thai Baht (based on the sectoral classification of the Board of Investment, Thailand, which classifies the top 10 sectors in 7 categories) are:

1. metal products and machinery;
2. electric and electronic products;
3. chemicals and paper;
4. services (tourism);
5. minerals and ceramics;
6. agricultural products; and
7. light industries/textiles.

Figure 10: Top sectors for FDI in 2001–2005 (by the Board of Investment (BOI) sectoral classification, ranked by five-year cumulative total value of investment)



Source: International Affairs Division, Board of Investment, as of July 13, 2006.

2. Filter the results: the environmental filter

From the above results, particular attention was paid to those sectors in the lists that are considered environmentally-sensitive, as filtered through the list of the top-30 polluting sectors (four-digit ISIC).[9] The polluting industries lists were adapted from the U.S. Toxic Release Inventory (USEPA, 2004). The necessary simplifying assumption is made that pollution intensity in Thailand and the U.S. is similar.

9 The industry sectoral classification system of ISIC is used as an environmental filter through which the product data collected by harmonized system (HS) is tested.

List of top 30 polluting industries

Dioxin-like pollutant intensity	All pollutant intensity
1. chemicals	metal mining
2. primary metals	primary metals
3. lumber	electric utilities
4. paper	paper
5. stone/clay/glass	chemicals
6. electric utilities	petroleum
7. petroleum	stone/clay/glass
8. metal mining	plastics
9. coal mining	food
10. instruments and related	coal mining
11.	lumber
12.	fabricated metals
13.	transportation equipment
14.	leather
15.	furniture
16.	textiles
17.	printing
18.	tobacco
19.	instruments and related
20.	electrical equipment

Moreover, further sectors were added based on a qualitative assessment of likely environmental harm or "green" market niche potential, taking into account government and non-governmental expert opinion—provided in this case by the Expert Advisory Panel as well as a thorough broad-ranging stakeholder interviews and a review of the relevant literature.

The top three from any of the above lists were to be included even if they are not part of the environmentally-sensitive list. In this case, it was decided not to include iron, steel and articles; optical equipment (from the fastest growing exports in Figure 9) and paper (from top sectors for FDI in Figure 10) in the current assessment in order to prioritize other more environmentally-relevant sectors (e.g., vegetables and fruit; textiles).

3. Final sectors chosen for analysis

The following sectors that emerged after applying the environmental filter were included in the assessment:

Fish and fish preparations	HS 03 and 16
Vegetables and fruits	HS 07 and 08
Mineral fuels and oils	HS 27
Organic chemicals	HS 29
Plastics and articles thereof	HS 39
Rubber and articles thereof	HS 40
Textiles	HS 61 – 65
Non-electrical machinery and parts	HS 84
Electrical machinery and equipment	HS 85
Vehicles and parts	HS 87

Annex IV: Stakeholder Interviews

- Initial preparatory stakeholder interviews for the RTEA project in the Greater Mekong Subregion were undertaken from March to May 2006.
- A first round of 24 stakeholder interviews for the RTEA in Thailand was undertaken by the researchers from August to November 2006.
- A second round of 10 interviews was undertaken between February and May 2007.
- A questionnaire was circulated to private sector stakeholders through the Thai Chamber of Commerce and Board of Trade of Thailand in April 2007, followed up by a briefing on the RTEA project and trade and environment issues in Thailand on July 9, 2007 (see Annex VII for the report of the meeting).
- Based on the framework questions set out in Step III of the methodology for the project (see Annex II), a list of the stakeholders interviewed follows.

Preparatory interviews (March to May 2006)

- Ms. Aban Marker Krabraji, Mr. Kent Jingfors, Dr. Zakir Hussain, IUCN, March 16, 2006.
- Ms. Sunanta Kangvalkulku, Bureau of Agriculture Negotiations, Department of Trade Negotiations, Ministry of Commerce, April 26 and November 1, 2006.
- Mr. James Tomecko, Mr. Parate Atrapavich, GTZ, May 2, 2006.
- Dr. Tariq Banuri, Stockholm Environment Institute, May 3, 2006.
- Thanpuying Dr. Suthawan Sathirathai, Good Governance for Social Development and the Environment Institute, May 3, 2006.
- Dr. Tiziana Bonapace and Dr. Marc Proksch, Trade and Investment Division, UN ESCAP, May 4, 2006.
- Mr. Rae Kwon Chung and Mr. Lorenzo Santucci, Environment and Sustainable Development Division, UN ESCAP, May 4 and September 16, 2006.
- Dr. Sitanon Jesdapipat, WWF, May 24, 2006.

First round of stakeholder interviews (August to November 2006)

- Dr. Hasan Moinuddin, Mr. Pavit Ramachandran and Mr. Lother Linde, Core Environment Program, Environment Operations Centre, ADB, August 7, 2006.
- Dr. Peter King, Institute for Global Environment Studies, August 10, 2006.
- Dr. Raywadee Roachanakanan, Faculty of Environment and Resource Studies, Mahidol University, September 10, 2006.
- Ms. Kanokwan Pibalsook, Office of International Cooperation on Natural Resources and Environment, Ministry of Natural Resources and the Environment, August 10, 2006.
- Ambassador Krirk-Krai Jirapaet and Dr. Watcharas Leelawath, International Institute for Trade and Development, September 4, 2006.
- Dr. Chantana Banpasirichote-Wungaeo, Chulalongkorn University, September 7, 2006.

- Dr. Charit Tingsabadh, Centre for Ecological Economics, Chulalongkorn University, September 7, 2006.
- Dr. Kazi Matin, Lead Economist Southeast Asia, World Bank, Bangkok, September 12, 2006.
- Mr. Buntoon Wongseelashote, Thai Chamber of Commerce, Board of Trade of Thailand, September 28, 2006.
- Mr. Wichan Charoenkitsupat, Siam Pulp and Paper Co. Ltd., September 28, 2006.
- Ms. Aim-Orn Srisajjakul, Thai Furniture Association, September 28, 2006.
- Dr. Sudip Rakshit, Asian Institute of Technology, October 17, 2006.
- Mr. Wyn Ellis, ITC Technical Assistance Project to strengthen the export capacity of Thailand's organic agriculture, September 17, 2006.
- Dr. Supachai Tepatanapong, Thai Industrial Standards Institute, Ministry of Industry, October 18, 2006.
- Dr. Sununtar Setboonsarng, Asian Development Bank Institute (Tokyo), October 17, 2006.
- Dr. Piyanuch Wuttisorn and Ms. Pojanee Artarotpinyo, Policy and Planning Analysts, Competitiveness Development Office, National Economic and Social Development Board, November 2, 2006.

Second round of stakeholder interviews (February to May 2007)

- Dr. Duenden Nikomborirak, Research Director, Competition Policy and Consumer Protection, Sectoral Economic Program, Thailand Development Research Institute, February 23, 2007.
- Dr. Adis Israngkura and Dr. Acharee Steinmueller, Researchers, Natural Resources and Environment Program, Thailand Development Research Institute, March 13, 2007.
- Dr. Chaiyod Bunyagidj, Vice President, Thailand Environment Institute, April 2, 2007.
- Dr. Sujitra Vassanadumrongdee, Research Fellow, Urbanization and Environment Program, Thailand Environment Institute, April 3, 2007.
- Dr. Javed Mir, Senior Resource Economist, Environment Operations Center, ADB, April 4, 2007.
- Mr. Nick Keyes, Communications Officer, UNDP, April 18, 2007.
- Dr. Akajate Apikajornsin, Deputy Secretary General, Electrical, Electronics, and Allied Industries Club, Federation of Thai Industries, April 20, 2007.
- Dr. Ampan Pintukanok, Director, Office of International Cooperation on Natural Resources and Environment, Ministry of Natural Resources and Environment, May 15, 2007.
- Ms. Teeraporn Wiriwutikorn, Chief, Hazardous Waste Division, Waste and Hazardous Sub-management Bureau, Pollution Control Department, Ministry of Natural Resources and Environment, May 15, 2007.
- Ambassador Khunying Laxandachantorn, Member, IISD Board of Directors, May 30, 2007.

Annex V: Thailand's Market Access Gains

As set out in Section 3 of the report, the expected economic impacts are based on an assessment of the main market access gains through tariff reductions in FTA trading partners. The assessment focused on the 10 sectors that emerged from the RTEA methodology (see Annexes II and III). An assessment of the tariff reductions in six trade agreements is contained in the following tables: Thailand-Australia; Thailand-New Zealand; AFTA; ASEAN-China; Thailand-India and JTEPA.

HS 85 – Electrical machinery and equipment

FTA	Base		Entry into force		Remark
	Max	Min	Max	Min	
Thai-Australia	10%	0%	5%	0%	Most tariffs are eliminated upon entry into force. For a few items, tariffs will be eliminated from 5% in 2010. Electrical ignition equipment (8511) and electrical lighting equipment (8512) will be eliminated in 2010
Thai-New Zealand	17.5%	0%	14%	0%	Most tariffs eliminated upon entry into force. For a few products, tariffs will be reduced from 7% to 14% by 2010
AFTA	—	—	5%	0%	Most tariffs are 5%. Tariffs have been eliminated on AC generators, electromagnets, welling machine, telephones, faxes, transmission apparatus, railway equipment, waste and scrap mainly iron or copper
ASEAN-China	—	—	—	—	Not included in the list of products scheduled for tariff elimination
Thailand-India	25%	10%	12.50%	5%	For 11 categories of 6-digit HS, the basic tariff rate is reduced by 50% upon entry into force in 2006
JTEPA	—	—	0%	0%	Tariffs eliminated upon entry into force

Source: Thaifta.com.

HS 84 – Non-electrical machinery and parts

FTA	Base Max	Base Min	Entry into force Max	Entry into force Min	Remark
Thai-Australia	15%	0%	5%	0%	Tariffs eliminated on most items. For a few items, such as engines (8407 and 8408) tariffs will be eliminated in 2010. Air conditioning parts (8415) reduced to 5% in 2010
Thai-New Zealand	7%	0%	10%	0%	Tariffs will be eliminated for most products. For several products, tariffs will be reduced from 8% by 2010
AFTA	—	—	5%	0%	Tariffs have been eliminated for most products. For several items, tariffs remain at 5%, e.g., water boilers, stream turbines, aircraft engines, vehicle engines, pumps, fans, air conditioning units, machine parts, refrigerators, washing machines, office machines
ASEAN-China	—	—	0%	0%	87 tariff lines scheduled for tariff elimination no later than 1 January 2012
Thailand-India	25%	25%	12.5%	12.5%	Tariffs were reduced by 50% upon entry into in 2006. For 24 6-digit HS categories, the basic rate is 25% reduced to 12.5% in 2004 and eliminated in 2006
JTEPA	—	—	0%	0%	Tariffs eliminated immediately upon entry into force

HS 87 – Automotive vehicles and parts

FTA	Base Max	Base Min	Entry into force Max	Entry into force Min	Remark
Thai-Australia	5%	0%	15%	0%	Tariffs removed on most items. For some automotive components, 5% tariff will be removed in 2010
Thai-New Zealand	17.5%	0%	15%	0%	For many products, tariffs reduced from 15% to 5% by 2010
AFTA	—	—	5%	0%	With a few exceptions, tariffs are 5%. Tariffs removed on ambulances, motor vehicles for the transports of goods, tanks, and carriages for disabled people
ASEAN-China	—	—	0%	0%	174 tariff lines scheduled for tariff elimination no later than January 1, 2012
Thailand-India	25%	25%	12.5%	12.5%	Tariffs reduced by 50% upon entry into force in 2006
JTEPA	—	—	0%	0%	Tariffs eliminated upon entry into force in 2007

HS 27 – Mineral fuels and oils

FTA	Base Max	Base Min	Entry into force Max	Entry into force Min	Remark
Thai-Australia	0%	0%	0%	0%	Tariffs eliminated upon entry into force in 2005
Thai-New Zealand	7%	0%	0%	0%	Tariffs eliminated upon entry into force in 2005
AFTA	—	—	0%	0%	Most tariffs eliminated in 2004. Lubricating oils for the automotive sector are 5%
ASEAN-China	—	—	20%	0%	Tariffs to be eliminated no later than January 2012
Thailand-India	—	—	—	—	Tariffs reduced by 50% upon entry into force in 2006
JTEPA	—	—	21.3%	0%	Tariffs eliminated upon entry into force in 2007. Specific duties are applied to certain items to be eliminated within 5 years

HS 29 – Organic chemicals

FTA	Base Max	Base Min	Entry into force Max	Entry into force Min	Remark
Thai-Australia	5%	0%	5%	0%	Tariffs eliminated. For a few products, tariffs are gradually reduced by 2008, e.g., styrene, aceton and ether-alcohols and triethanolamine
Thai-New Zealand	5%	0%	7%	0%	
AFTA	0%	0%	0%	0%	Tariffs eliminated for most items. Tariffs on some hydrocarbon items remain 5%
ASEAN-China	—	—	—	—	Not included in products scheduled for tariff elimination
Thailand-India	25%	25%	12.5%	12.5%	Tariffs reduced by 50% upon entry into force in 2006. For one category, the basic rate is 25%
JTEPA	—	—	6.5%	0%	After entry into force, immediate tariff elimination for most products

HS 40 – Rubber, and articles thereof

FTA	Base Max	Base Min	Entry into force Max	Entry into force Min	Remark
Thai-Australia	10%	0%	5%	0%	Tariffs eliminated for most items. For a few products, tariffs phased-out between 2008 and 2010, e.g., 4002, 4011, 4012 (new and used tires rubber), 4015, and 4016
Thai-New Zealand	17.5%	0%	15%	0%	Tariffs eliminated for most items. For a few products, tariffs reduced to 8% and phased-out by 2010, e.g., rubber tubes. For a few products, such as new and used rubber tires, tariffs are 9.5% to be phased-out by 2010
AFTA	—	—	5%	0%	For most items, tariffs are eliminated. Rubber transmission belts remain at 5%
ASEAN-China	—	—	—	0%	37 tariff lines scheduled for tariff elimination no later than January 1, 2012
Thailand-India	—	—	—	—	Tariffs are reduced by 50% upon entry into force in 2006
JTEPA	—	—	0%	0%	Tariffs eliminated on all items in HS 40 upon entry into force in 2007

HS 39 – Plastics, and articles thereof

FTA	Base Max	Base Min	Entry into force Max	Entry into force Min	Remark
Thai-Australia	5%	5%	0%	0%	Tariffs eliminated for most items. For a few products, tariffs eliminated between 2008 and 2010, e.g., 3911, 3913, 3917 and 3923
Thai-New Zealand	7%	0%	5.50%	0%	For several products, tariffs reduced from 5.5% to 5% and phased-out in 2010
AFTA	—	—	5%	0%	5% tariff for most items. For a few items, tariffs are eliminated, e.g., cellulose products and tapes
ASEAN-China	—	—	—	—	Not included in the products scheduled for tariff elimination
Thailand-India	25%	25%	12.5%	12.5%	Tariffs reduced by 50% upon entry into force in September 2004 and eliminated in 2006
JTEPA	—	—	5.4%	0%	For most items tariffs are eliminated upon entry into force in 2007. For a few items, polymers, tariffs phased-out within 5 years

HS 61-65 – Textiles

FTA	Base Max	Min	Entry into force Max	Min	Remark
Thai-Australia	25%	0%	12.50%	0%	For most products, tariffs are reduced to 5% in 2010
Thai-New Zealand	19%	0%	17%	0%	For many products, tariffs are phased-out from 17% by 2015
AFTA	—	—	5%	0%	Tariffs are eliminated for most items. Tariffs are 5% for womens and men's suits, dresses, tents, footwear, headgears, umbrellas, and artificial flowers
ASEAN-China	—	—	—	—	Not included in the list of products scheduled for tariff elimination
Thailand-India	—	—	—	—	Tariffs reduced by 50% upon entry into force in 2006
JTEPA	13.4%	2.7%	20%	0%	Immediate tariff elimination for all items except HS 64 (footwear). For HS 64, tariffs are on average 7%, but range from 21.9% (max) and 3% (min). These tariffs are scheduled to be phased out in 10 years from entry into force in 2007

HS 03 – Fish, crustaceans, mollusks

FTA	Base Max	Min	Entry into force Max	Min	Remark
Thai-Australia	0%	0%	0%	0%	Tariffs eliminated
Thai-New Zealand	6.5%	0%	5%	0%	Most tariffs eliminated upon entry into force in 2005
AFTA	5%	5%	0%	0%	Entry into force in 2004 and zero by 2010
ASEAN-China	—	—	—	—	Not included in the list of products scheduled for tariff elimination
Thailand-India	30%	30%	15%	15%	Tariffs reduced by 50% upon entry into force in 2006
JTEPA	—	—	9.1%	0%	Only some tariff lines are included. For these lines, some tariffs eliminated immediately upon entry into force. For many others, tariffs are scheduled to be eliminated in 5 years upon entry into force in 2007

HS 16 – Preparations of meat, fish, crustaceans, mollusks

FTA	Base Max	Base Min	Entry into force Max	Entry into force Min	Remark
Thai-Australia	5%	0%	2.50%	0%	Tariffs reduced upon entry into force in 2005. In 2007, tariff on tuna reduced from 5% to 2.5%
Thai-New Zealand	6.5%	0%	0%	0%	All tariffs removed upon entry into force
AFTA	5%	5%	0%	0%	Tariffs eliminated by 2010
ASEAN-China	—	—	—	—	Not included in the products scheduled for tariff elimination
Thailand-India	30%	30%	15%	15%	Tariffs reduced by 50% upon entry into force in 2006. Tariffs on salmon, sardine, Mackarel, and crabs eliminated in 2006
JTEPA	—	—	10%	3.5%	Tariffs eliminated in 5 to 10 years from entry into force in 2007

HS 07 – Vegetables

FTA	Base Max	Base Min	Entry into force Max	Entry into force Min	Remark
Thai-Australia	4%	0%	0%	0%	Tariffs on all items eliminated
Thai-New Zealand	7%	0%	0%	0%	Tariffs eliminated on all items
AFTA	—	—	35%	5%	Tariffs eliminated upon entry into force in 2004. For beans and nuts tariffs are scheduled to be phased-out by 2010
ASEAN-China	—	—	116%	0%	Tariffs eliminated upon entry into force on October 1, 2003. For a few products, there are quotas (onions, garlic, coconuts, dry fruits), but tariffs are eliminated
Thailand-India	100%	5%	50%	2.5%	Tariffs are reduced by 50% upon entry into force in 2006
JTEPA	—	—	12%	0%	Tariffs are scheduled to be eliminated for most products upon entry into force in 2007. For a few, tariffs will be phased-out in 5–7 years

HS 08 – Fruits

FTA	Base Max	Min	Entry into force Max	Min	Remark
Thai-Australia	4%	0%	0%	0%	Tariffs eliminated for all products covered
Thai-New Zealand	6.5%	0%	0%	0%	Tariffs eliminated for all products covered
AFTA	—	—	5%	0%	Tariffs eliminated upon entry into force in 2004
ASEAN-China	—	—	116%	0%	Tariffs eliminated upon entry into force on October 1, 2003
Thailand-India	100%	5%	50%	2.5%	Average tariff is 25%. Tariffs reduced by 50% in 2006
JTEPA	34%	2.5%	20%	0%	For most products tariffs are scheduled to be phased-out in 7 years. For a few, tariffs are eliminated upon entry into force in 2007. On average, tariffs are average 10% for most items

Annex VI: Report on the National Workshop

A Rapid Trade and Environment Assessment of Thailand June 19, 2007, Bangkok

The workshop *A Rapid Trade and Environment Assessment of Thailand* was hosted by the International Institute for Trade and Development (ITD) under the direction of the International Institute for Sustainable Development (IISD) in cooperation with IUCN – The World Conservation Union, and support from the Swedish International Development Agency (Sida).

The workshop aimed to:

- Foster a better understanding of the potential environmental impacts of trade liberalization in Thailand and to identify opportunities to address these impacts.
- Enhance policy coordination and dialogue on trade and environment issues among policy-makers and other policy stakeholders.
- Identify priority areas for further analytical policy work on trade and environment in Thailand.

The findings of the Rapid Trade and Environment Assessment (RTEA) project provided analytical input to help inform the debate at the workshop. The RTEA aims to present a relatively fast assessment of potential environmental impacts of trade liberalization to identify and prioritize those trade policies, negotiations and sectors that have potential to negatively or positively impact the environment, and deliver the associated policy advice. To this end, a series of background research papers were commissioned and presented at the workshop, which explored the environmental impacts of trade liberalization in six key sectors: electronics; automotives; rubber; textiles; fisheries; and fruits and vegetables. These papers were undertaken by in-country researchers and provided important background information and strategic policy recommendations for the final report of the project.

Opening session

Emphasizing the opportunity provided by this workshop to raise awareness on trade and environment issues, *Dr. Surakiart Sathirathai (Visiting Scholar, Harvard University; former Deputy Prime Minister and Foreign Minister of Thailand)* proposed to develop policy space in trade negotiations for developing countries. Drawing on the central importance of the sufficiency economy philosophy, Dr. Surakiart put forward three ways in which to build the appropriate policy space to ensure sustainable development in Thailand—knowledge, ability to implement policy, and corporate social responsibility (CSR).

Session 1 – Mainstreaming environment into trade and investment

Dr. Chaiyod Bunyagidj (Thailand Environment Institute) outlined his institute's work on sustainable development indicators (quality; stability and adaptability; fair distribution of development benefits; and good governance), as well as efforts by the Thailand Business Council on Sustainable Development (TBCSD) to translate sustainability principles into practice. Noting that development in Thailand had occurred largely at the expense of natural resources and the importance of trade as a tool to support sustainable development, he emphasized the need for good governance and standards based on sufficient information and effective implementation.

Noting GSEI's research on environmental management in the electronics sector, *Thanpuying Dr. Suthawan Sathirathai (GSEI)* stressed the need to enhance knowledge and technological innovation in Thailand to maintain its position in the global supply chain and attract foreign direct investment. She emphasized that growing informal sector in Thailand to recycle electronic waste had created significant human health and environmental damage both directly and indirectly.

Mr. Aaron Cosbey (IISD) addressed why it was important to discuss trade and environment—hope for economic restructuring in the interest of improving social welfare; economic restructuring entailed environmental impacts—positive and negative; direct and indirect. He noted that gains from trade may be less than optimal if socio-environmental impacts are not taken into consideration. He outlined five main types of environmental effects arising from economic restructuring: scale, structural, technology, direct and regulatory. He gave examples of how policy space could be enhanced or mitigated to regulate for a cleaner environment; the strength of the regulatory regime—policy space—was the mitigating factor that would frame the environmental impacts of trade and investment agreements. He said the purpose of the RTEA was to highlight environmental concerns arising from trade liberalization initiatives in an effort to raise awareness of the policy space necessary to address these concerns.

Dr. Tariq Banuri (Stockholm Environment Institute) spoke about the global challenge to address sustainable development in the current context, highlighting increasing inequality in income distribution at the same time as trade and per capital income had increased significantly. He noted that the Doha Development Declaration placed sustainable development as a centre point for trade and highlighted that transparent and predictable governance was key to linking trade and development policies. Acknowledging that the success of China had created legitimacy for the promise of trade-led growth, the trends are that trade is good for development, but bad for the environment. He called for environmental issues to be brought forward in the trade debate.

DISCUSSION – On the maintenance of policy space in trade negotiations, *Thanpuying Dr. Suthawan Sathirathai (GSEI)* noted concern over intellectual property rights for micro-organisms in the context of the Japan-Thailand Economic Partnership Agreement (JTEPA). *Mr. Cosbey (IISD)* said that the regulatory impacts of investment agreements, including in FTAs are an issue of concern in terms of loss of policy space; for example, if a multilateral investment agreement prohibits performance requirements—conditions for investors in order to be permitted to invest in host country. Mr. Cosbey noted that the WTO has gone way beyond tariffs, to deal with measures "behind the border," including standards, investment and services. Noting that negotiating an agreement by definition entails some restrictions, *Dr. Banuri (SEI)* said there was cause for concern because: (1) restrictions are being negotiated that reduce policy space in a biased manner; and (2) restrictions are being placed on policy space for government intervention to decrease inequality and increase environmental quality.

Session 2: An assessment of environmental impacts of trade liberalization

Outlining the development of the RTEA project, *Ms. Sabrina Shaw (IISD)* noted the preliminary nature of the assessment to identify potential environmental impacts of trade liberalization in six sectors: electronics, automotive, rubber, textiles, fisheries and fruits and vegetables. There was a need to maintain awareness of the trade and environment linkages as Thailand negotiated bilateral and regional trade and investment liberalization. *Dr. Bunchorn Songsamphant (researcher)* set out the economic and trade data for Thailand underpinning the choice of sectors for the project.

Noting the complex linkages at play in accelerating trade and investment liberalization in balance with environmental concerns, *Dr. Adis Israngkura (TDRI)* provided some conclusions from the assessment of the **automotive, rubber, textiles and fruit and vegetables sectors**, including the need: (i) to assess further the dynamic impacts of liberalization on sustainable resource management; (ii) to increase capacity to monitor the implementation of Thailand's environmental and natural resource regulations; (iii) to build capacity at the local level to increase the responsibility of authorities closest to the source of natural resource use and environmental degradation; and (iv) to shift from traditional command and control mechanisms to incentive and market-based instruments to effectively manage natural resources.

Providing background on the **electronics sector**, *Dr. Charit Tingsabadh (CEE)* highlighted concerns over e-waste in Thailand, with reference to the flow of e-waste and the focus on the "3 Rs" (reduce, reuse, recycle). Noting the importance of the international context established by the Basel Convention on Hazardous Waste as well as several EU waste Directives, he said the Thai electronics industry was driven by export market requirements. Acknowledging the important domestic policy issues at stake in this sector, he called for an acceleration of eco-design, innovation, and green procurement. There was a need to enhance education and training, as well as incorporate clean technology, including in the informal sector for recycling electronics.

On the **fisheries sector**, *Ms. Heike Baumüller (IISD)* emphasized that liberalization could encourage increased fishing efforts and fish stock depletion, especially without effective management; encourage aquaculture and processing (which exacerbated existing pressures); and increase green market opportunities to meet the demand for sustainably harvested or produced fish products. While Thailand had taken many national initiatives to regulate fishing effort and fishing gear, such as through codes of conduct and development of the *Thai Quality Shrimp* label, she noted the need for greater policy coherence, stakeholder participation for effective implementation of policies, and the need to improve data collection and certification.

COMMENTARY – Referring to the 1992 Rio Earth Summit, *Dr. Ampan Pintukanok (MONRE)* noted that the studies presented at this workshop were conducted in the right direction, yet the results were generally more negative than positive; assessment or evaluation of environmental impacts should be made carefully and possibly compared to benchmarks, such as the Millennium Development Goals. Noting the importance of putting in place a Thai RoHS and WEEE, *Dr. Akajate Apikajornsin (Federation of Thai Industries)* said the Federation of Thai Industries was studying various country initiatives on how to collect e-waste and promote extended producer responsibility in Thailand.

DISCUSSION – On the electronics sector, *Dr. Akajate (Federation of Thai Industries)* noted that the Thai WEEE had been put in place primarily to prevent dumping of e-waste into Thailand. *Dr. Charit (CEE)* and Dr. Akajate emphasized the importance of proactive strategies to foster innovation and eco-design to increase competitiveness in the electronics sector. On the impact of standards in the fisheries sector, *Ms. Baumüller (IISD)* noted that higher prices were the key incentive to improve production methods.

Session 3: Challenges and opportunities on the path to sustainable development in the GMS

Presenting a broader perspective of "green growth," *Mr. Rae Kwon Chung (ESCAP)* emphasized that the Asian region has to continue economic growth without jeopardizing ecological sustainability and the region's limited ecological carrying capacity; current growth patterns were unsustainable and resource intensive, underpinned by a "grow first, clean up later" philosophy. It was essential to apply ecological efficiency to reduce resource depletion and pollution impacts. Mr. Chung focused on the concept of "green growth" defined by eco-efficiency as an opportunity and an inevitable choice for the region, with eco-tax reform as an essential component. Trade liberalization could act to spread unsustainable consumption patterns if eco-tax reform were not carried out. Mr. Chung referred to a recent ESCAP study on the environmental impacts of trade liberalization in the food sector in the Asia-Pacific region, which revealed that environment-related standards and certification were costly and complex, yet essential to expanding trade.

Focusing on regional economic integration through trade agreements, *Dr. Tiziana Bonapace (ESCAP)* noted the prominence of investment in the debate. While not wishing to compromise the benefits of trade liberalization, there was growing recognition of the need to accurately reflect environmental externalities and bring environment into the trade debate. She noted that several bilateral and regional trade agreements contained environmental provisions. With reference to the statement that developing countries should be able to "trade their way out of poverty," she noted that the proliferation of FTAs was being driven by the desire to level the playing field and in response to the lack of progress at the multilateral level.

Mr. Sakarn Sansopa (Ministry of Commerce) noted the importance of reducing tariffs on environmental goods and services in the context of the WTO negotiations. He noted that New Zealand and the U.S. had asked to include environmental issues in their respective FTA negotiations with Thailand. *Mr. David Boyer*

(IISD) highlighted that investing in cleaner more environmentally-sound production was a business proposal that made sense economically as well as environmentally. Improved environmental efficiency would enable longer term returns on investment, for example through implementing ISO environmental management standards.

DISCUSSION – *Mr. Buntoon Wongseelashote (Thai Chamber of Commerce and Board of Trade)* noted the lack of sufficient capacity to enforce environmental regulations. *Mr. Christer Holtsberg (Sida)* questioned how to increase the efficiency of e-waste based on voluntary industry action. Noting the fact that the recycling industry started as a response to regulations in the U.S., *Mr. David Boyer (IISD)* emphasized the need to implement regulations to provide an enabling policy framework in the electronics sector. Highlighting the vitality of consistent policy-making, *Dr. Peter King (IGES)* said clarity at the policy level in Thailand would enable the country to implement the objectives of the Tenth National Economic and Social Development Plan; there was a need to work on energy efficiency and to reduce demand.

Session 4 – Conclusions and strategic policy recommendations for Thailand

Noting the lack of public participation in the Thailand-U.S. FTA negotiations, *Dr. Somrudee Nicro (TEI)* said the challenge is to redesign North-South cooperation to balance sustainability focusing on governance, transparency and accountability. *Dr. Supachai Tepatanapong (TISI)* said that consideration of environmental concerns required a comprehensive approach and policies that transcend national boundaries. He referred to the development of ISO 26000 and the growing demand for socially responsible behaviour as a key factor in maintaining a reputation in the private sector.

In order to achieve trade and environment policy integration, *Dr. Sitanon Jesdapipat (Red Crescent Climate Center)* put forward a conceptual framework based on sustainable trade and responsible investment based on the need to: (1) ensure policy linkage between sectors; (2) enhance technical cooperation to harvest mutual benefits from FTAs; (3) widen policy space for the private sector, including through responsibilities as well as rights; (4) monitor the economic activities and environmental impacts of SMEs; (5) build local institutional capacity, including in the legal community; and (6) develop clear policies on sustainable financing (e.g., incentives, "win-win" options).

Mr. Aaron Cosbey (IISD) recalled the premise of the RTEA exercise—to rapidly assess the main environmental impacts of trade liberalization. Citing the example of the North American Free Trade Agreement, he noted that it should have been possible to predict the environmental impacts in advance to avoid negative socio-environmental impacts. The aim of the RTEA was to elaborate policy recommendations on specific areas of concern and in which further work may be necessary. Mr. Cosbey noted some preliminary recommendations emerging from the discussions, including: (i) the need for an e-waste management regime; (ii) the need to increase value addition through design and innovation in the electronics sector; (iii) the need to reduce pressure on fish stocks; (iv) the need to increase access to clean production technology in aquaculture fisheries; and (v) the need for EIAs for new rubber plantations. Despite the solid track record for regulating to address key environmental issues in Thailand, dynamic regional integration had given a new urgency to undertake further research; if it were possible to predict that there is likely to be increased pressures from increased economic activity resulting from trade and investment liberalization, then negative environmental impacts could be avoided and positive impacts accentuated.

DISCUSSION – *Mr. Holtsberg (Sida)* noted that the discussion of trade had widened to include a host of other related policies, emphasizing the need for policy integration, but also policy confusion. *Dr. Peter King (IGES)* contrasted the RTEA with a modelling exercise undertaken by IGES in which GTAP modelling had been extended to incorporate environmental dimensions in ASEAN. Concerning comments with respect to corruption and lack of enforcement, *Dr. Supachai (TISI)* noted that this is a part of the ISO 26000 criteria of organizational governance. *Dr. Somrudee (TEI)* said that corruption can be countered through transparency and public participation. *Mr. Cosbey (IISD)* noted the importance of developing the RTEA project in collaboration with the Thai partners. *Dr. Sorajak Kasemsuvan (ITD)* highlighted the interest of his organization in developing trade and environment issues as part of its trade and development agenda; there was a need to increase policy and knowledge space to build capacity on sustainable development.

Annex VII: Report on the Meeting of the Thai Chamber of Commerce and Board of Trade of Thailand

Bangkok, Monday July 9, 2007

As a follow-up to the RTEA National Workshop in Bangkok held on June 19, the Thai Chamber of Commerce and Board of Trade of Thailand invited Mr. Rae Kwon Chung (Director, Environment and Sustainable Development Division, ESCAP) and Sabrina Shaw (IISD) to make presentations on "green growth" and trade and environment. The participants included representatives from several Thai trade associations (e.g., shrimp, seafood, food processors, tapioca and furniture) and the Ministry of Commerce, Ministry of Natural Resources and the Environment, and the Department of Export Promotion.

Noting the need for the private sector to internalize environmental costs throughout the life-cycle, Mr. Buntoon Wongseelashote (Vice Chairman, Committee on Trade-related Issues, Thai Chamber of Commerce and Board of Trade of Thailand) presented the concepts of sustainable development, ecological footprint and eco-efficiency. He referred to the need to enforce SPS standards to benefit consumers and ensure that Thai products could compete with imports, as well as meet export requirements.

Mr. Chung made a presentation of "green growth and eco-tax reform" highlighting the need to use resources more efficiently in order to allow for a "double dividend" for the economy and the environment from economic growth. He set out the importance of eco-tax reform as a tool to operationalize "green growth" and the need to measure eco-efficient patterns of growth. Mr. Chung focused on the need to improve consumption patterns, particularly through improving investment in infrastructure, such as transportation. He called for a new paradigm to measure growth that took environmental factors into consideration, such as eco-efficiency.

Ms. Shaw presented the IISD Rapid Trade and Environment Assessment (RTEA) project in Thailand, emphasizing that it represented a preliminary assessment that sought to bring together the main players to discuss potential environmental impacts of trade liberalization agreements.

There was discussion of three main points: (1) the need to enhance awareness of the complex interlinkages between trade and environment, including through capacity building initiatives; (2) the proliferation of and confusion created by international standards, both mandatory and, increasingly, voluntary standards, which act as *de facto* market access barriers; and (3) the need to address consumption patterns, which are the root of many concerns with respect to the environmental impacts of trade.

Dr. Monthip Sriratana Tabucanon (Director General, Department of Environmental Quality Promotion) referred to the inclusion of the concept of "green growth" in the latest five year development plan. She noted the recent OECD workshop in China to develop guidelines related to environmental issues to be used during trade negotiations. She highlighted the importance of increasing understanding on trade and environment in order that Thailand could prepare for trade and investment from an environmental perspective and take advantage of emerging markets, such as organic agricultural products. Mrs. Nuntawan Sakuntanaga (Deputy Director General, Department of Foreign Trade, Ministry of Commerce) stressed the need for enforcement of standards and noted the concerns expressed by Thai SMEs with respect to implementation of environment-related mandatory standards.

Annex VIII: National Workshop Agenda

The Challenges Ahead for Sustainable Development:
A Rapid Trade and Environment Assessment of Thailand
National Workshop
Tuesday 19 June 2007, 8:30 am

International Institute for Trade and Development (ITD), Chulalongkorn University
Vidhayabhathana Bldg, 8th floor, Chula Soi 12, Phayathai Road
Bangkok, Thailand (Tel: 02 216-1894)

Supported by:

Workshop objectives

- To foster a better understanding of the potential environmental impacts of trade liberalization in Thailand and to identify opportunities to address these impacts.
- To enhance policy coordination and dialogue on trade and environment issues among policy-makers and other policy stakeholders.
- To identify priority areas for further analytical policy work on trade and environment in Thailand.

To inform discussion, the workshop will draw on the findings of the *Rapid Trade & Environment Assessment* (RTEA) project, which has developed a practical interactive tool to help integrate sustainable development considerations into trade and environment policy-making.

At the end of each session, there will be time allotted for participants to comment and ask questions.

Introductory session

8.30–9.00 Registration

9.00–9.30 Welcome Remarks:

- Dr. Sorajak Kasemsuvan, Executive Director, ITD
- Ms. Sabrina Shaw, Associate, IISD
- Mr. Christer Holtsberg, Director, Swedish Environmental Secretariat for Asia

9.30–10.00 Keynote Address: Sustainable Development in Thailand

Dr. Surakiart Sathirathai, Visiting Scholar, Harvard University; Former Deputy Prime Minister and Foreign Minister of Thailand

Coffee break

Session 1: Mainstreaming environment into trade and investment

10.15–11.15 This session will explore the main linkages between trade and environment and address how best to ensure that trade and environment policies go hand-in-hand to promote a sustainable base for development. The session will also introduce the Rapid Trade and Environment Assessment (RTEA) pilot projects in Thailand and Lao PDR.

Presenters:

- Dr. Tariq Banuri, Director, Stockholm Environment Institute Asia
- Dr. Chaiyod Bunyagidj, Vice President, Thailand Environment Institute and Director, Thailand Business Council for Sustainable Development
- Mr. Aaron Cosbey, Associate and Senior Advisor, IISD

DISCUSSION

Session Moderator: Thanpuying Dr. Suthawan Sathirathai, President, Good Governance for Social Development and the Environment Institute (GSEI)

Session 2: An assessment of the environmental impacts of trade liberalization

11:15–12:15 Part 1: Background Research Results of the Rapid Trade and Environment Assessment (RTEA) Project in Thailand

This session will present the potential environmental impacts of trade and investment liberalization in the main export sectors in Thailand. This is not a simple task—export-led growth involves dynamic processes and entails economy wide impacts. This session will elaborate the results of the RTEA pilot project in Thailand in order to provide input to policy stakeholders on how to set a course for sustainable development in an era of rapid growth and trade and investment liberalization.

Presenters:

- Dr. Bunchorn Songsamphant, Researcher and Ms. Sabrina Shaw, Associate, IISD – economic analysis
- Dr. Adis Israngkura, Researcher, Thailand Development Research Institute –analysis of the automobile, rubber, textiles, and fruits and vegetables sectors

DISCUSSION

Session Moderator: Mr. David Boyer, Associate, IISD

Lunch (provided for participants at Sasa Restaurant, Chulalongkorn University)

Session 2 (cont.): An assessment of the environmental impacts of trade liberalization

1:15–2:30 Part 2: Sectoral Research Results of the RTEA Project cont.

Presenters:

- Dr. Charit Tingsabadh, Director, Centre for Ecological Economics, Chulalongkorn University – electronics sector analysis
- Ms. Heike Baumüeller, Mekong Coordinator, Trade Knowledge Network, IISD – fisheries sector analysis

Commentators:

- Dr. Ampan Pintukanok, Director, Office of International Cooperation on Natural Resources and Environment, Ministry of Natural Resources and Environment
- Dr. Akajate Apikajornsin, Deputy Secretary General, Electrical, Electronics and Allied Industries Club, Federation of Thai Industries

DISCUSSION

Session Moderator: Mr. David Boyer, Associate, IISD

Session 3: Challenges and opportunities on the path to sustainable development in the Greater Mekong Subregion

2.30–3.30 Regional integration in the Greater Mekong Subregion (GMS) is increasing rapidly. In order to move forward towards sustainable development "green growth," this session will highlight the challenges and opportunities for integrating trade and environment. The trade liberalization commitments being undertaken by GMS countries in the framework of AFTA and other regional and bilateral free trade agreements currently under negotiation will change the structure of their economies, which in turn, will have environmental impacts.

Presenters:

- Mr. Rae Kwon Chung, Director, Environment and Sustainable Development Division, UN Economic and Social Commission for Asia and the Pacific
- Dr. Tiziana Bonapace, Chief, Trade Policy Section, Trade and Investment Division, UN Economic and Social Commission for Asia and the Pacific
- Mr. Sakarn Sansopa, Senior Trade Officer, Bureau of ASEAN, Department of Trade Negotiations, Ministry of Commerce
- Mr. David Boyer, Associate, IISD

DISCUSSION

Moderator: Mr. Buntoon Wongseelashote, Vice-Chairman, Committee on Trade Rules and International Trade, Thai Chamber of Commerce and Board of Trade of Thailand

'Rapid' coffee break

Session 4: Conclusions and strategic policy recommendations for Thailand

3.40–4.50 Thailand is addressing many of the institutional and legislative aspects related to trade and environment issues. This session will put forward select strategic policy recommendations on trade and environment. Drawing on the research undertaken for the Rapid Trade and Environment Assessment (RTEA) project and input from workshop participants, it will allow an opportunity for discussion of the importance of, and opportunities to further integrate environmental considerations into trade and investment policy-making in Thailand.

Presenters:

- Dr. Somrudee Nicro, Senior Director, Thailand Environment Institute
- Dr. Supachai Tepatanapong, Director, International Relations, Thai Industrial Standards Institute, Ministry of Industry
- Dr. Sitanon Jesdapipat, Technical Advisor, Red Crescent Climate Center
- Mr. Aaron Cosbey, Associate and Senior Advisor, IISD

DISCUSSION

Moderator: Mr. Christer Holtsberg, Director, Swedish Environmental Secretariat for Asia

4.50–5.00 Closing remarks:

- Mr. Aaron Cosbey, Associate and Senior Advisor, IISD
- Dr. Sorajak Kasemsuvan, Executive Director, ITD

Cocktail