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Overview of the training package

This training package is aimed at giving course participants a comprehensive introduction to the subject of the relationship between trade and the environment. This subject area is large and complex and can be looked at in many ways. The principal focus of this training package is on the following two issues:

- The relationship between the rules which govern international trade, as specified by the World Trade Organisation (WTO), and the environment.
- The implication of WTO membership for China

The training package is presented as eight individual modules.

Module 1. Introduction to Trade and Environment provides an overview of the subject area of ‘trade and environment’ and in so doing provides some background for the more specific modules which follow. The trade and environment debate (at least in theoretical terms) is often described as the point of convergence of two very different schools of thought. Economic theory and trade policy on the one hand, and the theory of sustainable development and environmental policy on the other. This module begins by introducing some of the key theoretical concepts of both trade and environment theory. Attention then turns to the specific relationship between trade and the environment. Three questions are discussed:

- How does trade affect the environment?
- How does trade influence environmental policy?
- How does environmental policy affect trade?

There is also a discussion on the implications of trade for the design of environmental policy and a look at the implications of trade liberalisation for poverty and gender issues in developing countries.

Module 2. GATT and the World Trade Organisation, turns attention to the multilateral trading system, including its institutions and agreements. Firstly, a summary of the history of the GATT/WTO multilateral trading system is presented followed by an overview of the various agreements which makes up this system. This module also introduces the reader to the subject of how the environment has been treated in the trading system, from the early stages of the GATT to recent disputes and current discussions and negotiations in the WTO.
Module 3. Liberalisation of Environmental Goods and Services, deals with various suggestions as to how to liberalise trade in environmental goods and services in order to take steps towards sustainable development. Firstly, there is a description of the environment industry and the potentials for developing countries. Then the question of how to define environmental goods and services in a way that does not complicate trade procedures and that still fulfils the goal to promote sustainable development is discussed. In this context, various lists of environmental goods as well as various proposals on classification of services are presented. The module also discusses problems with tariff and non-tariff barriers. Finally, there is a presentation of the negotiation process in the WTO on this issue.

Module 4. The TRIPS Agreement and the Convention on Biological Diversity looks at the complex relationship between intellectual property rights and environmental concerns. This module focuses on issues of biopiracy, farmer’s rights, ethical aspects of patenting, as well as, although to a lesser extent, concerns over the fact that research is increasingly falling in the private domain. The first section provides basic knowledge on the WTO agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), its requirements as well as its consequences for developing countries. This section provides as well an overview of the TRIPS provisions which relate to environment. The second section gives an overview of the Convention on Biological Diversity’s (CBD)’s work on Access and Benefit Sharing. The third section then presents how often complex and controversial issues (including biopiracy, farmers’ rights and the ethics of patenting life forms) are debated in parallel in various fora: mostly WTO, CBD, WIPO and FAO.

Module 4 concludes on the crucial need for coordination between all relevant ministries and governmental agencies in order for countries to formulate consistent and coherent positions which take all concerns into consideration.

Module 5. Relationship between WTO and MEAs. The primary aim of this module is to give an overview of the MEA-WTO issue and thereby enable the reader to understand discussions in various fora, as well as to make the reader aware of synergies, possibilities and limitations to the use of MEA trade measures under the WTO rules. Can conflicts be avoided and, if so, what can be done now and further on?

Module 6. Market Access examines environmental measures and their effects on market access, in particular the effects on small and medium-sized enterprises (SMEs) in developing countries. A number of case studies have been conducted to determine, amongst other issues, the impact of environmental policies on the market access and competitiveness of developing countries and economies in transition. The discussions in the WTO concerning the effects on market access of various environmental measures, especially eco-labelling, are presented.
Module 7. Sustainability Impact Assessment, looks at methods for assessing the impacts of trade, and of trade negotiations. The module begins by providing an overview of impact assessment methodologies, an explanation of what sort of methodology is used in what situation, as well as a summary of how these methodologies have evolved in recent years. The focus of this module however is on the Sustainability Impact Assessment (SIA) methodology as it is this method which has been developed and used to specifically assess the social, environmental and economic impacts of trade negotiations.

The discussion of SIA’s is undertaken in three parts. The first is a description of the SIA methodology that has been developed by the European Commission. The second is a presentation of two case studies using this methodology, and the third is an analysis of strengths and weaknesses of the SIA methodology.

Module 8. Environmental Impacts of China’s Accession to the WTO, follows on from the previous module by summarising work which has been done on assessing the environmental impacts of China’s accession to the WTO. The information in this module is based on work that has been done for the Task Force on WTO and Environment (TFWE) of the China Council for International Cooperation on Environment and Development. The module reviews impacts in six sectors: agriculture, forestry, marine aquaculture, automobiles, energy and textiles. These studies are considered to be the most comprehensive assessment of the environmental consequences of trade liberalisation policies undertaken by any country to date.
1 Introduction to trade and environment

**Key concepts**: Sustainable development, protectionism, trade liberalisation, free trade, tariffs, non-tariff barriers, comparative advantage, absolute advantage, economics of scale, scale effects, composition effects, technology effects, race to the bottom hypothesis, pollution haven hypothesis, externalities, the polluter-pays principle, the precautionary principle, common but differentiated responsibility.

1.1 Introduction

The purpose of this module is to provide an introduction to the subject area of trade and environment and in so doing provide some background for the more specific modules which follow. This module looks at the overall relationship between trade and environment whereas the following modules focus more specifically on the implications of the World Trade Organisation \(^1\) (and on-going negotiations) for the Environment.

The trade and environment debate (at least in theoretical terms) is often described as being caused by the convergence of two very different schools of thought. Economic theory and trade policy on the hand, and the theory of sustainable development and environmental policy on the other. This module begins by introducing some of the key theoretical concepts (such as the theory of comparative advantage and the concept of sustainable development) of both trade and environment theory.

The module then goes onto look at the specific relationship between trade and the environment. Three questions are discussed:

- How does trade affect the environment?
- How does trade influence environmental policy?
- How does environmental policy affect trade?

The module also introduces some of the implications of trade for the design of good environmental policy. Finally there is a discussion on the implications of trade liberalisation for poverty and gender issues in developing countries.

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\(^1\) The WTO has since 1995 functioned as the institutional framework for the agreements that constitute the multilateral trading system. More about WTO is found in module 2 e.g. in section 2.3 “The World Trade Organisation (WTO)”
1.2 The trade and environment debate

The trade and environmental debate has its roots in the emergence of the environmental movement in the late 1960s. Rachel Carsen’s book, ‘Silent Spring’ (1962) is often attributed as being one of the founding works of the modern environment debate. While the environmental movement in its early stages focused largely on issues of domestic environment pollution (e.g. water pollution) the debate soon took a more international perspective as awareness of trans-boundary environment problems such as air pollution and the loss of biodiversity increased.

The 1972 Stockholm Conference is seen as a turning point in international environmental co-operation. The declaration of the Conference stated that nations have the responsibility of ensuring that domestic activities do not cause environmental damage beyond their own borders. The Stockholm Conference led to the creation of the United Nations Environment Programme (UNEP) and subsequently a range of International Environmental Conventions (see table 1).

Table 1: Environmental Milestones and Events

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1962</td>
<td>Rachel Carsen’s ‘Silent Spring’ published</td>
</tr>
<tr>
<td>1972</td>
<td>UN Conference on the Human Environment in Stockholm</td>
</tr>
<tr>
<td>1973</td>
<td>UNEP established</td>
</tr>
<tr>
<td>1979</td>
<td>CITES, the convention on international trade in endangered species is signed by 80 countries</td>
</tr>
<tr>
<td>1979</td>
<td>The Geneva Convention on Long-Range Transboundary Air Pollution</td>
</tr>
<tr>
<td>1979</td>
<td>Three Mile Island Nuclear plant partially melts down</td>
</tr>
<tr>
<td>1980</td>
<td>UNEP in collaboration with IUCN and WWF launches the World Conservation Strategy</td>
</tr>
<tr>
<td>1985</td>
<td>Vienna Convention for the Protection of the Ozone layer</td>
</tr>
<tr>
<td>1986</td>
<td>Chernobyl nuclear reactor explodes in Ukraine</td>
</tr>
<tr>
<td>1987</td>
<td>Montreal Protocol on Substances that deplete the Ozone Layer</td>
</tr>
<tr>
<td>1987</td>
<td>“Our Common Future” is published by the World Commission on Environment and Development</td>
</tr>
<tr>
<td>1989</td>
<td>Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal</td>
</tr>
<tr>
<td>1989</td>
<td>Exxon Valdez oil tanker runs aground in Alaska spilling 11 million gallons</td>
</tr>
<tr>
<td>1992</td>
<td>Convention on Biological Diversity</td>
</tr>
</tbody>
</table>

2 This table is a summary of a detailed list of environmental milestones presented in Swedish Ministry of the Environment (2002), Stockholm Thirty Years on: Progress achieved and challenges ahead in international environmental co-operation, Stockholm.
Furthermore, the Stockholm Conference gave a strong impulse to national environmental work in many countries, with environmental ministries and agencies established in more than 100 countries, as well as an explosive growth in the number of non government agencies (NGOs) dedicated to environmental protection.

The United Nations Conference on Environment and Development (1992), held in Rio de Janeiro (often referred to as the ‘Rio Conference’ or the Earth Summit) saw the focus of the international community move to the broader issues of the relationship between environment and development. It was at this conference that the concept of sustainable development entered the mainstream of discussion on the environment.

The concept of sustainable development was defined by the Brundtland Commission a few years prior to the Rio Conference as: “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Central to the concept of sustainable development was also the idea of there being three pillars- the economic, the social and the environmental – that need to be integrated in a balanced way.

The concept of sustainable development has been a fundamental part of the environment debate at both academic and policy levels ever since. The concept has been interpreted in many ways. In the academic literature some writers distinguish between ‘strong’ and ‘weak’ sustainability. ‘Strong’ sustainability places greatest emphasis on the need to protect the environment, whereas weak ‘sustainability is more accepting of trade-offs.

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4 ibid
between the environment and social and economic needs. In terms of international environmental policy and lawmaking, there is a consensus around the general concept of sustainable development (it is named as an objective in several international agreements, for example the Kyoto Protocol, Article 2) and the need to ensure that consideration is given to the three pillars. However, at the international level at least, moving from a general concept to agreement on how to set concrete goals and implement measures to achieve sustainable development has proven difficult. Implementing strategies for sustainable development has proven to be easier at the national level, with a variety of approaches reflecting the diversity of challenges faced by individual countries.

With the growing awareness of local, national and global environmental issues occurring at the same time as a growth in the volume of goods and services traded around the world (see Module 2) it became inevitable that the relationship between trade and the environment would come into the public focus. While the issue first surfaced on the international agenda at the Stockholm Conference in 1972, it was not until the 1990s that environmental issues were given a high priority in the context of GATT (General Agreement on Tariffs and Trade) and then WTO negotiations (this is discussed in more detail in module 2). During this time however, the subject continued to receive more and more attention from the academic community. The next section provides a short summary of the main principles of international trade theory before returning to look at the relationship between trade and environment in more detail.

1.3 Trade theory and policy

1.3.1 What is trade/why do people trade?

What is trade and why do people trade goods and services with each other? The need for trade occurs because of what economists term as scarcity. Scarcity means that there is a clash between limited resources on the one hand and unlimited wants on the other. People have traded with each other for centuries in order to overcome local scarcity of goods and services. Other reasons for trade include:

- Increased power and national influence
- Promoting foreign policy goals
- Cultural/social reasons
- Economic development
- Specialisation

Some of these issues will be further developed later in this training material.
1.3.1.1 FREE TRADE, TRADE LIBERALISATION AND PROTECTIONISM
Trade is generally carried out between individuals or companies, but governments have also played a significant role in trade with different types of intervention, often controlling it through either the use of force or the use of tariffs, subsidies or regulations. Policies that intervene in the trade system to support domestic industries vis-à-vis foreign competitors are in some cases referred to as ‘protectionism’ while policies that deregulate trade are known as ‘trade liberalisation’.

There is a distinction between the terms ‘Free trade’ and ‘trade liberalisation’. ‘Free trade’ can be defined as international trade which is free from governmental intervention, tariffs, subsidies, import quotas, export limits and other measures which discriminate between domestic and foreign goods and services. Free trade is therefore a theoretical concept, a target or end-point, rather than a reality because no where in the world can trade be said to be completely free of intervention. ‘Trade liberalisation’ on the other hand is the process of moving towards a more open trading system. Advocates of ‘free trade’ do not generally want a world without any rules or restrictions on trade. Indeed most advocates of free trade consider it important to have an organisation (like the World Trade Organisation) to oversee that the trading system is working well, for the benefit of all members.

1.3.1.2 METHODS FOR TRADE RESTRICTION
Most countries, if not all, use some form of trade restrictions today. The two main methods for restrictions on international trade used by governments are tariffs and non-tariff barriers. A tariff is a tax that an importing country imposes when a good is imported across the national boundary. Non-tariff barriers are any actions, other than tariffs, that restrict trade internationally e.g. quantitative restrictions (import quotas). Product requirements and standards can also restrict trade and thereby be seen as non-tariff barriers. More about tariffs and non-tariff barriers will for example be discussed in Module 3: Liberalisation of environmental goods and services and Module 6: Market Access and environmental protection.

1.3.2 Theoretical arguments for free trade
An important person in the early theory of economics and trade was Adam Smith. He wanted to understand the sources behind economic wealth and in 1776 he published his work “An Inquiry into the Nature and Causes of The Wealth of Nations” in which he laid the foundation of economics as a science. He identified two important factors namely: the division of labour (specialisation) and free domestic and international markets.

Inspired by Smith’s work David Ricardo developed the theory of comparative advantage in 1817. Economic arguments for the gains from trade are to a large extent based on this theory, which simply states that not only should labour within a country specialise...
but also that each country should **specialise** in producing products and services for which they have a natural cost advantage, and then trade with each other. This will increase their net welfare (wellbeing) compared to a scenario whereby they try to meet all their needs for good and services through domestic production. The general idea is that if each country specialises in producing products (or services) in which they have a comparative advantage, the combined out-put will be larger, produced at less cost and therefore all will be better off.

A fictive example where the connection between comparative advantage and opportunity cost\(^7\) is illustrated in table 2 and explained further below.

**Table 2: India and Malaysia, a fictive numerical example**

<table>
<thead>
<tr>
<th></th>
<th>One unit of rice</th>
<th>One unit of tea</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>4 labour hrs.</td>
<td>2 labour hrs.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>5 labour hrs.</td>
<td>15 labour hrs.</td>
</tr>
</tbody>
</table>

In this example, India has a lower production cost (4 labour hours) for producing one unit of rice (e.g. one kilogram) than Malaysia (5 labour hours). India can also produce one unit of tea at a lower cost (2 labour hours) than Malaysia (15 labour hours). India has in this example what is called an **absolute advantage** in producing both of these goods compared to Malaysia. Should India produce both rice and tea and Malaysia not produce anything? According to the theory of **comparative advantage** the most important thing is for each country to specialise in those goods which minimise their opportunity cost.

According to the example above, India needs to sacrifice 2 units of tea in order to produce one more unit of rice, if we assume that the labour input must be pulled from tea production. If 4 hours of labour is drawn away from tea production, this means giving up production of 2 units of tea. The sacrifice of tea production is a cost (so-called opportunity cost) when producing additional rice units.

So in the India case: 1 unit of rice cost 2.0 units of tea, while 1 unit of tea will cost 0.5 unit of rice. In the Malaysia case: 1 unit of tea will cost 3.0 units of rice and 1 unit of rice will cost 0.333 units of tea.

In economic terms therefore, the opportunity cost of producing 1 unit of rice is lower in Malaysia (0.333 unit of tea instead of 2.0 units of tea). Malaysia should focus on rice production, since Malaysia has a comparative advantage in producing rice compared to India.

India on the other hand should specialise in tea production since it has lower opportu-

\(^7\) The cost of the best alternative action is called “opportunity cost”
nity costs of producing 1 unit of tea than Malaysia (0.50 unit of rice instead of 3.0 units of rice).  

This is a simplified example to illustrate the idea behind comparative advantage. To better understand different countries’ comparative advantage in the real world we need to take into account other factors than labour that are important for our production possibilities like land and capital etc.

The theory of comparative advantage has been further developed since Ricardo, most notably by Heckscher & Ohlin. Ricardo assumed that the comparative advantages to a large extent were based on differences in production technology while Heckscher & Ohlin in their theoretical discussions have focused on the importance of factor endowments. Heckscher & Ohlins’ theories 9 point at the fact that countries have differences in factor endowments of land, labour and capital inputs. For this reason they will specialise in and export products which most intensively use the production factors of which they are most endowed.

The support for trade liberalisation is further underpinned in today’s neoclassical economic theory. Trade restrictions like taxes and tariffs are assumed to reduce peoples’/companies’ gains from specialisation and trade. 10 In summary, economic theory supposes that the liberalisation of trade will lead to increased economic growth and improved standards of living, and is therefore to be encouraged. It is important to note that according to economic theory some individuals or sectors may be worse off because of trade. However, there is an assumption 11 that those people or sectors that gain from a particular policy will be able to compensate the losers. In other words, economic theory generally concerns itself with the net effect of a particular policy and not on the fate of individuals or sectors.

It may seem puzzling that many countries trade in similar goods, e.g. trade cars with each other and other types of manufactured goods. Economists’ answer to this is that one needs to take into account the diversity of preferences. For example, in the case of cars, people generally value variety and are willing to pay for it. Another answer given is economics of scale. This term points at the tendency for average production costs to be lower the larger the scale of production. One of the causes for this is that at a low production level the producer might need to use less automated and more labour intensive production techniques.

Many policy-oriented economists also argue that comparative advantage is not only

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8 For more details on the theory on comparative advantage etc., see for example http://www.digitaleconomist.com/
11 While this assumption is widely regarded by economists to be unrealistic it is seen as providing a useful point of departure for a more realistic political economic analysis.
inherited but can to some extent be created. National policymakers can by undertaking appropriate policies enhance the nation’s comparative advantage or create new advantages e.g. by research in new technologies.

It should be noted that the economic theories described above are based on simplifications of the complex real world and many assumptions are made in formulating these theories. For example, transport costs and accompanying environmental are not included in these theories and it is assumed that everybody has access to all information, which is not the case today.

In recent years, the theory and models have developed considerably as they attempt to reflect real world conditions. Two important areas of modification to the theory have been:

1) Accounting for environmental externalities
2) Allowing for capital mobility

Trade theory generally assumes that all values are included in prices on the market e.g. in costs for production and consumption. This is however not the case today. One reason for that is the presence of so-called externalities. Externalities can be described as (not intended) effects, positive or negative, which are not reflected in prices or production costs. One example is a negative effect on the environment, which is not compensated and which has been caused without any market transaction (environmental externality). Since costs, e.g. in form of depletion of natural resources etc., are not reflected on the market (market failure) governments could reflect the environmental cost e.g. by imposing an environmental tax. Market failure and externalities will be described more in section 1.3.3 and 1.5.

Another area of modification of economic theory regards “capital mobility”. Ricardo’s theory of comparative advantage was written at a time when there was restricted movement (or mobility) of capital across borders. In today’s world however, national boundaries do not inhibit the flow of capital, but they do still to a large extent inhibit the flow of labour. The free flow of capital and good (instead of goods only) means that investment is governed more and more by absolute profit-ability then by comparative advantage. 12 The movement of capital will also be discussed in section 1.4.

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1.3.3 Arguments for trade restriction

Within the academic literature there is a large amount of material which challenges the economic arguments for free trade and the reality shows that trade restrictions are very common. So, why do nations regulate trade? The above section has already mentioned some of problems addressed within the school of economic theory itself. The following section presents a brief overview of some of the main arguments used in favour of regulating trade (and often therefore in opposition to trade liberalisation).

1.3.3.1 NATIONAL INTEREST CAN DIFFER FROM THE OPTIMAL GLOBAL ECONOMIC POLICY

Economic theory tends to look at the net sum of benefits to all participants in a trading system. However, as was pointed out earlier, it may not always be in an individual nation’s interest to participate in a more open trading market. Economic theory accepts that for some countries it can be beneficial to restrict trade if their demand for, or supply of a product on the world market is big enough to affect the world market price. For example, if Brazil has such a position regarding coffee then it could be beneficial for Brazil to tax their own exports of coffee, since this would diminish the supply, raise the world market price and accordingly increase Brazil’s total receipts.

It should be noted that the losses for other countries due to this behaviour are often larger than the gains that the individual country receives from raising export prices or lowering import prices, so the global economy can also be affected in a negative way. Developed countries are generally more competitive in sectors for which labour costs are not crucial (e.g. for some high tech goods). Accordingly, companies in these sectors (and their governments) tend to argue for lower tariffs in other countries’ markets in these sectors.

1.3.3.2 PROTECTING EMERGING INDUSTRIES

An argument against free trade which is often raised by developing countries is the need to provide some protection from international competition for newly established industries for a certain time period. Some studies indicate that these measures can in fact be counter–productive, but there are different views amongst economists on this.

1.3.3.3 SPIN-OFF EFFECTS

A further argument against free trade and specialisation is the importance of the presence of certain businesses and products to other sectors of the economy. One example is the subsidisation of airplane production, a high-tech industry which it is suggested leads to the development of new technologies that are of benefit to other parts of the economy, such as the car industry.13

1.3.3.4 PROTECTING ‘ESSENTIAL’ INDUSTRIES
Many countries choose to safeguard the domestic production of certain staple commodi-
ties and provisions, regarded as essentials, regardless of whether they are comparatively
efficient in producing these products or not. Protection of the agriculture sector by devel-
oped countries due to fears of war and bad harvests is the most prominent example of
this.

1.3.3.5 POLITICAL CONSIDERATIONS
Trade liberalisation and subsequent structural changes to the economy often lead to job
losses in certain sectors. Theoretically the people that have lost their jobs should be able
to find new jobs in sectors in which the country has a comparative advantage. However, if
a country does not have a comparative advantage in labour intensive industries job gains
in export-led growth sectors may not compensate losses. Even if they do, it can take a
long time to adjust to these changes and some people might not be able to find new jobs
e.g. they might be considered too old. These people might not share the gains of free trade
and might for example, try to convince politicians to restrict imports.

In times of economic recession there is generally more evidence of protectionist
measures as countries strive to keep production and employment in their own country.

The outcome of international trade negotiations between governments/politicians is
often dependent on each countries’ political considerations (e.g. in finding a balance in
lowering specific tariffs). so that each country does not lose to many job opportunities in
vulnerable sectors etc. Negotiations in certain sectors can be particularly sensitive due to
their importance politically or economically for some countries.

The very strong resistance by developed countries to reforming their agricultural sub-
sidies is a prominent example of this, as is the reaction of some developed countries to the
effects of the removal of textile quotas.

1.3.3.6 MARKET FAILURE
Some of the supporters of free trade maintain that all governmental interference is nega-
tive for the trade system. However one argument for governmental intervention widely
accepted by most is the need to correct for market failure. Sometimes an unregulated
market fails to achieve allocative efficiency and produce welfare-enhancing outcomes.
Market failure can e.g. arise when production of goods and services cause external costs.
This will be described more in section 1.5.

1.3.3.7 IMPERFECTLY COMPETITIVE MARKETS
A big part of the trade between some countries is not predominantly based on compara-
tive advantage due to the fact that technological capabilities and resource endowments are
similar. Rather the trade is often based on differences in design, product quality, reliabil-

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ity etc. Often such trade can take place in markets where trade patterns and competitive advantage can be manipulated by individual firms market power and policy interventions of different governments.

In such markets the choices are not only between interventionist measures or free trade, but between the appropriate mix of trade liberalisation and government intervention that will improve the national welfare and still sustain an open international system of trade. It is a challenge for the governments to address market failure and imperfect markets and for the World Trade Organisation (WTO) to ensure a well functioning international trading system.

In summary, as described above there are possible gains from trade and comparative advantages for all countries in producing some goods or services but there are also many issues and problems that needs to be taken into account. For example, how to address market failure and external costs (e.g. negative effects on the environment).

The relationship between trade and environment can be explored in many different ways. In the following section 1.5 the relationship will be studied mainly from perspectives and studies in academic literature. In 1.6 the use and design of environmental policy to handle negative environmental effects will be discussed.

Discussions on the relationship between trade and environmental law and the relationship between the environment and the WTO will be covered to some extent also in Module 5 “The relationship between the WTO and MEAs”.

1.4 The relationship between trade and environment

As mentioned in the previous section the debate on the relationship between trade and the environment has become more and more prominent in academic literature in recent years. The debate is a complex one and can be looked at from many angles, however three key questions appear to dominate the discussion.

1) What effect does trade and trade liberalisation have on the environment (direct environmental effect)?
2) What effect does trade and trade liberalisation have on environmental policy (indirect environmental effect)?
3) How does environmental policy influence international trade?

These questions have been and continue to be of great concern to economists, policy makers and environmentalists. Each of these questions is now discussed in turn.

\[14\] Parkin, M. (1993) “Economics”, University of Western Ontario, USA
1.4.1 What effect does trade and trade liberalisation have on the environment (direct environmental effect)?

How trade influences the environment has been at the heart of the trade and environment debate. The literature generally identifies three channels in which trade influences the environment (for a more detailed description of these effects see Module 8). These are:

1. **Scale effects.** For physical reasons more output often means more pollution (and possibly depletion of natural resources), other things being equal. Scale effects are generally assumed to lead to a negative impact on the environment.

2. **Composition effects** – trade and growth can shift the composition of a country’s output, for example from agricultural to manufacturing, or from manufacturing to the services sector. Some sectors will expand while others will contract. Composition effects can lead to both positive and negative environmental impacts.

3. **Technology effects** – trade is often accompanied by increased technology development and transfer. Environmental impacts can be both positive and negative. They can lead to a decreased impact on the environment if “cleaner technologies” substitute older, less effective technologies. They can also lead to increased impacts when polluting technologies are introduced for the first time – the use of chemical pesticides in agriculture and more efficient forest harvesting technologies can serve as examples.

Trade may influence the environment through all three effects. The overall effect on the environment is determined by which of these effects is predominant which in turn, as mentioned above, is often influenced by factors such as the size of the economy, the level of economic development, and the structure of the economy (factor endowments). The important thing is the net result of the scale, composition and technique effects, not the individual effects.

1.4.1.1 THE ENVIRONMENTAL KUZNETS CURVE (EKC)– THEORY AND EVIDENCE

As mentioned above, an important variable in determining the overall impact of trade and the environment is the level of economic development in a particular economy. Trade liberalisation will lead to a scale effect and is expected to raise growth and income per capita. The relationship between the level of income and the environment has been of
particular interest to economists and in many ways is critical to the debate on the merits of liberalised trade. One theory which attempts to describe this relationship is the so-called Environmental Kuznets Curve (EKC).

The EKC draws its inspiration from the work of Simon Kuznets who observed that income inequality tends to become worse as a country grows out of poverty. The observation that environmental degradation could follow a similar income dependent path was made by several economists at the end of the 1990s. Grossman and Krueger, (1991) for example, showed an inverted relationship between per capita income and emissions of SOX and suspended particulates.

Theirs and others’ (Shafik and Bandyopadhay, 1992) research led to the formulation of the EKC hypothesis which suggests that, as economic development proceeds for low income levels there is at first a rapid per capita increase in pollution, resource use and waste generation.

Then it is suggested that at higher levels of economic development environmental degradation will abate as resources become available for investment in better technologies (see figure 1). Referring to the different types of effect described above it is argued that above certain levels of income, per capita technological progress (the technical effects) will dominate scale effects and accordingly growth will eventually benefit the environment. The composition effect is said to shift the curve.

Is there empirical support for this theory? For some countries where there are a long time-series of data there is some evidence that for some types of pollution (or other environmental impact) this U-shaped relationship can hold over time. For example, the air in London was more polluted in the 1950’s than it is today. A similar pattern holds with respect to deforestation in rich countries. Several authors in addition to Grossman and Krueger have demonstrated the relationship in relation to SO2. However, other studies show little support for such a relationship. No such evidence of such a relationship has yet appeared for CO2 for example. Furthermore, the EKC concept fails to explain the decline in environmental indicators such as biodiversity.

The EKC hypothesis has received heavy criticism from economists and non-economists alike and remains highly controversial. This is perhaps not surprising as the EKC hypothesis seems to suggest that if countries simply promote growth the environment will take care of itself. This is an inaccurate portrayal. A panel of economists led by well known economist Kenneth Arrow met in Sweden to consider the relationship between growth and environmental quality. They concluded that an inverted U-curve does not of itself constitute evidence that environmental quality will improve in all cases or that it will improve in time to avoid adverse impacts of economic growth. Furthermore, they concluded that in most cases where emissions have been declining with increased income the reductions are due to improved environmental legislation and market based incentives\textsuperscript{22}.

As described in section 3.1.2 most type of pollution or adverse environmental impacts, can be defined as external costs or externalities. For such externalities higher income and the public’s will to clean up the environment are not enough, there must be some effective government regulation. In cases of trans-boundary pollution such as CO\textsubscript{2} there must be multilateral co-operation.

\textsuperscript{22} Reference to this meeting is taken from Aasafu Adaye, J. (2005)
1.4.1.2 EXAMPLES OF THE EFFECT OF TRADE LIBERALISATION ON THE ENVIRONMENT

The OECD’s Joint Working Party for Trade and Environment has studied environmental effects of trade liberalisation. In these studies, OECD governments generally regard trade liberalisation as being positive for the environment provided that well functioning environmental policies are implemented. However it is important to note that the impacts of trade liberalisation will vary considerably according to what sector is being discussed, which country and even which region.

Looking at some sector examples, liberalisation of trade in environmental goods and services (EGS) is widely regarded as bringing positive benefits both for the environment & trade, so called win–win outcomes. These are discussed in more detail in Module 3.

The environmental effects of liberalising trade in fossil fuels sector are however, much more complicated. They could be positive with increased competition in the energy sector but on the other hand reducing prices of fossil fuels might lead to more consumption and therefore increased pollution. For example if prices are reduced on fossil fuels the use of these might increase possibly at the expense of renewable energy sources which will get relatively more expensive compared to fossil fuels.

Turning to some country specific examples, Mukhopadhyay & Chakraborty (2005) have studied the environmental impacts of trade in India, where the main question was if open economies are more likely to be pollution havens.

This study makes the assumption that a country has environmental gains from trade (in relative terms) if the pollution content of imported goods is higher than that of exported goods. This is because environmentally unfriendly production and following environmental damage is mainly located in other countries. The model combines compositional and technological effects which reflect the policy options to either import goods from other countries which have been produced in an environmentally unfriendly manner or use cleaner technologies in domestic production.

The conclusion of this study is that India, as a developing country, had not become a pollution haven during the observed period of trade liberalisation. The pollution related to imports had clearly been larger than pollution associated with exports and therefore India has experienced environmental gains over this time. However, it is quite feasible that

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23 Organisation for Economic Co-operation and Development (OECD)
24 According to for example REPORT ON TRADE AND ENVIRONMENT, 1999, C/MIN(99)14, Can be accessed at: http://www.oecd.org
25 Article from The International Trade Journal Vol.10 No. 2 (Summer 2005) s.135-163 “Environmental impacts of trade in India” Mukhopadhyay& Chakraborty.
26 The so called ‘pollution haven hypothesis’ basically means that environmental standards will, in the face of competitive pressure, force pollution intensive industries to migrate to countries with lower environmental standards. This concept and it’s implications is explained in more detail in the following section.
27 For more in depth study of these theories and methodologies see suggested readings in section 1.8 “For more information”.

pollution problems have simply been relocated ‘overseas’ to the source of the more pollution-intensive imports.

Many case studies on the other hand show adverse environmental and socio-economic effects of trade liberalisation. One example of negative effects from trade liberalisation is found in a case study on corn production in Mexico. The study focuses on the socio-economic and environmental effects of the North American Free Trade Agreement (NAFTA), between Canada, Mexico and USA on the corn sector in Mexico.

For Mexico the signing of NAFTA meant that their corn sector was opened up to imports, in exchange for obtaining access to the markets for some labour-intensive crops in USA and Canada. Mexico was expected to gain from the larger market as they had a comparative advantage with low labour costs and surplus labour.

However the above named case study concludes that liberalisation has not generated the expected economic benefits and that the level of poverty in Mexico has in fact grown in the last years. For example poverty amongst rural farmers is said to have increased, party due to the changes in trade induced by NAFTA.

Another conclusion is that fewer corn varieties are used (implying less genetic diversity and thereby possibly more vulnerability against drought and noxious insects etc.). The soil erosion and the use of fertilisers has also accelerated according to the study.

The study concludes that the problems in Mexico are the result of a poorly-planned, rapid adjustment to a liberalised trade regime without the proper transitional state support and suggests the use of macroeconomic, environmental and social sector policies to support the Mexican farmers and especially the corn producers.

The Task Force of WTO and Environment of China Council for International Cooperation on Environment and Development (CCICED) has also conducted studies of the environmental consequences of trade liberalisation in different sectors of the economy. Results from these studies are discussed in Module 8 “Environmental Impacts of China’s Accession to the WTO”. The effect of trade liberalisation on poverty, rural farmers and developing countries is also discussed in section 1.6 “Poverty and gender issues”.

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In summary, if there is to be a positive outcome of trade liberalisation it is very important to have implemented functioning environmental policies. However, the characteristics of sectors being liberalised are also of importance for the effect on the environment. Trade liberalisation and free trade agreements can also be introduced and implemented in different ways, which may be significant for the socio-economic and environmental effects. Trade liberalisation has to be carefully planned and combined with appropriate policy interventions and often with a transitional period in order to minimise adverse environmental and socio-economic effects.

1.4.2 The effect of trade liberalisation on environmental policy

How does global economic integration influence environmental policy and the environment?

Much of the discussion of the effect of trade liberalisation on environmental policy is based on a hypothesis that trade liberalisation will expose domestic industry to international competition and will therefore result in pressure to weaken environmental regulations in order for local business to stay competitive – the so called ‘race to the bottom’ hypothesis. A related argument is that higher environmental standards will, in the face of competitive pressure, force pollution intensive industries to migrate to countries with lower environmental standards – the so called ‘pollution haven’ hypothesis.

There are also authors who have argued the opposite, that trade liberalisation (including the removal of trade and investment barriers) will lead to a ‘race to the top’. This theory suggests that governments if anything are more likely to bid up standards in a race to prevent the worst polluters from locating in their territory.

What does empirical research tell us about any of these races? Unfortunately most of the empirical evidence is anecdotal and inconclusive. The quality of statistical data and case studies are sometimes poor and it is also difficult to compare the strength of environmental protection in different countries. However, in general, there appears to be little evidence of a widespread movement of capital influenced by environmental regulation. The tendency is that trade flows are only marginally affected by differences in regulations and standards. The costs for environmental control appears to be too small to cause a relevant comparative advantage. However, it should be noted that in some sectors environmental regulations may have played a significant role. Furthermore, while there is little evidence of any widespread movement of capital to countries with lower standards, it does not mean that countries have not either lowered their standards in order to attract investment or else kept them at relatively low levels.

30 Ibid
While there is no firm evidence of either “races”, a third hypothesis has recently gained interest. This theory suggests the opening up of markets to trade can result in what is called a “regulatory chill” effect, whereby policy makers refrain from adopting environmental policies because of the competitiveness concerns of industry. There is little doubt that industry often appeals to competitiveness concerns when lobbying against environmental regulations, and often with success. The relevant question to be asked therefore is not whether there is such a thing as a ‘regulatory chill’, but how serious is it and how should it be addressed by policy makers. One solution to problems of competitiveness concerns is to seek to negotiate multilateral agreements to address environmental problems. However, here again there is some evidence of a regulatory chill effect as these MEAs are seldom truly multilateral and therefore competitiveness concerns arise between those who are party to an agreement and non-parties (See Module 5).

Turning to the case study on India mentioned earlier, Mukhopadhyay & Chakraborty found that trade liberalisation in India has had a positive effect on India’s environmental policies. This is because their exports were required to meet international product standards which has in turn resulted in the adoption of environmental policies to create cleaner products and processes. A Central Pollution Control Board has been set up to maintain environmental standards and there is today a wide range of environmental policy instruments in use ranging from fiscal incentives to voluntary agreements. There is further discussion of environmental policy and instruments in section 1.6.

1.4.3 How does environmental policy influence international trade?

Many of the arguments as to how environmental policy and regulations influence trade are in effect variations of arguments presented in the previous section. The ‘pollution haven hypothesis’ for example, suggests that if a country adopts tougher environment regulations industry and capital resources will move to a country with lower standards. As discussed in the previous section there is little empirical evidence which supports this hypothesis. Schulze and Urspung (2001) in their review of theoretical arguments and empirical evidence in this subject area conclude that environmental policy overall has had a very limited impact on trade patterns.

The reason for this is that environmental regulation is in most cases a very small fraction of total costs. The comparative advantage that could be offered through lenient environment regulation is minor when compared to differences in technologies, labour costs and endowments with natural resources.
This is, however, a very general conclusion and it is important to note that these kind of effects can be more significant at the sector level especially those sectors which are most sensitive to competition and in which capital resources can be moved. It is useful therefore to look at some specific case studies of the European Unions’ environmental legislation, and their effect on business and competitiveness. Two examples of directives of some interest are Directive 2002/96/EC on waste electrical and electronic equipment (“WEEE”) and Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (“RoHS”).

1.4.3.1 CASE STUDIES/BACKGROUND ON WEEE AND ROHS

Directives 2002/95/EC (RoHS) and 2002/96/EC (WEEE) are designed to handle the large and growing waste stream of electrical and electronic equipment and to complement other EU measures on handling waste (e.g. incineration of waste).

One goal is to recycle equipment and limit the quantity of waste going to final disposal. Producers of electrical and electronic equipment are also responsible for taking it back and recycling the equipment. The objective is to give an incentive to design equipment in a more efficient way that takes aspects of waste management into full account. Consumers will be able to return their waste equipment free of charge.

The RoHS Directive is aimed at preventing the generation of hazardous waste and therefore requires substitution of different heavy metals such as lead, mercury and cadmium, in new electrical and electronic equipment. There are some exemptions where RoHS allows manufacturers of electrical equipment to use restricted substances for specific purposes where no alternatives are available.

Impacts on business, competition, environment and trade

The European Commission (EC) points out in their proposal (COM(2000) 347 final) that the proposed directives and included measures have been designed to minimise potential trade impacts, avoid unnecessary trade obstacles and meet international obligations. The time schedule (2008) and list of exemptions and possibilities for derogation under certain circumstances are examples of measures to reduce negative trade impacts.

The impacts of these directives on business and especially small and medium enterprises have also been studied by the EC. Some business sectors (e.g. producers of equipment, suppliers of electronic components and the waste collection and treatment industry) are more likely to be affected by the proposal than others. The effect on the waste sector for example, is likely to be positive, since the directives will lead to an expansion in the recycling and treatment market.

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31 The directive will be in force and concern products put on the market from 1 July 2006
32 See: http://europa.eu.int/comm/environment/waste/weee_index.htm
Producers of electrical and electronic equipment will have to pay attention to waste management in production and design. They will need to control hazardous substances and in some cases substitute heavy metals. Products also need to be easily recyclable. The investments that are necessary to comply with the requirements might become considerable in some cases but are also dependent on what the environmental requirements and demands are in the present national legislation.

The directives might also have effects on prices and demand for certain products. The effect on demand and sales is often different for different products depending on how sensitive the buyers are to a rise in prices (price elasticity). According to a Dutch study some electronic goods such as washing machines, computers, TV’s and refrigerators, are not very sensitive to the expected price changes (1-3%). So the level of sales will probably not be affected in the long term.

On other types of goods, like shavers and consumer electronics, a price increase of 1% might decrease sales with 1-2%. Overall, any effect of the legislation on costs and price levels are likely to decrease over time due to economics of scale and new innovations in the area.

In sum, the EC concluded that the effects on prices, aggregate demand, inflation etc., are likely to be limited.

Companies from outside the EU, e.g. from the US or China, who wish to sell electrical and electronic equipment into the large European market are likely to be affected in the same way as EU companies, and will be able to sell on the EU market if they comply with the requirements of this directives. The directive might also have the effect of leading to the exclusion of these substances in products sold in their domestic markets. The elimination of hazardous substances from these products has started in many countries e.g. Japan. China has also announced a policy based on RoHS. The WEEE Directive will have the impact that companies who sell products in Europe will need to participate in or develop systems to take back, recycle and reuse their products in the EU.

Even if the overall trade volumes do not decrease in the long run, companies will need to adjust to these requirements and the costs and competitive effects will be specific for each company. These will depend on to what extent they use hazardous substances today in their products, the requirements in national legislation etc.

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33 Economische effecten verwijderingsbijdrage wit- en bruingoed (Den Haag 1995), KPMG.
35 For more info on WEEE and RoHS see e.g. http://www.dti.gov.uk/sustainability/weee/index.htm
Regarding the theory and empirical evidence in the waste industry, some economists (e.g. Rauscher 2001) maintain that it is unlikely that a race-to-the-bottom will take place in the regulation of the waste industry. The environmental costs of a country importing hazardous waste are substantial and there is no reason not to consider them (Rauscher, 2001).

In summary, studies on empirical evidence indicate that environmental policy appears to have had only a limited effect on trade patterns. The comparative advantage created by more lenient regulations is relatively unimportant compared to other sources of comparative advantage such as different technologies and endowments with natural resources, human and physical labour and other production factors. Generally environmental regulations have a relatively small effect on selected high-polluting industries or firms. However, the effect of especially non-harmonised environmental regulations on the national level can be significant for some companies.

1.5 Designing environmental policy

Much of the economic literature suggests that negative environmental impacts from trade can be avoided or minimised if appropriate environmental policy is in place. More specifically, economic theory generally concludes that without optimal environmental policy in place environmental losses may offset economic gains from trade (this is certainly likely to be the case for a country exporting pollution intensive goods). If ‘optimal’ environmental policy is in place – i.e. there is full internalisation of environmental externalities and well defined property rights, all countries would gain from trade even though world pollution is still likely to rise (a consequence of increased growth). A critical requirement for all countries is therefore that environmental policy is put in place to internalise externalities. Furthermore, the above conclusion that world pollution is still likely to rise even if optimal environmental policy is in place, suggests that more needs to be done to decouple pollution effects from economic growth.

The arguments above are often challenged by environmentalists because they appear to place the burden of adjustment with environmental policy makers and are overly simplistic. Furthermore, even economists recognise that achieving optimal environmental policy is highly improbable. Nevertheless, experience suggests that countries with comprehensive environmental policies and programmes in place can minimise adverse effects from trade, and possibly even ensure economic developments that are beneficial for the

environment. It is important therefore to consider some guidelines for environmental policy making in the face of opening markets and increased volumes of trade.

1.5.1 The use of environmental economics in environmental policy-making

The environment, (whether defined in terms of natural resources or the ability or the capacity of the planet to absorb pollution and waste) is increasingly regarded by economists as a scarce resource in our society. Economics and economic instruments are designed to tackle scarce resources and can therefore be useful when dealing with environmental problems. Economics can for example be used to ensure that the costs of environmental measures does not exceed the benefits.

Even though the estimation of costs and benefits is difficult, the demand for such estimations is increasing to form a basis for environmental policy making. Furthermore, there is increasing demand for the use of market-based instruments (such as pollution taxes, subsidies for renewable energy, and emissions trading) as alternatives to, or in combination with, more traditional regulatory measures, in order to meet environmental goals.

As described earlier Externalities can be defined as unintended effects, positive or negative, which are not reflected in prices or production costs. Externalities can arise due to poorly defined property rights and/or because a good is characterised by “non-rivalry” and “non-exclusiveness” (as is the case for so-called “public goods” like air).

When externalities exist we need to measure the size of the externality (the cost) and try to reduce these costs e.g. by market-based instruments such as environmental taxes. There are many ways in which external effects can be calculated and monetised.

Models which have tried to incorporate analysis of the effects of international trade in the presence of an externality still generally point to a net welfare gain from trade between countries, although this may be at the expense of an overall increase in pollution and welfare losses in countries which export pollution intensive goods.

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38 For an overview of different types of instruments see section 5.3 in module 5. Examples of used measures can also be found in a database created by the European Environment Agency and the OECD which could be accessed at: http://www2.oecd.org/ecoinst/queries/index.htm.
40 When a non-rival good is consumed it does not affect other persons possibilities to consume that same good (e.g. a TV show).
41 With a non-exclusive resource it is impossible to reduce the right for people to use the resource. The air around a house can for example, not be protected from long distance air pollution.
42 Examples are contingent valuation, hedonic pricing, and the travel cost method.
The use of trade measures, such as tariffs and non-tariff measures to address these environmental concerns are generally regarded by economists as second-best policy options in terms of social welfare. The first best policy option is generally according to most economists, to define and enforce property rights and to internalise environmental externalities.

1.5.2 Key principles in environmental policy
The international community has identified and agreed on a number of principles that should guide environmental policy making. Examples of such principles will be described in the following.

1.5.2.1 THE POLLUTER PAYS PRINCIPLE (PPP)
The polluter pays principle (PPP) means that the company/person that causes the environmental pollution should pay for the cost of removing it, or provide compensation to those who have been affected by it, for example by taxes.

When the polluter pays principle is included in laws relating to environmental protection it specifies that costs that arise as a result of measures under the law must be borne by the perpetrator. The polluter pays principle is not always intended to cover all related costs but could include expenditure for abatement and protection measures. If the principle is intended to cover other costs this might be enforced under other legislation (e.g. compensation payments under expropriation legislation). The polluter might be forced to pay a tax to the government or the PPP could be tied more to property rights so that the polluter is forced to pay to those in the community who have suffered from the pollution.

The Swedish environmental code clarifies liability for remediation of e.g. contaminated land. The PPP in the code involves liability for the party who has caused environmental damage to remedy the damage. The actor who has performed an action or activity that has caused environmental damage must pay the cost of remedying the damage. This is the case regardless of whether the activity is ongoing, discontinued or transferred to another company.

The polluter pays principle is also reflected in the 1992 Rio Declaration on Environment and Development.
1.5.2.2 THE PRECAUTIONARY PRINCIPLE (PP)

The precautionary principle was developed as a response to situations of scientific uncertainty. The essence of the broadly acknowledged principle is that “lack of conclusive scientific evidence does not justify inaction, particularly when the consequences of inaction may be devastating or when the costs of action are negligible.” For example, if the consequences of an action (e.g. regarding use of technology), are unknown but some scientists judge it to have a high risk of negative effects (e.g. on the environment), then it is better to not carry out the action than risk the uncertain, but possibly very negative, consequences.

The interpretation and application of the principle, however, varies among countries. For example, an application of the principle is that it can shift the burden of proof in legal decision making from demanding proof of negative consequences to requiring proof of the absence of negative consequences to allow an action. The interpretation of the principle in Sweden has the implication that everything that is not expressly allowed is accordingly forbidden. The precautionary principle could be applied in practice for example, against the use of genetically modified organisms, the use of which may have negative consequences or potentially dangerous substances that have not yet been scientifically established.

Like the polluter pays principle, the precautionary principle is reflected in the 1992 Rio Declaration on Environment and Development. This principle is included in the Climate Change and Biodiversity conventions and also in Swedish Environmental Code (law) since 1998. The precautionary approach is according to the Swedish government the basis for all provisions in the Code. The European Commission has adopted a communication on the precautionary principle, in which the EC defines this concept and explains how it intends to apply it. It is also defined in Article III-129 (2) of the draft Treaty establishing a constitution for Europe. This article is partly outlined below:

“Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.”

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1.5.2.3 THE PRINCIPLE OF COMMON BUT DIFFERENTIATED RESPONSIBILITY

The principle of *common but differentiated responsibility* is useful for example when signing multilateral environmental agreements with parties from both developed and developing countries. For some environmental threats not all parties of an agreement can be equally responsible for previous environmental damage and not all parties have the same resources to prevent, reduce and control the problems. In practice this principle means that the parties of an environmental agreement all acknowledge common responsibility for the environment and the environmental problem but they can have differentiated responsibility to address the environmental problem.

This principle is included in the Rio Declaration and is also reflected in all post-Rio conventions. The Rio Declaration states: “In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.”

1.5.3 Other factors in the design of environmental policies

Often there is a need for a range of policy measures in order to attain society’s environmental and wider sustainability objectives. Regulations in combination with economic instruments, voluntary measures and information dissemination are being used.

An effective legal framework is of utmost importance but, even if there is a far reaching environmental legislation in place, the enforcement may not be sufficient. Law abiding companies need monitoring of the implementation of legislation in order to safeguard themselves from unfair competition. An effective implementation and an open reporting of the results are among the cornerstones of environmental policy in many countries.

In order to be able to make the right decisions regarding what production technology to use, what materials and which chemical substances to choose, there is a need for information not only on the economics and market situation but also on environmental aspects of the product from “cradle to grave”. Usually several actors are involved in the production of components and the assembly of the products. Thus the environmental information needs to be transmitted along the product chain. Another important role for environmental authorities therefore is to facilitate and to encourage the dissemination of environmental information between actors. The actors themselves need to also produce information and to share it with suppliers and customers. There are a lot of international activities working for the standardisation of the different formats of environmental assessment and information. China is an important actor on the global market and is also an important actor in these kinds of negotiations.

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In order to promote sustainable development there is a need for environmentally safe products on the global markets. There are several ways for the Governments to encourage the greening of markets. Introducing programmes supporting research and innovation and also market “support” for “green goods” like eco-labelling schemes are some examples. The design of such programmes will of course have to be carefully elaborated and also take relevant WTO regulations into account.

Green Public Procurement may also be an important driver for greening the markets and should be used in a non-discriminatory manner ensuring information to all potential sellers and not favouring national companies.

In summary, trade liberalisation should be accompanied by good and effective environmental policies and multilateral environmental agreements protecting the global environment, in order to fully enjoy the gains from trade. The polluter pays principle and the precautionary principle are two important guiding principles in the formation of good environmental policy. There is a wide range of policy instruments available for addressing environmental problems. Of these, market based instruments are becoming increasingly popular as they have been demonstrated to be a cost-effective means of achieving environmental goals.

Environmental policy instruments should be designed and implemented in an open and transparent manner. Effective monitoring and enforcement methods, are also essential elements of good policy design, as is the need to spread information about results.

1.6 Poverty and gender issues

1.6.1 Introduction

In the previous sections the focus has been on the impact of trade on the environment. Trade liberalisation also has importance for poverty and gender issues, which are the focus of this section. Since the effects of trade liberalisation on gender and poverty are often sector-specific, the basis for the analysis in this section will, to make the discussion more concrete, be related on the agricultural sector, mainly in China. The agricultural sector is relevant since it is very important for many poor people and not least for women.

Some discussion of the possible environmental and socio-economic effects of trade liberalisation amongst farmers, in the Mexican corn sector was discussed earlier in section 1.4.1.2. 47

47 The discussions in this section is complemented by module 8, where the environmental impacts of China’s accession to the WTO are analysed for the agricultural and other sectors of the economy
1.6.2 Overall effects of trade liberalisation on developing countries

1.6.2.1 GROWTH, WELFARE, ENVIRONMENTAL AND SOCIAL EFFECTS

Generally, according to classic economic theory, trade is expected to increase growth e.g. by allowing for a more efficient use of resources. Economic theory suggests that all countries including developing countries will benefit from trade liberalisation and more efficient and transparent trade rules. However, as discussed in earlier sections, there are a number of limitations to economic theory when applied to real world conditions, for example the presence of externalities. Furthermore the liberalisation of trade in practice seldom occurs in the manner described in textbooks. Nevertheless there is a general notion that WTO rules have increased trade and market access in and for developing countries and made trade rules more predictable. Is this the case and do such benefits outweigh disadvantages?

When looking at whether or not developing countries have benefited from international trade liberalisation it is also difficult to draw general conclusions, as the regions and countries affected are often such a heterogeneous group, with different interests and prerequisites. For some Asian countries, a focus on exports has resulted in fast economic development, while some African countries, have had more difficulties in making trade contribute to a better society.48

It is also important to consider which groups in the society gain from trade. Benefits from trade can be allocated very unevenly. Consumers can gain from more supply of different goods and lower prices and among producers it is, according to theory, the exporting sector that gains (profits and salaries are expected to rise in the exporting sector). Producers and companies that are driven out of business due to increased imports are the main losers. The sectors or individuals affected by trade (either positively or adversely) can be quite small, however they can be well organised and have a strong influence on politics.49

There are also often some costs for countries to comply with trade rules and “free trade agreements”. For example regarding the WTO agreements, costs arise due to the development of new legislation, implementation, increased administration etc. Some of the least developed countries (called LDCs) are exempted from many of these requirements but have however had other problems e.g. external factors like with falling export prices and non-tariff barriers on export markets and also internal problems with low educational level, political instability, underdeveloped infrastructure etc.50

Despite the described risks above and risks like increased vulnerability, unemployment, less food safety etc, the potential benefits from international trade are significant

49 This is also referred to in section 1.3.3
for the poorest countries. The value of, for example, economics of scale, increased competition, more foreign currency and predictable trade rules, due to trade liberalisation, could be substantial.

A general conclusion is that trade increases the economic growth, whether sustainable or not. In addition to the design of the trade agreements, the role of governments is essential. Ambitious environmental and social policies and programmes are important to improve the possibilities to increase welfare and secure gains from trade and growth. The more specific effects of different WTO agreements is discussed in the following modules.

1.6.3 Implications of trade liberalisation on the agriculture sector

The agricultural sector is very important for many poor people and not least for women. Today millions of people around the world are more or less dependent on agriculture for their livelihoods. For about 70 per cent of the world’s rural poor population are farming the only source of income. Many countries in Asia, including China, have large proportions of women involved in agriculture ranging from about 55 percent to about 98 percent. The implications of trade liberalisation in this sector is therefore very important.

1.6.3.1 EXAMPLES OF ENVIRONMENTAL AND SOCIAL IMPLICATIONS IN THE AGRICULTURE SECTOR

Trade can have both beneficial and negative social and environmental effects in the agriculture sector. As discussed earlier the opening up of an economy to trade generally leads to greater specialisation. The implications for a developing country depend to a large extent on whether that country is a net food exporting country or a net food importing country.

In general, for a net food exporting country there will be a concentration of resources in the food exporting sector. Increased production in this sector is likely and this can lead to possible negative social and environmental impacts. Possible examples are numerous. If a country specialises in only a few ‘cash crops’ without paying attention to soil conditions and the need for rotation of crops this may lead to problems of soil degradation. It may also result in less genetic diversity. Plantations and monocultures can be more sensitive to extreme climatic conditions and insects and therefore can be more dependent on high quantities of pesticides etc. Dependence on a only a few export crops can increase the exposure of local farmers to changes in market prices and also risk the security of food supply (due to decreased production locally of food crops). Greater emphasis on the production of export crops can lead to marginal land being brought into production often with negative environmental consequences.

52 See the study on the effect of signing NAFTA for the corn sector in Mexico, section 1.4.1.2.
Social impacts may also be numerous and very significant. Export-oriented agricultural production (for example tobacco plantations) is often larger in scale than traditional farming systems, leading to amalgamations of small farms, change in land ownership structure, etc., and associated social consequences. There is a risk for loss of human cultural systems, and of less sustainable methods for production a being used.

However trade liberalisation or greater openness to trade can also have positive social and environmental impacts for net food exporting countries. For net food exporting countries, the ability to be able to increase production and sell products on the world market, can result in increased export revenue, increased employment opportunities etc. Increased export revenue can in turn increase living standards. Improved productivity of export crops and the importation of other food and agricultural products may also lead to decreased pressure on natural resources.

Whether or not the overall social and environmental effects are negative or positive is impossible to say. Which effects dominate depend on which country is being studied, the extent of trade liberalisation, and world market prices for exported and imported products. However, for developing countries who are net food exporters it could be expected that there would be greater pressure placed on natural resources. There is also the very important question of the distribution of these effects. Those who gain from specialisation are often larger more efficient land owners, those who lose are in generally smaller more traditional land users.

For net food importing countries, the social and environmental effects will probably be very different. For these countries pressure on natural resources such as land and water may well decrease, as the country has greater access to imported food products such as rice. However, the social consequences may be adverse and widespread as farmers have to compete with imported products. Food prices may fall (which however may be of benefit to the wider population) farm revenues may decline, rural unemployment increase, and the average age of the rural population increase as younger people look for work opportunities elsewhere.

To avoid these negative social effects it is important that liberalisation is made at a pace which allows people time to adjust and e.g. find new ways to support themselves. Environmental problems from trade liberalisation could be reduced with powerful environmental programs and policies.

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53 World price for agricultural products have also historically been kept lower than their market value because of export subsidies from developed countries.

54 See also section 1.4.1.2. and the discussion on the effect of NAFTA on the corn sector in Mexico.
1.6.4 Trade and development in China

China’s development has been characterised by a strong growth during recent years. The estimated growth rate of GDP (Gross Domestic Product) is about 8,5 per cent and the investment ratio has been very high in China in 2004. Real exchange rates have been stable and competitive and interest rates have remained at low levels. During 2003 and 2004, China’s imports accelerated more than its exports. A large portion of these imports came from other Asian countries. Asia and China are not entirely dependent on the economic performance of the developed countries, due to the dynamic trade and growth in this region. In some sectors such as steel, cement and the aluminium industry, the government has tried to prevent overinvestment through the use of administrative restrictions, monetary measures and also by freezing new investments.

China has taken over much of the labour-intensive production from other countries so that goods from other Asian countries are today to a large extent finalised in China. Due to its large imports of industrial raw materials and energy, China had in 2004 a trade deficit with the rest of Asia but a trade surplus with Europe and North America.

Despite developed countries’ subsidies on many agricultural products, world market prices of some agricultural products, e.g. coffee and cotton, have risen since 2002, partly due to increasing demand from China.

1.6.5 Gender issues and trade

The implications of trade and trade liberalisation for gender issues are not well known. There is a lack of both theoretical and empirical studies on the relationship between trade and gender issues, partly due to poor statistical material. In general, it can be said that it is known that women in many developing countries have lower levels of education and are seldom represented in higher positions in society (in the private or public sector). Because of this women in developing countries are often more vulnerable to the economic changes that accompany trade liberalisations as they have less capacity to respond to these changes, for example, by switching jobs. More trade and trade liberalisation can, according to some studies, have some implications for the gender situation in developing countries, especially in certain sectors.

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56 UN’s Trade and Development report, 2004
57 For example see Sida study nr 5. (2001) and UNCTAD’s "Trade, Sustainable Development and Gender" (1999). The later can be accessed at: http://www.unctad.org/Templates/Page.asp?intItemID=1775&lang=1
1.6.5.1 GENDER IMPLICATIONS OF TRADE IN THE AGRICULTURAL AND OTHER SECTORS

Many women are today involved in agriculture in many developing countries. Trade liberalisation is expected to raise the demand and prices for some of the crops women are involved in producing today but as a consequence of this other important crops for women might become relatively less profitable. Women’s possibilities to raise loans, own and inherit land are also crucial for their possibilities to gain from trade liberalisation.

Trade liberalisation will often lead to increased competition and in many sectors (e.g. textile handicraft) make it difficult for women to be able to sell their goods and services. In some developing countries the manufacturing sector (with export possibilities) is dominated by women. Trade liberalisation in these sectors is likely to give job opportunities for women and will be beneficial for equality and women’s possibilities to support themselves. Development of services in the information industry is also likely to rise and give job opportunities for women.  

1.6.6 Effects of trade liberalisation on agriculture and women in China

Agriculture’s share of GDP has declined in China (as in many other countries) during the last 20 years from about 33 per cent in 1982, to about 15 per cent in 2002. More than 50 per cent of the labour engaged in agriculture, animal husbandry and forestry are women. Women dominate the labour force of stockbreeding (about 75 per cent) and planting (about 52 per cent). Many male agricultural labourers have moved to urban regions to find jobs with higher salaries. Women’s income from agricultural production is relatively low so the wages from their husbands work in urban regions are often important for the households. Women are also dependent on their men’s authorisation to be able to apply for loans with present agricultural loan policy in China.

China has a relatively low share of farmland per capita and has a potential comparative advantage in more labour-intensive farming practices such as stock breeding (e.g. chicken breeding). Stockbreeding and animal husbandry can generate more income than many other farming activities but can also generate more environmental pollution. Despite a comparative advantage in labour intensive farming practices many women in China remain involved in land-intensive practices such as the planting of soybeans and cotton. However, China does have a very strong domestic demand for soybeans and cotton - China is the world’s largest producer of cotton. The demand from the Chinese textile industry is so strong that the domestic consumption of raw cotton rose by more than 12 percent during 2002-2003. The importation of cotton from abroad has also been necessary.

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partly due to bad weather conditions for cotton production in China during last years. The domestic demand for soybeans in China is also very strong and the imports of soybeans have risen during recent years – China imports more than one third of the total soybean imports in the world. Even though China does not have a comparative advantage in land-intensive planting, the demand and increased world trade for these products (e.g. cotton and soybeans) is likely to benefit the women working with the production of these commodities.

Trade liberalisation may also be positive for women in the chicken-breeding sector in the long run. New opportunities in the chicken-breeding sector for example will also be dependent on the level of different requirements and regulations (e.g. sanitary) from developed countries.

Whether women can gain from switching to new better paid employment opportunities outside of the agricultural sector is of course uncertain and dependent on the conditions in other sectors. A more precise analysis in this area would require better statistics and knowledge of local prerequisites.

In summary, the conclusion to be made about the impact of trade on poverty and gender issues is the much same as for the discussion on the impacts of trade on the environment that have preceded it. Whether the effects are negative or positive depends largely on national circumstances (e.g. the level of equality prior to the trade liberalisation) and the sector being studied. Even when looking at the agricultural sector in China we see that effects differ depending on the specific subsectors (e.g. cotton or chicken breeding) being studied and how these sub-sectors are affected by changes in trade patterns. As is the case with environmental issues, national policies are therefore very important if small-scale farmers, the rural poor and women are to be able to gain from trade liberalisation, or if negative effects are to be minimised. Even if many studies show positive economic impacts of trade liberalisation on developing countries, its crucial how the gains from trade are distributed in the society and that rural poor and women have good possibilities to raise loans, get credits, own and inherit land etc.

A key issue for developing countries in this discussion is the problem posed by developed countries continuing to use tariffs and agricultural subsidies to support their own farmers. Sustainable development in agriculture, food security and the possibilities for women and men in poor countries to support themselves, are all dependent on improved agricultural trade reforms.

1.7 Concluding remarks

The growing volume of international trade and increased awareness of environ-mental problems have made the trade and environment debate even more pertinent and interest-ing during the last decades. Much work has been done to try to protect the environment though multilateral environmental agreements, national environ-mental policies, etc. However, a lot of environmental problems still remain and in many cases are worsening. One relevant question therefore is how international trade, trade policy and trade liberali-sation can be made compatible with the objective of sustainable development?

Economic theory underpins arguments for trade liberalisation and suggests all coun-tries will benefit. However the theory has limitations when applied to real world situa-tions and problems such as the need to address market failure and the presence of exter-nalities are widely accepted by most economists.

Trade is said to have an impact on the environment in three ways: scale effects, com-position effects and technology effects. How the environment is affected is dependent of the net effect of these channels. The environment impact is also very dependent on factors such as the level of economic development, factor endowments, and can vary greatly from sector to sector and between regions.

Environmental policy measures seem to have only a limited effect on macro-level trade patterns. The comparative advantage created by more lenient regulations is rela-tively unimportant compared to other sources of comparative advantage such as different technologies and endowments with natural resources, human and physical labour and other production factors. Generally environmental regulations may have a relatively small effect on selected high-polluting industries or firms.

Effects can also be more significant at the sector level especially those sectors which are most sensitive to competition and in which capital resources can be moved. It is im-portant for exporters in developing countries who faces environ-mental policies and re-quirements to obtain information about changes in good time to be able to make adjust-ments. WTO notification procedures and generous timetables before new regulations are enacted are examples of factors that could be of importance for e.g. the competitiveness of exporters in developing countries.

Trade liberalisation should be accompanied by good and effective environ-mental policies and multilateral environmental agreements protecting the global environment, in order to fully enjoy the gains from trade.

Trade liberalisation and free trade agreements can also be introduced and imple-mented in different ways, which may be significant for the socio-economic and environ-mental effects. Trade liberalisation has to be carefully planned and combined with appro-priate policy interventions and a sufficient transitional period to minimise adverse envi-ronmental and socio-economic effects. A range of instruments are available to policy makers and the appropriate mix will depend on the nature of the problem being ad-
dressed. Market based instruments are increasingly been used and are seen as cost-effective means of achieving environmental goals in some situations. Legislation, enforcement, monitoring and the spreading of information about the results of policy measures are also key elements in good policy design.

It is difficult to draw general conclusions about the effect of trade liberalisation on gender and poverty issues. Trade liberalisation may in some cases and sectors result in a larger gender gap while in other cases the result will be more gender equality, depending on the circumstances, activity and studied sector of the society. National policies are clearly important if the rural poor and women will be able to gain from trade liberalisation. How the gains from trade and economic growth are distributed in the society is crucial. It is also important that the rural poor and women have good possibilities to raise loans, get credits, own and inherit land etc.

Finally, sustainable development in agriculture, and the possibilities for women and men in poor countries to support themselves, are all dependent on improved agricultural trade reforms.
1.8 For more information

The trade and environment debate

Trade theory and policy

The relationship between trade and environment
- Article from The International Trade Journal Vol.10 No. 2 (Summer 2005) s.135-163”Environmental impacts of trade in India” Mukhopadhyay& Chakraborty.

Designing environmental policy
- Database on economic instruments in environmental policy at: http://www2.oecd.org/ecoinst/queries/index.htm

Poverty and gender issues
2 The GATT and WTO

**Key concepts:** bound tariffs, applied tariffs, non-discrimination, most-favoured nation, national treatment, special and differential treatment, sustainable development, reciprocity, Doha Development Agenda, precaution, subsidy

Analysis of the relationship between the WTO, trade and the environment requires a basic understanding of the multilateral trading system, including its institutions and agreements. Therefore in this module, first the history of the multilateral trading system will be accounted for. Secondly, its agreements will be explained in brief. Thirdly, there is a section on treatment of the environment in the trading system, from the early stages of the GATT to recent disputes and current discussions and negotiations in the WTO. Fourthly, future issues are mentioned. The module ends with some concluding remarks. Next, before going into the GATT/WTO history, a short look at the context in which the multilateral trading system is working, the global economy and world trade is presented.

2.1 The global economy and world trade

Some key figures on global economic output, growth and trade are useful to understand the state and development of the global economy and world trade. The global economy is valued at 55 655 billion US dollars (2004). The biggest economies are the EU25, USA, Japan and China, who together represent some 62 percent of world output (see Table 3).

Table 3: World output 2004 (gross domestic product, adjusted)

![Chart showing world output by region]

Rest of World 38%

China 13%

USA 21%

Japan 7%

EU25 21%

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60 Statistics sources in this section: IMF; World Bank; Comtrade; EU; WTO; CIA Factbook.
61 Gross domestic product in 2004 (at purchasing power parity).
In terms of income per capita, the Luxemburg, Norway and the USA are at the very top, with the EU just below the top 25. China is ranked as an upper-middle income developing country, with respect to economic output per capita. China is among the fastest growing economies together with India with growth rates of 9 and 6 percent on average, respectively, over the last decade. This can be compared to the world economic growth rate of around 4 per-cent annually over the last decade. It can be added that with a growth rate of 7 percent it takes 10 years to double the economy of a country.

World trade of goods and services totals to 9 216 billion US dollars, and has grown with some 7 percent on average over the last decade. Services trade accounts for almost a quarter of world trade volumes, and ranges from architecture to computer software services. Exports from developing countries increased with more than 25 percent in 2004. The total world trade share of developing countries is now higher than it has ever been since the early days of the WTO, some 30 per-cent. China has just recently become the third largest exporter, after Germany and the US, partly due to a rise in electronics exports. Since China became a member of the WTO its trade with the rest of the world has been growing with about 28 percent annually on average, from less than 30 to almost 60 billion US dollars (see Table 4). This can be compared with an annual growth of some 16 percent between 1995 and 2003. 62 The impact on the economy and environment has been profound, presenting opportunities and challenges.63

Table 4: Chinese goods exports since WTO entry

Some 50 percent of world trade is governed within the WTO and the rest by other arrangements. The WTO-framework for world trade is more predictable, less arbitrary and

62 This paragraph draws partly on “China overtakes Japan as third largest exporter”, Financial Times, 15 April 2005.
includes a very effective international dispute settlement mechanism. Many of its agreements have contributed to improving market access for developing countries and increasing their trade. However, virtually all members to the WTO are now parties to bilateral and regional trade agreements outside the WTO. The trend is rising and will accelerate further if the WTO process does not move forward. These developments are not entirely positive, since bilateral and regional trade deals are discriminatory by nature.

2.2 History of the multilateral trading system

2.2.1 The world economic order takes shape

An international conference was convened in July 1944, in Bretton Woods in New Hampshire (USA), with representatives of 44 governments, with the aim of finalising the negotiations on the proposals for economic cooperation bodies that had been produced by Great Britain and the USA. The result was two new institutions: the World Bank and the International Monetary Fund.

The Bretton Woods conference also drew up plans for a third economic cooperation body, which would have responsibility for the rules of world trade – the International Trade Organization (ITO). Substantive negotiations were started in 1946 under the leadership of the newly formed United Nations (UN). The negotiations were finalised in Havana in March 1948 with an extensive draft ITO treaty. The idea was that the ITO would have the responsibility for the rules of world trade and international investment. The rules covered both competition and labour legislation that are still today without precedent in the WTO. However, the ITO treaty became bogged down in the American ratification process and, when the USA withdrew, the project collapsed. The ITO was quite simply too far-reaching for the decision-makers of the time.

2.2.2 The GATT epoch

2.2.2.1 FROM AGREEMENT TO INSTITUTION

The foundation of the post-war international trading system was a provisional agreement that some 20 countries had agreed on, while waiting for the final negotiations and ratification of the ITO treaty. The origin of this agreement was a series of tariff negotiations between a small number of countries in Geneva in 1946 and 1947, which took place in parallel with the ITO process. These negotiations were restricted to reducing tariffs on industrial goods, raw materials and, to a certain extent, agricultural products. The reduced tariff bindings acted as ceilings above which tariffs could not be raised (bound tariffs), but nothing prevented countries from levying lower applied tariffs. The result of these negotiations, some 45 000 undertakings in respect of tariff reductions, together with the trade policy rules in the ITO treaty, was given the name General Agreement on Tariffs and Trade (GATT). It started to be used on a provisional basis on January 1, 1948. At the
outset, 23 countries joined the GATT, of which 12 were developing countries. Other countries joined later when it had become clear that the ITO would not be implemented.

The GATT, which had been conceived as a temporary transitional solution, became instead the foundation of the post-war trading system. The institutional framework had to be built up step by step. Over the course of time, the GATT thus adopted the form of an international organisation. However, it has retained two special features over the years. The first is the strong emphasis on the organisation being run by its members. The task of the director general and the secretariat is to provide support rather than to be the driving force. The other special characteristic, which has been established by practice, is that all decisions must be made by consensus - the consensus principle.

2.2.2.2 KEY PRINCIPLES

The principles and exceptions found in the GATT are also reflected in several other WTO agreements. The GATT lays down a number of basic principles and rules for cross-border trade in goods. Its utmost aim is to counteract protectionism and discrimination in world trade and to guarantee that trading conditions are reasonably stable and predictable. The most important principle of the multilateral trading system is that of non-discrimination. (The two key components of this principle are the so-called most favoured nation and national treatment principles, both which are explained below.) Non-discrimination promotes efficient resource allocation and “prevents the inappropriate use of trade restrictions and protects in particular the interests of weaker trading partners.” Moreover, it prevents abuse of environmental policies for protectionist purposes.

The most favoured nation principle

The most essential principle in the GATT – formulated in Article I – is that of equal treatment of all parties to the agreement, the “most-favoured nation” (MFN) principle. If, for example, the USA has a ten-per cent tariff on cars imported from Japan, it must have the same tariff on the same types of cars from South Korea. Discriminatory treatment based on the origin of goods is not permitted.

The MFN principle allows neither negative nor positive special treatment between the GATT’s participating states. All forms of special treatment – for example, lower tariffs for developing countries in general, or exemptions from tariffs between two countries within the framework of a free trade area or a customs union – must be justified with reference to the GATT’s various exceptions’ rules.

64 The original members of GATT were Australia, Belgium, Brazil, Burma (Myanmar), Canada, Ceylon (Sri Lanka), Chile, China (which withdrew in 1950 at the request of the exile government in Taiwan), Cuba, Czechoslovakia, France, Great Britain, India, Lebanon, Luxembourg, Netherlands, New Zealand, Norway, Pakistan, Southern Rhodesia (Zimbabwe), Syria, South Africa and the USA.

Today, equal treatment does not seem to be as natural or desirable as it once was. Instead, possibilities are often discussed for giving favourable trade conditions to developing countries or to close trade partners. It is also in this direction that the trading system as a whole is developing, for better or worse. However, for the founders of the GATT, equal treatment was not only economically rational, it was politically essential in order to avoid a return to the rivalry of the inter-war years or the possibility in the post-Second World War era of a breakdown of world trade into spheres of interest. Departures from this main principle could therefore only be granted in exceptional cases.

**National treatment**

The second basic principle in the GATT is that of *national treatment* – Article III. National treatment means, in brief, that imported goods must be treated on equally favourable terms as domestic goods. All discriminatory treatment must cease once the goods have crossed the border. More formally, national treatment means that imported products must be treated no less favourably than like domestic products with respect to charges and regulations, this, both legally (*de jure*) and in practice (*de facto*).66 This principle applies to both domestic regulations (for example, in respect of product safety, labelling etc) and taxes (for example, value-added taxes (VAT)). In other words, it is forbidden for Sweden to charge a higher rate of value-added tax on imported cars than on corresponding cars produced in Sweden. However, it is possible to differentiate VAT on the basis of objective criteria (for example, on the basis of engine volume). Correspondingly, it is forbidden to impose higher product requirements on imported goods than on corresponding domestic products.

The emphasis on national treatment does not primarily have ideological or economic motives. It is a rather a necessity in order to ensure the value of tariff negotiations. It would be meaningless to reduce tariffs and other border barriers if they could simply be converted into “domestic” taxes and regulations through a political decision. If the USA reduces tariffs on cars from 10 to 5 per cent as a part of a negotiation on tariffs and at the same time introduces a discriminatory domestic tax that increases the costs of imported cars by the same amount, one is back at square one. National treatment is consequently necessary to prevent governments from circumscribing the undertakings they make at the negotiation table.

**Transparency**

Another important principle in the GATT is that of transparency. It aims at ensuring clear and readily available trade rules. The GATT obligates members to quickly publish trade

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66 GATT Art. III. Subsidies and government procurement are to some extent excluded from this obligation, but here the Agreement on Subsidies and Countervailing Measures (SCM Agreement) and the plurilateral Agreement on Government Procurement (GPA) come into play.
regulations of general application that are being implemented, so as to enable interested actors to “become acquainted with them.” In addition, in the GATT, as in several other WTO Agreements, there are requirements to notify the WTO of trade measures, including environmental ones. Such notifications can be a source of information about other countries’ environmental trade measures. Every member country must also have a legal authority to which companies can make their complaints.

Prohibition of quantitative restrictions

The GATT also contains a fundamental prohibition on restricting exports or imports with quantitative restrictions (quotas). “No prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licences or other measures, shall be instituted” on imports from or exports to another member. (If quantitative restrictions, nevertheless, are used, all members should be treated the same.) However, exceptions are granted in certain cases. For example, it is permitted for a country to prohibit or restrict exports of food if it is suffering from a lack of food due to crop failure. The prohibition of quotas means that tariffs are the only instrument allowed for restricting trade under normal circumstances. Quantitative restrictions may only be used in urgent circumstances.

Why does the GATT give preference to tariffs? Does it make any difference whether trade is restricted one way or another? The answer is that it makes a huge difference. Tariffs are more transparent and less discriminatory than import quotas, as quotas can be allocated in a more or less arbitrary manner. Moreover, tariffs provide revenue for the state, while the profits from quotas end up with the businessmen who are given a favourable allocation of a quota. Tariffs are also, financially speaking, the least costly way of restricting imports. Economic rationality thus lies behind the prohibition of quantitative restrictions.

Exceptions to protect health, environment etc

The GATT also contains a general exception clause to protect certain social values such as public moral standards, exhaustible natural resources and the health of humans, animals and plants. In the beginning of 2004, with the support of these rules, the EU prohibited imports of chickens from Thailand when avian influenza broke out in Southeast Asia. However, the exceptions are not unconditional. Arbitrary discrimination against imports is not accepted unless the measure is necessary. It is not possible, for example, to prohibit the import of cigarettes with the motivation that the measure is necessary to protect people’s health if, at the same time, domestic production and sales of cigarettes are allowed (which Thailand once tried to do).

67 GATT Art. X.
68 GATT Art. XI.
2.2.2.3 THE FIRST 20 YEARS – TARIFF NEGOTIATIONS

Within the framework of the GATT, negotiations have led to tariff barriers for industrial goods being cut from some 40 percent, on average, to about 4 percent. The first 20 years of the GATT were dominated by recurrent tariff negotiations. The negotiations primarily concerned industrial goods and raw materials since few countries, then as now, were ready to make significant undertakings on tariff reductions in the agriculture sector. The tariff negotiations took place within the frame-work of the so-called “negotiation rounds”, which can be described as a form of multilateral coordination of bilateral negotiations.

<table>
<thead>
<tr>
<th>Year</th>
<th>Round</th>
<th>Subject of negotiations</th>
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<tbody>
<tr>
<td>1947</td>
<td></td>
<td>Tariffs, rules (GATT)</td>
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<td>1949</td>
<td></td>
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<td>1950-51</td>
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<td>1956</td>
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<td>1960-62</td>
<td>Dillon Round</td>
<td>Tariffs</td>
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<td>1964-67</td>
<td>Kennedy Round</td>
<td>Tariffs; Anti-dumping</td>
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<tr>
<td>1973-79</td>
<td>Tokyo Round</td>
<td>Tariffs; Anti-dumping; Subsidies and countervailing measures; Import licensing procedures; Customs valuation; Technical barriers to trade; government procurement etc.</td>
</tr>
<tr>
<td>1986-94</td>
<td>Uruguay Round</td>
<td>Tariffs; Agriculture; Textiles and clothing; Review of GATT, new agreement for services (GATS) and intellectual property rights (TRIPS); settlement dispute; establishment of WTO</td>
</tr>
</tbody>
</table>

2.2.2.4 NEGOTIATIONS EXPAND – RULES ARE EXTENDED

As tariffs were reduced as a result of the different negotiation rounds and thus be-came a less significant problem for world trade, attention was given to other forms of trade barriers, such as technical rules.

During the Kennedy Round (1964-67), the members of the GATT agreed on tightening up the application of the relevant articles of the GATT through a side agreement in the form of a code of conduct. During the Tokyo Round (1973-79), several more new areas were addressed. Once again, use was made of side agreements instead of renegotiation of the relevant articles in the GATT itself. Only the countries that acceded to these “codes” were bound by their rules.

A negative aspect to this development was that the GATT members began to be divided into two classes, with the developed countries and a few developing countries acceding to the above-mentioned codes, while most of the developing countries spontaneously decided not to participate. It was at this point in time that the expression “GATT à la carte” was coined.
In the last round of negotiations in the GATT era – the Uruguay Round (1986-1994) – there was a reversion to the previous order, with one main set of rules common for all member countries. This meant that a number of developing countries were suddenly covered by agreements that they had not negotiated. Instead, within the framework of each agreement, consideration is taken to the special needs and conditions of the developing countries. This is done through rules for special and differential treatment.

The Uruguay Round also involved an extension into two completely new areas – trade in services and intellectual property rights. The General Agreement on Trade in Services (GATS) has the aim of liberalising trade in services in a similar way to that done by the GATT for goods. However, the rules are different as trade barriers differ between goods and services. The second new agreement area (TRIPS) concerns rules for the protection of intellectual property rights including patents, trademarks and copyright. (There is more discussion of the TRIPS agreement in module 4.)

The Uruguay Round also had the effect that trade in agricultural products and trade in textiles and clothing was restored to the GATT. These areas had already been covered in principle by the GATT, but had been given special treatment for political reasons. The new agreements in the WTO for textiles and clothing, as well as agriculture, have the aim of attacking protectionism in these sectors. These two agreements are of great importance for developing countries.

2.2.2.5 FROM 23 TO 148 MEMBERS

As mentioned above, the GATT started on a small scale in 1948, with 23 party countries. The circle of members then began to grow after 1950 when it was clear that the ITO would not become a reality. In the 1960s, the number of members doubled when many developing countries joined, including some African countries that had recently become independent. The number of members then increased gradually during the next two decades and passed 100 in 1990. A second wave of developing countries joined in connection with the establishment of the WTO in 1995. In October 2003, the number of members had grown to 148, with China becoming a member in 2001. A further 31 countries, including Russia, are now negotiating terms for WTO membership (May 2005). The circle of members could thus amount to 175 countries in five years, which largely mirrors the membership of the UN.

69 At the time for writing this, Cambodia and Nepal have not yet ratified the agreement.
2.2.2.6 SPECIAL TREATMENT OF DEVELOPING COUNTRIES

The original GATT rules did not distinguish between developed countries and developing countries. All parties to the agreement had the same rights and obligations, regardless of their level of development. However, by the beginning of the 1950s, this order started to be questioned, both inside and outside the GATT. At the same time, there was an increase in the number of developing countries as members. Many were of the opinion that it was unrealistic to expect that poor developing countries with vulnerable economies should compete on the same terms as established developed countries. They needed special rules in order to reduce their dependence on exports of raw materials (a legacy of the colonial era) and for developing a vibrant industrial sector. This line of thought met with sympathy. During the next three decades amendments were made to GATT rules and special rules were added (see table below). The special position and treatment of developing countries in the GATT was confirmed, so-called *special and differential treatment*.

In the 1980s, the pendulum started to swing back towards more active participation in negotiations by the developing countries. The reason for this was a growing understanding that special treatment also had a price, since negotiations without mutuality (giving and taking) made the developing countries less interesting as partners in negotiations for the developed countries. Therefore, when the Uruguay Round was started in 1986, many developing countries had decided to participate in the negotiations in order to win support for their export interests. Eventually, they accepted the GATT’s original principle of uniform rules for all members. However, provision for special treatment was not changed substantially. Special treatment for developing countries was instead included within the framework of each agreement through special rules.

Table 6: The emergence of special rules for developing countries

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1947</td>
<td>The GATT was created with strong reciprocity criteria (i.e. expectations that all countries should allow market access in order to get something in return).</td>
</tr>
<tr>
<td>1954-55</td>
<td>Review of the GATT. First departure from reciprocity criteria with special rules for developing countries.</td>
</tr>
<tr>
<td>1964</td>
<td>The situation of developing countries is strengthened externally through the establishment of UNCTAD and internally through the GATT Committee for Trade and Development.</td>
</tr>
<tr>
<td>1965</td>
<td>Establishment of Part IV on trade and development.</td>
</tr>
<tr>
<td>1973-79</td>
<td>Tokyo Round: GATT à la carte principle is established with voluntary participation in the new agreements.</td>
</tr>
<tr>
<td>1979</td>
<td>Principle of special and differential treatment is institutionalised through the adoption of the enabling clause.</td>
</tr>
<tr>
<td>1986-94</td>
<td>Uruguay Round: Return to the reciprocity criteria through the accession of all member countries to all agreements. Flexibility is retained through special and differential treatment within the framework of each agreement.</td>
</tr>
</tbody>
</table>
2.2.2.7 FROM GATT TO WTO
Through the coming into being of two completely new agreements (GATS and TRIPS) and the expansion of the GATT, it became obvious in the final stages of the Uruguay Round that a new institutional framework was needed to handle the extended rules. A further reason was the decision that all agreements should be binding on all members, in combination with the growing number of developing countries that acceded to the GATT during the final phase of the Uruguay Round. Thus the WTO was created to take over the institutional role that the GATT had performed up until that point in time.

2.3 The World Trade Organisation (WTO)
Since January 1, 1995, the WTO has functioned as the institutional framework for the agreements that constitute the multilateral trading system. These agreements can be classified into three pillars – trade in goods (GATT); trade in services (GATS); and intellectual property rights (TRIPS).

2.3.1 The WTO agreement
The institutional framework for the WTO’s activities is defined in the Agreement on the Establishment of the World Trade Organization (hereinafter referred to as the WTO agreement). The WTO agreement can be described as the WTO’s constitution. It is also often called the Marrakech agreement, after the city in Morocco where the agreement was signed.

2.3.1.1 PURPOSE AND MEANS
The preamble to the WTO agreement provides the organisation’s overall objective. In brief, the WTO is to contribute, with the aid of mutually favourable trade arrangements, to improving standards of living, full employment and the optimal use of resources; this in accordance with the principle of sustainable development, “seeking both to protect and preserve the environment and to enhance the means for doing so in a manner consistent with [members’] respective needs and concerns at different levels of economic development”.

An increase in trade is thus not a goal in itself but a means to promote sustainable economic growth in the member countries. The preamble also emphasises the importance of promoting, in particular, the trade and economic growth of developing countries. At

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70 Although with special treatment for developing countries.
the same time, the principle of mutuality (or reciprocity) is also emphasised. All countries are expected to give and take at the negotiating table, as far as they can.

The inclusion of the term **sustainable development** in the objectives of the WTO is significant and is the result of developments during the last three decades, when environmental problems increasingly caught the attention of policy-makers (described in more detail in module 1). Despite this trade and environment was not a big item in the Uruguay round negotiations. However, in 1991 a GATT dispute between the US and Mexico on an US import ban on tuna fish harvested in a way that lead to incidental killing of dolphins drew the attention to trade and environment linkages. Environmental groups were very critical to the finding in favour of Mexico, as they felt that environmental protection was limited by trade rules. At the same time, in 1992, at the UNCED Conference in Rio de Janeiro, trade was recognised to have a role in addressing poverty and environmental degradation. All this probably contributed to a sense of urgency to attend to sustainable development. In 1994, sustainable development and environment was included in the WTO objective of the preamble to the WTO agreement.\(^{72}\)

One example of the significance of including sustainable development and environment in the preamble is that it has been referred to in a key dispute on trade and environment. It can also be mentioned that in the current Doha round, ministers have confirmed the importance of sustainable development. \(^{73}\) Furthermore, ministers have decided to launch negotiations on a few specific issues related to trade and environment.

### 2.3.1.2 STRUCTURE AND DECISION-MAKING

The highest decision-making body in the WTO is the ministerial conference, which, according to the WTO agreement, shall be convened at least every second year. (See detailed table in appendix for an overview of the WTO structure). Since the establishment of the WTO, five ministerial conferences have been held. It is here, at the highest political level, that the politically sensitive issues are decided. One example is the ministerial conference in Doha (2001), which took the decision to initiate a new Doha round of negotiations, which is frequently referred to as the “Doha Development Agenda”.

The highest decision-making body between the ministerial conferences is the General Council. Every country is represented at the highest civil servant level, i.e. ambassador level. In principle, the General Council is the decision-making body for all matters.\(^{74}\)


\(^{73}\) “We are convinced that the aims of upholding and safeguarding an open and non-discriminatory multilateral trading system, and acting for the protection of the environment and the promotion of sustainable development can and must be mutually supportive.” (Ministerial Declaration, para 6.)

\(^{74}\) In relation to two issues, the General Council is convened under another name and with another chairman – those concerning the settlement of disputes in the trade policy field (Dispute Settlement Body) and the review of member countries’ trade policies (Trade Policy Review Body).
The WTO agreement provides that the organisation should continue the decision-making practice that was established during the GATT era, that is, decision by consensus (if no member objects, consensus exist). The requirement that all countries shall be in agreement naturally involves certain problems. It is difficult to reach unanimity amongst such a disparate collection of member countries, whose priorities and interests are so considerably different, as is their capacity to fulfil different undertakings. The decision-making process is therefore slow. When there are pronounced differences of opinion, further consultations and work towards a compromise text is normal procedure. When a proposal finally has a majority behind it, it is difficult for the remaining countries to block the decision. As shown by the definition of consensus, it is also necessary to be present when decisions are made. Silence is interpreted as tacit consent. This can create difficulties for developing countries, particularly for the least developed countries, that often lack permanent representation in Geneva.

As mentioned above, the WTO is an organisation that is run by its members. It is the member countries that decide the agenda, make all the decisions and that prepare all the issues in various technical committees and working groups. Participation is therefore the key to exerting an influence over decisions. But in order for the organisation to function, there is a secretariat with almost 600 employees. The secretariat is led by the director general, who is appointed by the WTO’s highest decision-making body, the ministerial conference.

The secretariat provides the infrastructure for the extensive meetings that take place in the WTO’s various bodies, including meeting rooms, secretaries and interpreters. The secretariat also provides some more advanced functions such as legal advisory services and assistance for dispute settlement panels. It also contributes with substantive policy analysis. However, the vast majority of the documents that are taken up by the WTO’s various bodies are written by the member countries themselves. The secretariat also has the task of informing the general public of the WTO’s activities through its website (www.wto.org) and various publications. Another role that has increased in recent years is to give technical assistance to developing countries.

2.3.1.3 THE WTO’S FUNCTIONS

The WTO agreement defines five functions for the WTO as an organisation:

- to guarantee that the WTO agreements are implemented;
- to provide a forum for trade negotiations;
- to administer the dispute settlement mechanism;
- to administer the trade policy review mechanism; and
- to cooperate with the IMF and the World Bank with the aim of achieving coherence in global economic policy.
Implementation of the agreements

A large part of the WTO’s budget and personnel resources are used to ensure that the WTO’s various agreements are implemented in accordance with the wording and objectives of the agreements. This extensive collective review and surveillance activity is important in order to achieve the transparency that is necessary in order for member countries to have the confidence that the agreements are being adhered to.

Forum for negotiations

As mentioned above, an extensive round of negotiations is currently taking place, the so-called Doha Round. These negotiations take place by subject area in different negotiating groups.

Negotiations in the WTO are based on two principles: reciprocity - a country cannot only receive market access, it must give something in return; and special and differential treatment for developing countries (including for LDCs in particular). There is some contradiction between these two principles, and finding the balance between them is also a matter for negotiation.

Given their inherently weaker negotiating position, how can developing countries win support for their demands and priorities? Part of the answer has been the formation of coalitions between like-minded countries. Some coalitions are based on regional affiliation, some on level of development, and some on a shared common interest in a certain subject area. Even if the EU and the USA still dominate the agenda of the WTO, it has become clear, not least as demonstrated at the ministerial meeting in Cancún in 2003, that coalitions of smaller, developing countries can function together and act as a counter-weight to the big countries. Still, developing countries are frequently absent at meetings between powerful members. Although such meetings can be instrumental in moving negotiations forward, they may need to be complemented with other mechanisms to ensure a fuller participation of developing countries, in particular LDCs.

Dispute settlement mechanism

The new dispute settlement mechanism is often described as the jewel in the crown of the WTO. It is perhaps the most effective of all international dispute settlement systems. The mechanism is very different from compliance and dispute settlement mechanisms of MEAs, which are less confrontational and more focussed on causes of non-compliance and assistance to the failing party. The mechanism operates under the WTO Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU). The agreement regulates the settlement of disputes under all of the covered WTO agreements. Any member of the WTO that feels another member is impairing its rights within the system can initiate a dispute against that member. The parties must then enter into consultations and if they fail to agree a panel is established by the Dispute Settlement Body. (See the appendix for a summary of how cases are handled in the WTO dispute settlement mecha-
nism.) Panel rulings can be appealed to an Appellate Body. Rulings are binding. If a member does not comply with a ruling (or provide compensation) within a certain time frame then the complaining state can be authorised to retaliate. Panel and Appellate Bodies are automatically established, the process is subject to strict time limits and rulings are automatically adopted. 75 It should be added that neither panel nor appellate body rulings constitute formal jurisprudence or case law, that is, future panels are not bound by previous rulings and interpretations. However, adopted panel reports are an important source of law and are often paid attention to by later panels (also unadopted panel reports can provide useful guidance). 76

The new dispute settlement system, with features such as automatic process and binding time schedules, is stronger than the corresponding system of the GATT era. The new system was partly intended to improve the possibilities for small and developing countries to protect their rights under the WTO agreements. Indeed, the system functions relatively satisfactorily for developing countries and is an improvement from a development perspective. For example, the system is seen to increase the pressure on states to follow legal decisions. This is of particular importance for countries that lack the economic power to enforce compliance. 77 Developing countries pursue more disputes than before, and with greater success, although the disputes are mainly pursued by the larger and more highly developed developing countries. The developing countries’ greatest problem is their lack of administrative, trade policy and legal expertise. Many developing countries are short of financial and administrative resources to initiate and pursue disputes. Here technical assistance by the WTO secretariat and initiatives such as the Advisory Centre on WTO Law, which assists developing countries and transition economies with legal advice, education and training, are important.

The trade policy review mechanism

The trade policy review mechanism (TPRM) is an instrument that has the aim of reviewing the trade policies of the members. The TPRM is above all a mechanism designed to promote openness and dialogue in trade policy matters, but also to encourage trade reforms and simplifications of trade rules. In addition, suggestions are made on how to make procedures simpler and more efficient.

75 Automatically adopted unless all WTO Members oppose adoption, that is, unless there is negative consensus.
76 As noted in the so-called Japan – Taxes on Alcoholic Beverages case as referred to in WTO document WT/CTE/W/203, para 2.
**Technical assistance and capacity building**

At least two thirds of WTO members are developing countries. Many of these are relatively new members and have limited experience of both the rules and processes of the WTO. They need information, advisory services and training—technical assistance and capacity building—in order to implement the agreements, as well as help to build up the necessary expertise to participate in the everyday work of the WTO, including the negotiations. This kind of support is not mentioned in the WTO agreement but has increasingly been prioritised, especially to enable developing countries to participate actively in the Doha Round. However, the support is entirely dependent on donations from individual member countries. Apart from funding the secretariat lacks the personnel resources to meet all requests. However, UNCTAD and the World Bank have provided resources to help bridge the gap. Prioritisation is nonetheless necessary and the needs of the LDCs are given highest priority.

**Coherence in the global economic policy**

The WTO agreement also stipulates that the WTO, in cooperation with the IMF and the World Bank, shall take action to ensure that there is coherence in global economic policy. Therefore, the WTO has entered into a cooperation agreement with the IMF and the World Bank.

**2.3.2 Types of Agreements**

WTO Agreements provide the basic rules for trade between the 148 members. Trade in goods, services and trade-related intellectual property rights is covered by the Agreements. Basic principles and rules are spelled out in the GATT, GATS and TRIPS. Under the GATT and GATS, specific agreements and annexes provide more detail, regarding certain issues (supplementary agreements) or sectors (agreements to improve market access). In addition, governments’ goods and services commitments are listed in schedules to the GATT and GATS, respectively.

Provisions related to the environment exist in most of the key WTO agreements, for example in the GATT, GATS, the Technical Barriers to Trade (TBT), Subsidies and Countervailing Measures (SCM) and Application of Sanitary and Phytosanitary Measures (SPS) agreements. Most notably, there are environmental exceptions in the general agreements for goods and services. Also in more specific agreements there are provisions to allow legitimate objectives such as the environment to be pursued although trade restrictive, and often these are exceptions from general rules. For example, under the SPS

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78 148 Members, when including Cambodia and Nepal who in September 2003 were approved as new Members but who still need to ratify and communicate this to the WTO.

79 WTO provisions relevant for the environment as listed on the WTO website are: the WTO agreement, preamble; GATT, art. XX; TBT agreement, preamble & art. 2.1, 2.2, 2.4; SPS agreement, annex A, paras. 1 and 12; TRIPS agreement, art. 27, 2-3; GATS, art. XIV. See also WTO (2004), referred to in module 5, section 5.8.
agreement it is possible to provisionally apply measures that go beyond standards internationally agreed even without full scientific certainty, that is, precautionary measures, although the general rule is that full scientific evidence is needed.

2.3.2.1 TRADE IN GOODS

GATT

Already introduced, it can be said that the GATT applies to trade in goods and includes schedules on bound tariffs. It also includes principles and rules that are to facilitate trade in goods. Non-discrimination is a central principle of the agreement. Discrimination between like products is prohibited, whether at the border or domestically. Whether products are the same, that is, like products, is one issue often discussed in disputes. The most controversial aspect is whether it is possible to treat products differently because of how they have been produced. However, exceptions, for environmental reasons or other, exist and can be allowed even if it runs counter to the GATT rules, for instance provided that it is not used for protectionist purposes. In a number of cases members have justified their environmental or health related measures under that exceptions article. More on this agreement, whose key features were expanded on above, will be accounted for below in the section on disputes and in module 5 on multilateral environmental agreements (MEAs) and the WTO.

Agreement on Agriculture

The Agreement on Agriculture regulates international trade in agricultural products. Its purpose is primarily to reform the conditions for trade in the agricultural sector and to make the sector more market-oriented. It is intended that this will improve stability and security in the agricultural sector for both net exporting and net importing countries.80

The Agreement on Agriculture principally focuses on three areas: market access, export subsidies and domestic support. The section on market access covers different types of import restrictions. The restrictions can consist of tariffs, tariff quotas or other non-tariff barriers. In the context of the Agreement on Agriculture, export subsidies means support to a country’s own agricultural and food production with the aim of facilitating exports. Domestic support is production subsidies that are disbursed to producers, regardless of the destination of the final product.

On market access, it was decided in the Uruguay Round that all quantitative restrictions should be transformed into bound tariffs at the start of the implementation period and then be reduced. Certain non-tariff trade barriers, such as quotas were prohibited. Export subsidies would be lowered both in terms of value and quantity. Domestic support has been disciplined using traffic lights to illustrate which types of support are allowed

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(green box), allowed conditionally (blue box) or to be reduced (amber box). Trade-distorting domestic support (amber box support) should be reduced on the basis of a measurement of total support.  

Special and differential treatment provisions included lower level of commitments and longer implementation periods. It is also worth mentioning that, in relation to market access and domestic support in the agriculture sector, China’s demand during its WTO accession negotiations to be treated as a developing country when considering a certain type of domestic support of the type that was exempted from reduction was rejected, but a compromise was reached.

**Supplementary Agreements**

Three supplementary agreements under the GATT are particularly relevant when considering WTO rules and environmental policy-making, and will be introduced below. More details are provided in module five, chapter five, where relations between the agreements also are examined.

**Technical Barriers to Trade**

The TBT Agreement contains provisions that must be observed when a member prepares, adopts and applies technical regulations and standards (including packaging, marking and labelling requirements), and the procedures for the assessment of conformity with technical regulations and standards (“technical rules”). An example of a technical rule is a government requirement that forest products that are imported or exported must come from forests that are sustainably managed. Energy efficiency labelling is another example of a technical rule.

There are two key facets to the TBT Agreement’s functioning. On the one hand, the TBT Agreement recognises that each country has the right to take measures that are necessary, for example to protect the environment or the life and health of humans, animals or plants, or to prevent deceptive practices (measures that fulfil legitimate objectives according to the TBT Agreement). On the other hand, the TBT Agreement tries to ensure that technical rules do not create unnecessary obstacles to international trade. From 1995, the TBT Agreement’s definitions of the concepts of technical regulations and standards also cover processes and production methods, in addition to product characteristics.

The provisions that must be followed under the TBT Agreement are subject to the principles of national and MFN treatment. A technical regulation may not be more trade-restrictive than is necessary to fulfil its “legitimate objective” and must be based on available scientific and technical information. International standards must be used as a basis for technical rules.

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81 Aggregate Measurement of Support (AMS).
82 For another more extensive introduction to the agreement, see e.g. UNCTAD’s early training material “Trade, Environment and Development”, module 2.
for technical regulations except when they would be an ineffective or inappropriate means for the fulfilment of the legitimate objectives of the regulations. Under the TBT Agreement, similar provisions as for technical regulations (mandatory technical rules) shall be observed for procedures for assessment of conformity and for technical standards (voluntary technical rules).

The above-mentioned provisions lay down the disciplines that must be observed at the national level when technical rules are prepared, adopted and applied. It is important to note that the TBT Agreement does not contain any provisions obliging international cooperation. However, the TBT Agreement encourages participation in international standardisation work, recognition of equivalent technical regulations between members, and negotiations for conclusion of agreements for the mutual recognition of results of conformity assessment procedures.

Furthermore, the TBT Agreement says that each member must fulfil certain notification procedures for proposals for new technical rules, as well as to establish enquiry points that can provide information on national technical rules to interested parties in other member states.

An important feature added to the TBT Agreement in 1995 was the establishment of the so-called Standardisation Code in Annex 3, which by and large contains provisions similar to those in the TBT Agreement itself on technical regulations. This Code is open for accession by national and regional standardisation bodies. With regard to international standards, certain principles have been laid down for their development.83

Domestic as well as foreign product requirements can be instrumental in promoting sustainable development, but can also affect market access negatively. Keeping track of foreign standards is therefore important. Here notification requirements of WTO agreements and information networks can be used. Technical support to domestic exporters is an additional means to consider.84 More on environmental measures and the TBT agreement is provided in module five, and in the section on eco-labelling in module six.

Sanitary and Phytosanitary Measures
The SPS agreement consists of rules on measures to protect humans, animals and plants from particular risks that accompany international movement of animals, plants and food-stuff. An example could be an import restriction on meat to protect humans from diseases like swine-fever etc. The substance of the SPS Agreement consists of a sensitive balance between rights and obligations. On the one hand, the SPS Agreement explicitly gives members the right to introduce measures to protect the life and health of humans, animals and plants. On the other hand, this right is limited and conditional. Most notably, the SPS

83 At present, 142 standardisation bodies (from 103 member countries) have accepted the Code. Since the TBT Agreement is “horizontal” and applies to all areas related to products and regulations, a large number of bodies could qualify to be considered as international standardisation bodies (there are between 50-100 such bodies).
84 This paragraph draws on CCICED, October 2004 report from the Task force on WTO and environment.
Agreement stipulates strict requirements in respect of scientific evidence as a basis for national measures. If these measures deviate from international standards then the requirements are stricter than those that ensue from the application of such international standards. This requirement for scientific risk analyses is considered, among other things, to limit the scope for arbitrary (that is, random) application of the SPS rules, and is a cornerstone of the SPS Agreement.85

Transparency and openness are other central elements of the SPS Agreement. The rules on transparency include an obligation to notify all proposals for new or amended SPS measures if these have a significant effect on trade. There are also rules that allow a reasonable period for other countries to submit their comments and which require the provision of supplementary information on request.

The issue of precautionary measures has been covered in the agreement. However, comparisons with other international agreements show that the definition of precaution is not always exactly the same. For example, one MEA allows trade restrictive measures to be taken in absence of full scientific evidence without a requirement to seek additional information, that is, the measure is not merely provisional, as it would have to be under the SPS agreement.

**Subsidies and Countervailing Measures**

The Agreement on Subsidies and Countervailing Measures (SCM Agreement) regulates the use of subsidies and ways to address adverse effects of subsidies. 86 Financial contributions by a government that confer benefits are subsidies. 87 Through subsidies countries can promote, for example, for green electricity production, conversion from coal to gas, or research and development of energy technology to cut energy demand.

In the SCM Agreement subsidies are classified as *specific* or *non-specific* subsidies. ‘Specific’ means that access to these subsidies are explicitly or implicitly limited to certain enterprises or industries. Specific subsidies are presumed to be discriminatory and distort trade. Non-specific subsidies do not favour certain enterprises or industries over others and they are allowed under the Agreement.

Specific subsidies are classified as *prohibited*, *actionable*, or *non-actionable*. Subsidies contingent upon export performance or input requirements are prohibited. 88 Most other subsidies are actionable. Non-actionable subsidies include, for example, support to research and development and for environmental installations. 89

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86 The Agreement, with certain regulations concerning developing countries, is not applicable to subsidies for agricultural products.
87 As defined in the SCM Agreement Art. 1.1.
88 An input requirement is defined as an obligation that domestic goods are used over imported goods (SCM Agreement, Art. 3.1 b)). Subsidies prohibited under Art. 3 are always regarded as specific (Art. 2.3).
89 These subsidies were provisionally non-actionable. There has been no extension, though (Art. 31).
A specific subsidy that can be demonstrated to cause adverse effects is challengeable. This means that so-called countervailing duties can be levied on subsidised products that are imported and causing injury. 90 A complaint can also be filed at the WTO dispute settlement mechanism, when consultations have not resulted in a mutually agreed solution. The dispute settlement body may authorise the complainant to take equal countermeasures, as a remedy, if a member, after six months, has not taken appropriate steps to remove the adverse effects of the subsidy. 91

Given that there are explicit conditions on eligibility and on amounts, which do not favour certain enterprises over others, the subsidy may be non-specific. 92 However, presumed non-specificity can be questioned, especially if the subsidy causes adverse effects to other members’ interest.

Adverse effects to other members’ interests is when subsidies result in:

- injury to another member’s domestic industry;
- nullification or impairment of benefits under the GATT; or
- serious prejudice, or treat thereof, to another member’s interest.

Serious prejudice may occur when another member’s like products are discriminated against, at home, in the subsidising country, or in a third country market. 93

In contrast to the GATT, the SCM Agreement includes a definition of the concept ‘like products’. 94 A like product is an identical product (that is alike in all respects to the product under consideration) or, if such a product does not exist, a product with characteristics closely resembling those of the product under consideration.

The burden of proof is on the complainant, to clearly substantiate “on the basis of positive evidence”, that a subsidy is specific. 95 The complainant also has to show that a subsidy is having an adverse effect to its interest and therefore can be challenged. 96 Regarding prohibited subsidies, the defendant may have the opportunity to show that the subsidy is not compromising the SCM Agreement, whenever a panel is established. 97

With respect to transparency, the Agreement obligates members to notify all granted or maintained specific subsidies every two years. 98 Even members with no such subsidies are to inform the WTO of this.

90 Alternatively parties can agree to limit or eliminate the subsidy or revise the price so that the injurious effect is eliminated.
91 Only one form of relief (a remedy or a countervailing duty) can simultaneously be available.
92 SCM Agreement Art. 2.1 b).
93 SCM Agreement Art. 6.3.
94 SCM Agreement Art. 15.1, footnote 46
95 SCM Agreement Art. 2.4.
96 SCM Agreement Art. 7.2.
97 SCM Agreement Art. 4.5.
98 SCM Agreement Art. 25 and the decision of the SCM Committee on a trial period with submission of new and full notifications every second year (G/SCM/M/30).
2.3.2.2 TRADE IN SERVICES

General Agreement on Trade in Services

GATS has the aim of promoting economic growth for all members and development in the developing countries, through a gradual liberalisation of the services sector. GATS is applicable to measures that affect trade in services. However, there is an exception in respect of public services. The reason for the exception is that members wish to maintain the freedom to fulfil important public policy goals.

The basic obligations consist, as in the GATT, of requirements for MFN treatment and transparency, obligations that constitute the foundations of equal treatment and openness in the international trade in services. These principles apply to all services covered by the Agreement. Exceptions from the MFN rule are allowed when acceding to GATS and apply in principle for ten years. As in the GATT, the members may also make general exceptions. There is an environmental exceptions article which is identical to GATT article XX b) and the introduction to that article. (However, there is no paragraph comparable to paragraph g) of GATT article XX, on conservation of exhaustible natural resources. In the CTE, discussions on whether to broaden the exceptions article has taken place.)

In contrast, market access only applies if a country has chosen to make a specific commitment in this respect. A country decides itself whether, and to what degree, different forms of quantitative restrictions on market access may be used. National treatment also only applies if a country has made a commitment. If it has not made a commitment, a country is fully entitled to discriminate between foreign and domestic suppliers. Consequently, every GATS member has a list of commitments in which the country states, sector by sector, mode of supply by mode of supply and the commitments it has made (see box below) - a so-called positive listing. In each individual case a country can choose not to make any commitment at all, to make full commitments (not to have any barriers to market access and not to discriminate) or to make partial commitments (i.e. allow limited market access).

<table>
<thead>
<tr>
<th>Fact box 1: GATS' four modes of supply</th>
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<tbody>
<tr>
<td><strong>Cross-border trade:</strong> Services are delivered from one member country to another (for example by maritime transport)</td>
</tr>
<tr>
<td><strong>Consumption abroad:</strong> Consumers in one country travel to another member country to consume services (e.g. tourism)</td>
</tr>
<tr>
<td><strong>Local establishment:</strong> Services are delivered by a supplier establishing an operation in another member country (e.g. establishment of a subsidiary company)</td>
</tr>
<tr>
<td><strong>Temporary movement of natural persons:</strong> The delivery of services is made by a person making a temporary visit to another member country (e.g. temporary visit by an expert).</td>
</tr>
</tbody>
</table>
2.3.2.3 INTELLECTUAL PROPERTY RIGHTS
The Agreement on Trade-related Intellectual Property Rights (TRIPS) requires member states to introduce minimum standards for the protection of intellectual property rights (IPR). IPRs are exclusive rights given to creators for a certain period of time, in order to encourage creation and give incentives and means to finance research and development activities. A patent, for example, gives an inventor exclusive rights to prevent others from making use of the invention for commercial purposes.

WTO's two fundamental principles: national treatment and MFN treatment applies to intellectual property right holders. Finally the TRIPS Agreement requires that IPR standards are enforced. The TRIPS Agreement also contains in-built flexibility, both in the form of special and differential treatment for developing countries and a possibility for exception from TRIPS rules in order to meet national needs. This, and the provisions of the TRIPS Agreement which relate to environment will be presented in module 4 on TRIPS and the Convention on Biological Diversity (CBD). Module 4 will also discuss the most debated environmental issues which often associated with the TRIPS Agreement.

2.3.3 WTO agreements are related to each other
After this overview of WTO agreements particularly important regarding environmental and health related policies and measures, it is clear that the agreements are related. Several agreements need to be paid attention to in adopting policies and measures that are related to trade. Which agreements are found to apply in a dispute depends on the product or service and the measure that is challenged. The dispute settlement panel also has to make judgements, taking relevant factors into account. (Which agreements apply will also be covered in module 5 on MEAs-WTO.)

Looking at a specific policy and measure might be useful for understanding how different agreements apply. For instance, in climate policy, a country may choose to promote energy efficiency. Among measures to implement this policy there are minimum energy efficiency requirements. The government may adopt such requirements on products such as refrigerators sold in the country. Under WTO law, this measure would be considered a technical regulation. Therefore, in designing and implementing the energy efficiency requirement, the TBT agreement should be considered. This includes attempting to use international standards, if available, otherwise to ensure that the measure is not more trade restrictive than necessary, to notify the measure and to recognise similar regulations in other countries as equivalent, if possible. However, the GATT is also relevant in this case and should be paid attention to. Imported and like domestic refrigerators should be treated equally favourably regarding the energy efficiency requirement. It can be added that if it would come to a dispute at the WTO it is not entirely clear whether the measure would be examined under the more specific agreement – the TBT agreement – or under the more general – the GATT – or under both. Moreover, if there are subsidies to
domestic producers of especially energy efficient refrigerators, for example for research and development, the SCM agreement’s rules should be taken into account. The TRIMs agreement might also need to be taken into account, regarding trade related investment measures for manufacturers in the country. Finally, it can be added that current negotiations in the Doha round may also affect a manufacturer.99

2.3.4 Consequences of the WTO agreements for developing countries

The implications of the existing WTO agreements for developing countries are difficult to assess.100 Nevertheless, on balance, the WTO agreements appear to have been beneficial for developing countries. Their access to developed countries’ markets has increased, among other things through: - substantial cuts in tariffs on manufactures, from some 40 to 4 percent, - extension of benefits from sectoral agreements to developing countries, even though they have not joined, and - disciplines on restrictive non-tariff measures. The WTO has created a framework for world trade that is more predictable and less arbitrary, characteristics that are of great benefit to developing countries. This includes the largely successful dispute settlement system.

Still, problems exist. Tariff reductions have been considerably smaller in sectors of particular interest to developing countries. For example, in agriculture, there has only been a minor increase in market access so far, although a framework for future work has been established and developed country subsidies remain at a very high level. In textiles, market access has finally increased considerably (from 2005), something that is beneficial for development, but several of the less competitive countries that have had advantages under the previous system of textiles quotas may lose from the deregulation. Something that further inhibits trade growth, not least between developing countries, is that tariffs are in general higher in developing countries than in developed countries. Moreover, there are costs for developing countries associated with the agreements. There are requirements of implementation, increased administration and compliance systems. Therefore, even if the purpose of an agreement is good, it risks becoming a financial burden for countries with limited resources. The countries most affected by such costs are the poor developing countries that do not have status as least developed countries (LDCs).

To conclude, the WTO has contributed to reducing trade barriers and to stimulating world trade within a number of areas, but much remains to be done within sectors where developing countries have strong interests. It remains to be seen whether the current

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99 For example, liberalisation of goods and services can reduce market barriers abroad. Imported input may become cheaper but competition on the local market may also increase, both depending on commitments made by the country in the negotiations.

100 As has been noted in a recent in-depth report on the subject by the Swedish National Board of Trade (2004). For example, it is not easy to separate WTO effects from other factors affecting development and net benefits or costs may vary over time as well as across countries.
round of trade negotiations will address such issues and be the development round it has been set out to be.

### 2.3.5 From Marrakech to Doha

Since the foundation of the WTO, five ministerial conferences have been held. When ministers gathered in Singapore 1996, it was decided that new issues were to be studied, the four so-called Singapore issues: trade and investment, trade and competition, transparency in government procurement as well as trade facilitation. Another important decision at the conference was with regard to the WTO Information Technology Agreement, which later on, in March 1997, entered into force.

In 1998, ministers met in Geneva. Among other things, a mandate for the starting of a new round of trade negotiations was adopted.

The Seattle ministerial conference 1999 collapsed. An important reason was inadequate preparations but also large differences of opinion between key members. Moreover, the conference was dominated by demonstrations and actions. This indicated that the hitherto anonymous status of the multilateral trading system was gone.

At the fourth ministerial conference in Doha, Qatar, 2001, ministers decided to begin a new round of negotiations based on the so-called **Doha Development Agenda** (see table 7). The round was set to be completed in 1 January 2005 for most negotiations and to be carried out in special sessions of the Trade Negotiations Committee. Negotiations concerning trade and environment were to be carried out in the Special Session of Trade and Environment Committee (CTESS). Apart from launching the new round China was welcomed as a new member at this conference.

#### Table 7. The Doha Development Agenda

11 subjects are to be negotiated in the Doha or DDA round. Regarding another four, preparations for negotiations are to take place (the so-called Singapore issues). Apart from this work is to be undertaken on implementation of present agreements, analysis and monitoring. This includes work on trade and technology transfer; technical cooperation and capacity building, and special and differential treatment.

- Implementation-related issues and concerns, some with negotiations (par 12)
- Agriculture negotiations (par 13, 14)
- Services negotiations (par 15)
- Market access for non-agricultural products negotiations (par 16)
- Trade-related aspects of intellectual property rights (TRIPS) negotiations and other work (pars 17–19)
- Relationship between trade and investment, preparations for negotiations (pars 20–22)

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101 [www.wto.org](http://www.wto.org)
Mexico was the host of the fifth conference in September 2003. In Cancún, a mid-term review of the negotiations was to take place. However, negotiations broke down and the prospects of finalising the negotiations on time vanished.

In early 2004, negotiations continued and in July members came together around an agreement, the so-called July-package. The agreement sets more or less detailed frameworks for the remaining negotiations. The July-package was important for the Doha negotiations and for restoring confidence in the multilateral trading system. The next ministerial conference, in extra session, will be in Hong Kong, December 2005.

2.4 Trade and environment in the GATT/WTO

2.4.1 The GATT period, from Havana 1948 to Marrakech 1994

Originally, concern for the environment was incorporated in the trading system through including in the GATT two main exceptions to the general principles, GATT Articles XX(b) and XX(g). However, developments in the trade as well as the environmental fora since the early 1970s have brought the trade and environment issue onto the agenda of the WTO. Still, it is important to note that the WTO’s principal mandate is to work towards an open, equitable, non-discriminatory trading system. It only has a mandate to address environmental issues in so far as environmental policies have trade-related aspects with significant impact on trade.\(^\text{102}\) In this section, the treatment of trade and environment in the multilateral trading system since the early days of the GATT will be briefly accounted for (for a more thorough overview, see appendix). The section ends with discussing the current negotiations on trade and environment.

In the early 1970s the growing international concern regarding the impact of economic growth on social development and the environment began to make its way into international trade talks. The GATT Secretariat was asked to review the relationship between trade and environment, a task that resulted in a study that focused on the potential negative impact of environmental protection policies on international trade. The study set

the tone for how environmental issues were seen to relate to trade during the following 20 years. In the 1980s, a number of developing country members expressed concern at the fact that products prohibited in developed countries due to their environmental damage, or for health and safety reasons, could be exported to them. Ministers agreed to encourage members to notify the existence of such goods. Work was also done on the measures needed to control the export of hazardous products prohibited domestically. However, a final decision on the outcome of this work could not be made.

As a result of the intensified environmental debate following the 1991 dispute in GATT between Mexico and the United States over the US ban on Mexican tuna whose harvest incidentally killed dolphins, calls were made for a forum within which trade-related environmental issues could be addressed. This was considered as necessary and timely as preparations were made for the 1992 UNCED. It was therefore agreed to have a structured debate on trade and environment. However, members differed substantially in their views on trade and environment-related issues, as was reflected in the debate over the mandate. The WTO-MEA relationship was one issue included in the mandate. The activation of the group was followed by further developments in environmental fora and attention was drawn to the instrumental role of international trade.

2.4.2 The WTO period from Marrakech 1995 to Hong Kong 2005

2.4.2.1 The Marrakech Decision on Trade and Environment

Towards the end of the Uruguay Round, members agreed to adopt a work program on trade and environment. In addition, Ministers agreed on the Marrakech Decision, which stated that it should not be contradictory to safeguard the multilateral trading system on one hand and act for the protection of the environment on the other.

The Marrakech Decision also called for the establishment of a Committee on Trade and Environment (CTE). The CTE was given a broad mandate to investigate the relationship between trade and environment measures in order to promote sustainable development and make recommendations on modifications of the WTO rules (for the mandate, see appendix). Its establishment was seen as an important step towards incorporating environmental concerns into the WTO system.

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103 This section draws on “Annex 1: Background Note by the Secretariat”, paras. 1-11, from the CTE Annual Report 1996.
104 Ibid, paragraph 29-31
105 This section draws on “Annex 1: Background Note by the Secretariat” paras. 7-24, from the WTO (1999), Special Report no 4: Trade and Environment.
106 It is worth repeating that a guiding principle for the CTE is that the WTO is the competent body for trade issues, not environmental issues, such as setting environmental standards. Therefore, only when environmental policies significantly affect trade would the issue be an issue for the CTE. (Early UNCTAD training material “Trade, Environment and Development.”)
2.4.2.2 SINGAPORE MINISTERIAL SUMMIT

In preparation for the Singapore Ministerial Conference, in December 1996, the CTE summarized the discussions since the first meeting in 1995 in a report, the Singapore Report. At Singapore, Trade Ministers endorsed the Report and directed the CTE to continue its work under its current mandate. A product of a wide range of constituent interests with great differences between them, the report was criticised by the environmental movement for lack of substantive analysis and evaluation. Below, is a concise compilation of the outcome of the discussions, in general, and a selected account of discussions under the items on the agenda of the CTE.

Singapor Report

The foundations of the Singapore Report rested on the assumption that there are no intrinsic contradictions between non-discriminatory multilateral trading system and protection of the environment, as outlined in the Marrakech Decision. The CTE's discussions also stated that the competence of the multilateral trading system was limited to trade policies and those trade-related aspects of environmental policies that could result in significant trade effects for its members. Policy coordination on a national level was presented as an important tool to achieve national as well as joint objectives of WTO member governments in the areas of trade, environment and sustainable development.

One of the main questions of the discussions in the CTE was the relationship between trade measures in multilateral environmental agreements (MEAs) and the multilateral trading system. Was there a need to clarify the scope that existed under WTO provisions to use trade measures under MEAs? Opinions varied greatly. The report finally concluded that there was no agreement for the time being to modify WTO provisions and the view was expressed that there was scope within the framework to pursue important environmental objectives.

Regarding the relationship between WTO dispute settlement procedures and those found in MEAs, the report recognised that WTO members had the right to bring disputes over the use of a trade measures taken pursuant to MEAs to the WTO dispute settlement system. However, disputes arising over the use of a trade measure applied pursuant to an MEA between two WTO members, which were both signatory to an MEA, should be resolved through the dispute settlement mechanism available under that MEA.

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108 The information about the Singapore Report and its conclusions draws on ANNEX 1 and 111 from the CTE Annual Report 1996.
The CTE undertook a preliminary examination of the relationship between WTO provisions and environmental taxes and charges and found that scope existed under WTO provisions for member governments to apply environmental taxes and charges. Further work on the item was said to be needed.

The relationship between the TBT Agreement and to environmental regulation and voluntary eco-labelling programmes was also analysed. Such measures were recognised as important instruments to inform the consumer; nevertheless, in certain cases, there were concerns about possible trade effects, transparency and so-called non-product related production and processes and production methods.

The effect of environmental measures on market access, especially in relation to developing countries had a central position in the discussions. The conclusion of the report highlights the importance of market access opportunities in assisting these countries to obtain the resources to implement adequate developmental and environmental policies.

Some developing and least-developed members argued that they lacked sufficient information about the characteristics of domestically prohibited goods or the technical and technological capacity to make informed decisions about importing them. The CTE noted that a number of relevant international instruments entered into force and others were under negotiation. Further the CTE encouraged technology transfer as a way of tackling environmental problems at their source and in helping to avoid unnecessary additional trade restrictions on the products involved.

Regarding the relationship between the TRIPS agreement and the environment, members discussed the issue of access to and transfer of environmentally sound technology. The Report noted that the TRIPS Agreement already had had a positive impact on access to and transfer of environmentally sound technology and products. Delegations disagreed as to whether some provisions of the TRIPS Agreement needed to be amended. Further work was considered necessary, including on incentives for the conservation of biological diversity.

2.4.2.3 FROM SINGAPORE TO DOHA

After Singapore, the CTE continued its work. A thematic approach was adopted (the so-called "cluster approach"), which has allowed the items of the work programme to be addressed in a systematic manner. A first cluster regroups those items relevant to the theme of market access and a second cluster contains the items related to the linkages between the MEAs and the WTO.

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At the Seattle ministerial conference, the EU called for clarification of the relationship between WTO rules and non-product related production and processing methods (PPMs), particularly eco-labelling based on life-cycle analysis and trade-related provisions in multilateral environmental agreements (MEAs). Following the EU proposal, discussions on the topic of the WTO – MEA relationship intensified, however, no formal agreement was reached.

Expectations were high also on the topic of enhancing market access and trade liberalization. There was increased emphasis by many members on the potential win-win-win outcomes of the Doha and future Rounds, which would benefit trade, environment and sustainable development. The initial discussions concentrated on the benefits of eliminating agricultural subsidies and eventually expanded to address major trade distortions in the fisheries sector caused by subsidies.

Discussions also continued on the issue of TRIPS and Biodiversity, including on how to ensure implementation in a mutually supportive manner. Some members expressed the view that the TRIPS Agreement was in conflict with the CDB. Discussions on the TRIPS-CBD synergies were continued in the TRIPS Council.

Another topic brought up in CTE discussions after the Singapore Report was the concept of precaution (a concept introduced in section 1.5.3.2). The precautionary approach is central to environmental policy and, to a certain extent, is already embodied in the Agreement of Sanitary and Phytosanitary Measures (SPS). The flexibility of the precautionary principle is its strength as well as its weakness. It has been applied to many different environmental issues and has over 12 different definitions in international agreements. As interpreted in the WTO, the principle allows members to adopt provisional measures when science is insufficient or in the process of being established, but these measures must be reviewed as more objective information becomes available. Members differ in the opinion of the extent to which the precautionary principle can be applied as customary international law. For developing countries wider use of the principle can pose risks (unnecessarily stringent measures) as well as opportunities (to ensure that unwanted harmful goods are not inadvertently imported).

2.4.2.4 FROM DOHA TO HONG KONG

In 2001, in Doha, Qatar, ministers launched the Doha round of trade negotiations. The agenda includes three environmental topics to be negotiated in the CTE in special session (CTESS). A limitation to the negotiations is that the negotiations outcome may not change the rights and obligations of members nor alter their balance. Apart from negotiations, discussions under the ordinary working program of the CTE are to pay special attention to market access effects of environmental measures, relevant rules of the TRIPS Agreement, and eco-labelling. The discussions should include the identification of any need for clarification of current WTO rules.
The Doha negotiations on trade and environment (para 31)

With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on:

(i) the relationship between existing WTO rules and specific trade obligations set out in multilateral environmental agreements (MEAs). The negotiations shall be limited in scope to the applicability of such existing WTO rules as among parties to the MEA in question. The negotiations shall not prejudice the WTO rights of any Member that is not a party to the MEA in question;

(ii) procedures for regular information exchange between MEA Secretariats and the relevant WTO committees, and the criteria for the granting of observer status;

(iii) the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.

We note that fisheries subsidies form part of the negotiations provided for in paragraph 28.

The development dimension figures frequently in this section of the Doha ministerial declaration. Market access effects of environmental requirements for developing countries and for LDCs in particular are to be paid attention to, as well as possible win-win situations where trade liberalisation could benefit trade, the environment and development. The results of negotiations on MEAs/WTO and for example the discussions on market access" will take into account the needs of developing and least-developed countries.” Moreover, technical assistance and capacity building are also mentioned on the agenda. The committees on trade and development and trade and environment are to facilitate that developmental and environmental aspects of the negotiations are considered.

2.5 WTO disputes concerning environmental issues

The dispute settlement mechanism of the GATT/WTO is available for members who feel that another member is limiting or hurting its rights under the covered agreements. In some nine cases, environmental or human health-related measures have been challenged and examined under the main environmental exceptions article (GATT article XX). In the following, procedures under GATT article XX as well as its application will be introduced, drawing on earlier cases. Adopted panel reports can provide important guidance, although they are not binding for later panels. In the appendices to this module is some additional information on a few key cases (on food safety disputes and the SPS Agreement, see for example excerpt from Sawhney (2004) in appendix).111

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110 Under the GATT, US – Canadian Tuna; Canada – Salmon and Herring; Thailand – Cigarettes; US – Tuna (Mexico); US – Tuna (EEC); US – Automobiles; and under the WTO, US – Gasoline, US – Shrimp, US – Shrimp (implementation phase), and EC – Asbestos.

111 This section draws heavily on WTO-document WT/CTE/W/203.
2.5.1 GATT article XX – procedures and application

A member whose environmental or human health-related measure is challenged for violating “ordinary” GATT rules may argue that the measure nevertheless is in accordance with the GATT under the GATT article XX (see below). However, if the party refers to article XX it has to show: 1) that the measure is covered by one of the exceptions a)-g); and, more challenging, 2) that the measure is in compliance with the introduction (the chapeau) of that article. Thus, the burden of proof is with the party whose measures have been challenged.

GATT article XX

“Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

…

(b) necessary to protect human, animal or plant life or health;

(g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption;…”

Proving that a measure falls under one of the exceptions includes showing that the policy to be implemented through that measure is covered by the exceptions. If, for example, a ban on the import of asbestos fibres is to attain the policy of removing health risks related to asbestos, the removal of those health risks must be proved to fall under an exception, for instance article b). If yes, the next step is to show that the requirements of article b) are satisfied. That means that the measure must be “necessary” to fulfil the policy objective. Or, using another example, if an import ban on tuna fish is to conserve endangered species of turtles, the conservation of those species must be proven to be covered by an exception, for instance article g). In this case, the next step is to prove that the requirements of article g) are met. This means to prove that the measure concerns conservation of exhaustible natural resources, that the measure relates to (“has to do with”) such conservation, and that the measure is “made effective in conjunction with restrictions on domestic production or consumption”.

It is clear that it is measures and not environmental policy goals that have been put into question in GATT/WTO case law. Members choose their policies but in implementing them they have to use measures that comply with the GATT. Policies that have been deemed to fall within exception b) include policies on smoking to protect human health, protection of the life or health of dolphins, and certain air pollution policy. On g), policies have included conservation of fish, dolphins, gasoline as well as clean air.

Going into more detail on criteria for measures to be in compliance with exceptions, case law suggests that under b) the measure is “necessary” if it is the only one available to
achieve the policy objective or if it the “necessary” one among alternatives. The necessity criterion appears to have developed from a least trade restrictive test to a less trade restrictive test accompanied by a “proportionality test”\(^{112}\). The proportionality test could be easier to pass the more important the interests or values protected are. In determining whether life or health is sufficiently in danger as a result of the environmental issue at hand, it is possible that a Panel would pay attention to more recent developments, including to MEAs.\(^{113}\)

Guided by case law, the first criterion of paragraph g) – “related to” – appears to mean that the measure does not have to be “necessary” or essential to, but “primarily aimed” at, and furthering the objectives of conservation of an exhaustible natural resource. This can be characterised as a “means and ends test”, the means must be substantially related to the ends. The second criterion – “made effective in conjunction with restrictions on domestic production or consumption” – has been interpreted to mean that the measure is “brought into effect together with restrictions on domestic production or consumption of natural resources”.\(^{114}\) For instance, import restrictions on tuna fish for conservation purposes would probably need to be accompanied with domestic restrictions on tuna fish consumption or the harvesting of tuna fish, that is imports and domestic products must be treated even-handedly.\(^{115}\)

Finally, moving from the exceptions themselves, the last step is to prove that the measure is in compliance with the introduction to article XX - that the measure is not “applied in manner which would constitute a means of arbitrary or unjustified discrimination between countries where the same conditions prevail, or a disguised restriction on international trade”. Thus, “a measure may discriminate, but not in an ‘arbitrary’ (random) or ‘unjustifiable’ manner”.\(^{116}\) Regarding unilateral measures, it appears as if they have to be preceded by serious efforts to come to an agreement with all other relevant countries.\(^{117}\) If the discrimination could have been foreseen and avoided it would appear to be unjustifiable. Similarly, if there were not flexibility in how to apply the measure while being comparably effective, it would appear to be unjustifiable or arbitrary. The last criterion – “disguised restriction on international trade” (italics added) – has been applied by examining whether the trade measure has been made public, whether its application “also amounts to arbitrary or unjustifiable discrimination”, and by examining “the design, architecture and revealing structure” of the measure.\(^{118}\)

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\(^{112}\) WTO-document WT/CTE/W/203, para 42.
\(^{113}\) As in the US-Shrimp case.
\(^{114}\) US – Gasoline, WTO-document WT/DS2/AB/R.
\(^{115}\) GATT art. XX d) is sometimes mentioned as another relevant exception. However, sofar, it appears never to have been successfully used in an environment-related dispute.
\(^{116}\) US – Shrimp, panel report. The explanation in italics has been added.
\(^{118}\) WTO-document WT/CTE/W/203, para 79.
2.6 Future issues

New issues that may surface or receive more attention in the trade area in a broad sense include investment, competition, labour rights and more clearly distinguishing between products because of how they have been produced, on environmental grounds. One of these, investment, will be briefly deliberated upon here.\textsuperscript{119}

Trade in goods and investment can benefit each other. Trading more with an area may make it more interesting to invest there, to get closer to the local market. Likewise, investment abroad can take place in order not only to serve the local market but also to export regionally, and perhaps even to the investor’s home country. Trade and investment links are still stronger when it comes to services. The GATS includes important investment provisions (the right to establishment).\textsuperscript{120} In the case of China, trade liberalisation through WTO accession has been expected to bring foreign investment and advanced technology at an accelerating rate.

For sustainable development, investment is important indeed. Transforming the structure of countries’ economies to promote sustainable development requires large investments as well as using available capital as efficiently as possible. Here an investment agreement could assist. Still, it has been argued that an investment agreement must not only protect investor rights but also include investor obligations, in order to promote sustainable development.

In the multilateral trading system there have been discussions on an investment agreement quite some time. In the Uruguay round, members agreed to restrict the use of investment measures that are related to trade, the Agreement on Trade-Related Investment Measures (TRIMs). Placing certain requirements on foreign investment by linking investment to goods can restrict and also distort trade. Thus, according to the TRIMs Agreement, investment measures related to trade must be in compliance with the national treatment article and the ban on quantitative restrictions of the GATT. An illustrative list of prohibited measures is enclosed to the TRIMs. For example, measures that require purchase or use of local goods by an enterprise (so-called local content requirements) are not allowed. It should be mentioned, however, that all the exceptions under the GATT also applies to the TRIMs agreement.

Nevertheless, the TRIMs agreement was considered to be a very narrow agreement. Many countries wanted a more comprehensive agreement on the rights and protection of investors. In the OECD, countries attempted to negotiate such an agreement, which drew on the GATT and on bilateral investment agreements. Investor rights were to be protected and a dispute settlement mechanism was envisaged. However, opposition to the agreement mounted and countries decided not to continue with the process. In UNCTAD, other


\textsuperscript{120} However, this right is dependent on voluntary commitment by the host country, it is not automatic.
countries tried to develop rules on investor obligations. Later on, WTO members decided to include trade and investment on the Doha Development Agenda. Nevertheless, in the so-called July package, members decided not to continue preparations for negotiations in this area. At the same time, bilateral investment agreements abound. Today, there are more than 2000 such agreements. It has been argued that there is an imbalance between the rights and obligations of host countries and investors that is inconsistent with sustainable development.121

It can be added that there are numerous links between investment and trade issues of which some are negotiated upon in the Doha round. For example, MEAs and environmental regulation can provide incentives for investment in environmentally friendly technologies. Liberalisation of environmental goods and services would make investment in more efficient and environmentally friendly production technologies less costly.

2.7 Concluding remarks

The world today is increasingly integrated through trade, new technology and travelling. Countries are trading to benefit from each other’s comparative advantages and the WTO is at the centre providing a common set of rules applying to all, rich and poorer. The expansion of international environmental agreements is another indication of the interdependence between countries and their environment. As a result, the linkages between trade and environment has been brought to the ordinary agenda of the WTO and negotiations take place on items such as MEAs-WTO and the liberalisation of environmental goods and services. According to the ministers in Doha, trade and environment can and must be mutually supportive. At the same time issues such as climate measures and genetically modified organisms are arising as areas where problems could occur, with respect to trade rules, if not attended to. This underlines the importance of the work and coordination on trade and environment at all levels, nationally and internationally to realize the objective of sustainable development. Knowledge on the trading system also needs to increase in the environmental community and knowledge on key environmental issues should be brought to the trading community.

2.8 For more information

Below is given some examples of where to find more information for a more in-depth study of the different topics. (A useful reference list is also provided by UNEP/IISD, referred to below.)

**Background and introduction to the current multilateral trading system**

- Extensive information on many topics including current negotiations is available at the WTO website at: http://www.wto.org

**Trade and environment in the GATT/WTO**

- Cosbey (2004). Lessons Learned on Trade and Sustainable Development: Distilling Six Years of Research from the Trade Knowledge Network. ICTSD and IISD, Canada.
3 Liberalisation of environmental goods and services in the WTO

**Key concepts:** environmental technology, environmentally related services, environmentally preferable products, small or medium enterprises, HS numbers, multiple uses, NAMA, movement of natural persons (Mode 4).

This module deals with various suggestions as to how to liberalise trade in environmental goods and services in order to take steps towards sustainable development. A main point is how to define environmental goods and services in a way that does not complicate the trade procedures and still fulfil the goal to promote sustainable development.

Suggestions of various lists of environmental goods as well as various proposals on classification of services are presented. There is also a description of the environment industry, especially the potentials of developing countries. Furthermore, the problems with tariff and non-tariff barriers are discussed. Finally there is a presentation of the negotiation process in the WTO on this issue.

3.1 Introduction

Liberalisation of trade in environmental goods and services (EGS) could be an important step towards sustainable development. Trade initiatives to eliminate or reduce tariff and non tariff barriers can facilitate access to and encourage utilisation of environmental technologies. This will in turn stimulate the development and application of innovative solutions to environmental issues. In addition, policies and measures could be carried out at the national and international levels to strengthen the various EGS sectors in developing countries and thereby contribute to achievement of the Millennium Goals from the United Nations Conference on Development in 2000\(^\text{122}\) and the implementation of the Action Plan adopted at the World Summit on Sustainable Development (WSSD) in Johannesburg.

Already in 1996 the OECD\(^\text{123}\) classified the environmental sector as a set of “firms producing goods and services capable of measuring, preventing, limiting or correcting environmental damage such as pollution of water, air, soil, as well as waste and noise-

\(^{122}\) See http://www.undp.org
\(^{123}\) The Organisation for Economic Cooperation and Development.
related problems”. Proceeding from the OECD definition, the APEC economies, in order to advance voluntary liberalisation of environmental goods by its Member States, published a list of specific tariff codes. Proposals on liberalisation of environmental goods and services were also presented to the WTO in 1996-1997 by the APEC economies as a possible sector for accelerated tariff reductions. However, the suggestions did not receive support from a critical mass of WTO Members.

It is in this connection important to mention that China is a part of APEC and by far the biggest exporter of environmental goods and services of all developing countries. Therefore China may also benefit from increased exports.

EGS is now one of the issues on the Doha Development Agenda (DDA) in paragraph 31 (iii). In the negotiations interests of developing countries are to be fully considered as emphasised in paragraph 16 of DDA. A large part of the WTO discussions has focused on potential benefits from the liberalisation of trade in EGS. Very often the debate refers to the need to secure “win-win-win” outcomes for trade, environment and development. As net importers of EGS, developing countries are more likely to benefit from increased availability of cheaper EGS than from increased exports. Developed countries and exporting developing countries (for instance China) expect benefits in terms of improved access to emerging environmental markets in developing countries and countries with economies in transition. The short run gains of export will probably go to developed countries.

3.2 The environment industry

The main producers and exporters of environmental goods and services are currently to be found in developed countries, including the EU, which has a strong commercial interest in this area.

The production includes raw and manufactured industrial goods used to provide an environmental service such as wastewater treatment, solid waste management, air pollution control etc., what are mainly considered as environmental technology products.

The total size of the global market of environmental technology is estimated at $550 billion in 2003. The United States, Japan and Western Europe accounted for 85 per cent of revenue generation in 2001. Annual growth in developed countries was 1.6 per cent in 2000 and 2001 and in developing countries 7-8 per cent. Environmental infrastructure services (water, wastewater, solid waste) constitute 62 per cent of the global market.

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124 The free trade area Asia Pacific Economic Cooperation includes the ASEAN-countries, Australia, New Zealand, South Korea, China, Chinese Taipei, Hong Kong, Japan, Papua New Guinea, Peru, Russia, USA, Canada, Mexico and Chile.

125 Paragraph 31(iii) of the Minister Declaration from Doha 2001 reads as follows:
With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.
Environmental technology is also one of the sectors with the greatest future export potential.\textsuperscript{126} The global market for environmental technology is growing extremely rapidly at an annual rate of 5–20 per cent, depending on the kind of technology. The OECD estimates that the global market will generate sales of $818 billion by 2010. As far as the EU is concerned, total exports and imports of environmental goods in 2000 amounted to $24 and $16 billion, respectively and the trade is growing about 20 per cent annually.

Developed countries dominate global trade (both exports and imports) of environmental goods. Developed countries’ share of global exports of environmental goods is estimated at 84 per cent and 67 per cent of imports. However, the annual trade growth in this sector is much higher in developing countries.

Only a limited number of developing countries are exporting environmental services at a notable level. Instead, their main interest lies in attracting foreign investments to help combat environmental difficulties.

Many developing countries have adopted a liberal approach to environmental services and market access is often granted without major obstacles. A great number of environmental solutions are "low-tech" and require engineering and management skills as well as capital rather than more advanced technology. Today the private sector is generally weak and 70-80 per cent of the markets consist of public purchases.

Many developing countries companies supply supportive services such as environmental engineering and educational services as well as \textit{environmentally related} services in the fields of energy services and tourism.

Developing countries export markets are usually regional, i.e. south-south, and many firms are strong competitors in their regions. Examples of regional leaders are South Korea, China, India, Brazil, Mexico and Argentina. Other notable exporters are Cuba, Thailand, Singapore and Malaysia. These developing countries are relatively large and/or are placed relatively high in the UNDP\textsuperscript{127} human development index.

Market determinants also differ. In developed countries, demand for services related to pollution control, management and clean-up or remediation is declining, and has been replaced by demand for services such as environmental consulting, eco-design of products, risk assessments and similar services.

In many developing countries, on the other hand, market development is still determined by the need for basic environmental infrastructure services, and pollution control and clean-up services. Investments by the private sector are required to satisfy these needs on the market. Such investments are dependent on a number of factors: regulations and enforcement, capital and companies, and ownership and/or contract mechanisms to ensure collection of fees, especially for water and waste infrastructure projects and the like. Liberalisation and privatisation are driven by capital in particular water and waste-

\textsuperscript{126} OECD figures referred to in a report by the Swedish Trade Council
\textsuperscript{127} United Nation Development Program
water management. Environmental markets are also very sensitive to economic cycles and environmental regulations are driving forces. One reason why introduction of new environmental technologies is lagging behind in many countries - especially in poorer ones - may be lack of environmental regulations or taxes that guide the development towards environmentally friendly production. However another part of the problem is certainly related to costs. Trade liberalisation would not address the problem of regulations or taxes, but it would make environmental goods and services more available and affordable, especially in developing countries, where there are relative high trade barriers.

The largest environmental companies are concentrated in developed countries. However, more and more companies from developing countries participate in the water and wastewater and consulting sub-sectors. These are often companies from Asian and Latin American countries, which have acquired technological and services capacities, for instance through joint venture investments in the environmental sector in their own country.

A recent publication by UNCTAD\textsuperscript{128} sets out important evidence of how capacity to provide and export environmental services has been developed in a number of developing countries.

Ozone depletion, climate change and the management of hazardous substances, chemicals and waste, to name but the most important, are issues that require and have already led to globalisation of environmental policy. Market instruments offer potential for augmenting regulations in some segments, and create an incentive for "better than compliance" through partial internalization of environmental costs.

3.2.1.1 ENVIRONMENTAL INDUSTRY IN CHINA

A survey of the environmental industry in China shows that total sales revenues from environmental goods and from environmental technical services in 2000 were $4 billion, $2.9 billion from the former and $1.2 billion from the latter. Their growth rates are 15 per cent and 20 per cent respectively\textsuperscript{129}. A rough estimate based on that growth rate and fixed prices in the year 2000 suggests that during the coming five years total revenue will be $28 billion, of which about $19.3 billion come from environmental goods and $8.7 billion from environmental technical services.

From 2001-2005, China will invest more than $84.6 billion totally in the environment sector, about 1.3 per cent of Gross Domestic Product (GDP) annually. Accordingly, total demand on environmental products and environmental technical services will be $33.8 – 42.3 billion, or about $6 – 7.2 billion annually.

\textsuperscript{128} UNCTAD, Energy and Environmental Services: Negotiating Objectives and Development Priorities, 2003
\textsuperscript{129} UNCTAD/DITC/TNCD/2003/3 (see http://www.unctad.org)

However, domestic supply of environmental goods and technical services is likely to be less than total demand, which means that China will import environmental goods and technical services from the international market.  

The market share of exports trade accounted for 1.1 per cent in the environmental industry in 2000, which was much lower than the average level of 10% in developed countries. China was a net importer of environmental goods. But China was the largest exporter of environmental goods among all developing countries. According to the APEC list, 27 kinds of goods have a trade surplus, or 55 kinds of goods according to the OECD list of environmental goods.

### 3.2.1.2 ENVIRONMENTAL INDUSTRY IN SWEDEN

The Swedish Trade Council issued a report in November 2003 on the Swedish environmental technology industry. In this report it is mentioned that Swedish companies have a number of major successes in the field of water and wastewater treatment, industrial pollution control, waste management, environmentally sound energy systems and the phasing out of ozone-depleting substances. Swedish enterprises have established a lead in many service and product segments and are particularly well recognised for system solutions and holistic approaches to various environmental problems. Sweden’s competitive edge lies in its engineering know-how, which enables the provision of custom-tailored solutions and the delivery of turnkey solutions.

The Swedish Trade Council reports that Swedish companies exported services and products at an estimated value of nearly $ 2.0 billion in 2002. During 1999-2002, environmental technology companies showed a favourable business trend characterized by increased growth. Small and medium-sized enterprises (SME) account for 60% of the total exports in this sector. An environmental technology network has been developed that includes companies from many different sectors.

Swedish environmental services suppliers are very export oriented. The main markets outside the EU are Russia, other Eastern European countries, China and large cities in Asia. Latin America is of secondary interest. The type of services of main interest is air, water and waste.

Various initiatives have been taken recently to enhance environmental exports from Sweden. One initiative for sustainable urban development is the "Sustainable City - a Swedish partnership initiative". The aim is to offer a holistic concept for sustainable urban development.

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130 WTO Negotiation on Trade Liberalisation in Environmental Goods and Services and its Implications for China, by Dongmei GUO, Policy Research Center for Environment and Economy of State Environmental Protection Administration, P.R. China (This is only author's opinions, not on behalf of any organization.)


132 The statistics presented in the previous chapter is based on the OECD definition of environmental goods and services. They are not compatible with the figures presented by the Swedish Trade Council.
3.2.2 Production of environmental goods

Concerning the kind of production, developed countries produce high technology goods, while developing countries mainly produce standard technology goods, for example household and toilet articles of plastic, electrical machines and apparatus, office machines, soil heating apparatus, measuring or checking instruments.

For developing countries there is a positive connection between environmental rules in a country and its production of such goods. Thus, among developing countries, those in Asia dominate trade in these goods (accounting for about ¾ of total trade by developing countries), while developing countries in Africa and least developed countries (LDCs) have the weakest trade positions.

In an UNCTAD study from 2003 \textit{environmentally preferable products} (EPPs) were identified and examined. For these goods trade performance varies for developed and developing countries, with a tendency for developing countries to show a modest trade surplus.

Examples of such goods of export interest to developing countries include CFC-free refrigerants, chlorine-free paper, biodegradable natural fibres such as jute, sisal and coir, natural dyes, organic soaps free of phosphates, water-based paints, natural rubber, polymers, gums and adhesives, equipment used to generate renewable/clean energy, ethanol and other clean/renewable fuels, energy-efficient lighting etc. The EPP list includes both agricultural and non-agricultural goods.

3.2.3 Production of environmental services

Some of the world’s leading service suppliers are European and, in addition, many small or medium enterprises (SME) are emerging. Currently trade in the environmental services sector is small in absolute numbers but it is growing rapidly. In Sweden, more than 500 companies supply environmental services. A majority of these has less than 50 employees and about half of them are so called micro companies. The growth in this sector is very export oriented.

Very often the customers are local government authorities, international organisations, banks and financial institutions and development agencies all over the world.

Looking at the services exported from developing countries, suppliers are present in all fields of environmental services, from water distribution and sewage treatment to air quality and clean-up services. In addition, many companies supply supportive services such as environmental engineering and educational services as well as environmentally related services in the fields of energy services and tourism. However, only a limited number of developing countries export environmental services at a notable level.

\begin{footnotesize}
\textsuperscript{133} UNCTAD publication Environmental Goods: Trade Statistics of Developing Countries  
\textsuperscript{134} UNCTAD document TD/B/COM.1/EM.21/CRP.1
\end{footnotesize}
Trade in environmental services occurs in all four modes of supply identified in the GATS, namely cross-border supply, consumption abroad, commercial presence, and presence of natural persons. The major modes of trade in environmental services are commercial presence (mode 3) and presence of natural person (mode 4). The cross-border supply (mode 1) and consumption abroad (mode 2) are rather limited.

3.3 Definition and classification of environmental goods and services

3.3.1 Environmental goods

So far, there has not been enough support among the WTO countries to make a special agreement within the WTO. Meanwhile several governments, intergovernmental and non-governmental organisations, industry and research groups have begun to identify and classify environmental goods. Among these efforts, the most well known and practically applicable classification has been made by the OECD and APEC.

3.3.1.1 OECD AND APEC CLASSIFICATIONS

The OECD has defined the environment sector industry as "activities which produce goods and services to measure, prevent, limit or correct environmental damage to water, air, and soil, as well as problems related to waste, noise and eco-systems. Clean technologies, processes, products and services that reduce environmental risk and minimize pollution and material use are also considered part of the environment industry."

Based on this definition, the OECD has classified environmental management functions, and defined a corresponding list of 164 product categories providing these functions. As a preliminary effort subject to revision, the OECD emphasizes that its list is illustrative rather than definitive (OECD, 2001).

Proceeding from the OECD definition, the APEC economies published a list of 104 HS categories. The dominating APEC economies recognised the challenges in defining and classifying these goods and services (including technologies) in a manner that would readily serve as a basis for reaching agreement on trade liberalisation.

The development of the APEC list started at the APEC Economic Leaders meeting, in November 1997, when the environmental goods and services sector was one of nine sectors selected for advancing under the accelerated liberalisation initiative. During 1998 a

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135 General Agreement on Trade in Services is one of the WTO agreements, see Module 2
136 List of environmental goods, WTO Doc. TN/TE/W/18
series of technical experts meetings took place to elaborate the details of this trade liberalisation proposal. Finally, a comprehensive initiative that included undertakings on tariffs, services, non-tariff measures, and economic and technical cooperation (Ecotech) was presented and endorsed by APEC Leaders at their annual meeting in Kuala Lumpur, in November 1998.

In reviewing the developmental history of the OECD and APEC product lists of environmental goods, it is clear that the two exercises were interlinked and informed each other. For example, the drafters of the APEC list consciously based their categories of environmental goods in large part on the work being undertaken at the time by the OECD/Eurostat informal working group on the environment industry. However, the objectives of the two exercises differed, as did the procedures for generating the lists.

The OECD list was the result of an exercise intended to illustrate, primarily for analytical reasons, the scope of the “environment industry.” The selection of categories of goods could therefore be broad, because there were no specific policy consequences of adding products to the list. Moreover, the OECD’s larger list was created deductively: starting from general categories based on the classifications appearing in the environment industry manual, and adding more specific examples, in order to produce an estimate of average tariffs on a previously undefined class of goods.

The APEC approach started with nominations — not unlike the request/offer procedures traditionally used in trade negotiations — yielding a list of products that was then arranged according to an agreed classification system. Further, since the aim of the APEC list was to obtain more favourable tariff treatment for environmental goods, APEC member economies limited themselves to considering only those specific goods that could be readily distinguished by customs agents and treated differently for tariff purposes. For this reason, issues related to “like products”, products defined by particular processes or production methods, and products defined by their life-cycle impacts, were not addressed. Therefore some goods that could be included on the OECD list were excluded. This constraint of practicality could be ignored in the OECD’s analysis because its aim was only to illustrate what could potentially be included.
### 3.3.1.2 COMPARATIVE ANALYSIS OF APEC, OECD AND JAPAN LISTS OF ENVIRONMENTAL GOODS

Since the backgrounds for the three lists are different, so are their frameworks (Table 8).

**Table 8: The frameworks of APEC, OECD and Japan Lists of Environmental Goods**

<table>
<thead>
<tr>
<th>Framework of APEC list</th>
<th>Framework of OECD list</th>
<th>Framework of Japan list</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. POLLUTION MANAGEMENT</td>
<td>A. POLLUTION MANAGEMENT</td>
<td>A. POLLUTION MANAGEMENT</td>
</tr>
<tr>
<td>1. Air Pollution Control</td>
<td>1. Air Pollution Control</td>
<td>1. Air Pollution Control</td>
</tr>
<tr>
<td>9. Other Recycling System</td>
<td></td>
<td>2. Cleaner/resource Efficient Products</td>
</tr>
<tr>
<td>10. Remediation/cleanup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. CLEANER TECHNOLOGIES AND PRODUCTS</td>
<td></td>
<td>C. RESOURCES MANAGEMENT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Indoor Air Pollution Control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Water Supply</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Recycled Materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Renewable Energy Plant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Heat/energy Saving and Management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Sustainable Agriculture and Fisheries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Sustainable Forestry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Natural Risk Management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9. Eco-tourism</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10. Others</td>
</tr>
<tr>
<td>C. RESOURCES MANAGEMENT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Renewable Energy equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Heat/energy Saving and Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Other Recycling System</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to a more detailed classification, the OECD list is the most complex one, whose HS numbers are listed only for some illustrative examples. Within this framework, the scope of environmental goods would be difficult to define. But indoor air pollution control, sustainable agriculture and fishery, sustainable forestry and eco-tourism might provide opportunity of market access for developing members. However, the current negotia-
tion mechanism has not yet included environmental goods related to agriculture, since they are reserved to the agriculture negotiations.

Table 9 shows the summary of HS numbers of environmental goods in the three lists and each specific category. Obviously: the APEC list mainly focuses on the monitoring and analysis, while the OECD list emphasizes waste water management. The Japan list appears not to be as focused as the other two lists. According to overlapping in the lists, OECD and APEC lists have more differences, while the Japan list includes more items from the former two.

Table 9: Aggregation of comparative analysis for APEC, OECD and Japan lists of environmental goods

<table>
<thead>
<tr>
<th>APEC</th>
<th>OECD</th>
<th>Japan</th>
<th>Overlapping in OECD &amp; APEC lists</th>
<th>Overlapping in OECD &amp; Japan lists</th>
<th>Overlapping in Japan &amp; APEC lists</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. POLLUTION MANAGEMENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Air Pollution Control</td>
<td>7</td>
<td>27</td>
<td>18</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>2. Waste Water Management</td>
<td>15</td>
<td>69</td>
<td>21</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>3. Solid Waste Management</td>
<td>11</td>
<td>19</td>
<td>28</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>4. Remediation/cleanup</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. Noise/vibration Abatement</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>6. Environmental Monitoring, analysis and assessment</td>
<td>58</td>
<td>19</td>
<td>44</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>B. CLEANER TECHNOLOGIES AND PRODUCTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Cleaner/resource Efficient Products</td>
<td>0</td>
<td>3</td>
<td>24</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>C. RESOURCE MANAGEMENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Water Supply</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2. Renewable Energy Plant</td>
<td>7</td>
<td>5</td>
<td>16</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3. Heat/energy Saving and Management</td>
<td>1</td>
<td>9</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>4. Other Recycling System</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Total (without considering HS overlapping)</td>
<td>109</td>
<td>161</td>
<td>166</td>
<td>36</td>
<td>72</td>
</tr>
<tr>
<td>Total (considering HS overlapping)</td>
<td>104</td>
<td>122</td>
<td>150</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Perhaps the most elementary observation to make from any comparison of the various lists of environmental goods is that the number of goods that could be included in an eventually agreed list is potentially large. Clearly, both the OECD and the APEC lists have stimulated the current WTO negotiations on environmental goods. But it is also clear that many, if not most, WTO members regard the lists as just that: helpful but not definitive.
3.3.1.3 ENVIRONMENTAL PREFERABLE PRODUCTS (EPPs)

In order to evaluate the export interests of developing countries in environmental goods, trade statistics in an UNCTAD report from 2003 have been analysed. The trade data are based on goods proposed in the APEC and OECD lists. In the statistics the total value of exports within each HS code is included, even if the environmental products only form a part thereof. It should be noted that for these positions it is not possible to indicate the percentage of environmental goods in the total imports or exports.

The environmental goods on the APEC and OECD lists represent less than 6% of the value of world trade in non-agricultural goods. They constitute no more than 3% of developing country exports in value terms. Only two developing countries are net exporters of environmental goods on the OECD list, due to exports of one or two chemical products. All developing countries are net importers of environmental goods on the APEC list.

There are however potentials for developing countries’ exports. For instance liberalisation in renewable energy products could result increased exports for certain developing countries. Renewable energy products are included in the OECD and APEC lists, but the lists could include additional products, and developing countries’ exports in related services could be promoted.

Another category, not included in the earlier mentioned lists, is *environmentally preferable products* (EPPs). This category has been proposed by UNCTAD to meet the need for identifying a larger range of products of export interest to developing countries in order to work towards a more balanced outcome of the negotiations. This category includes all industrial and consumer goods not primarily used for environmental purposes but whose production, end-use and/or disposal have positive environmental characteristics relative to similar substitute goods.

Another category of environmental goods includes both industrial and consumer goods, whose production, end-use and/or disposal have a potentially positive or reduced negative, environmental impact relative to substitutes providing a similar function and utility. Sometimes this category also includes products derived from biodiversity.

Goods in this category are in most cases primarily used for purposes other than environmental, and might, for instance, include items such as chlorine-free paper, energy-efficient office machines, organic soaps, natural fibre packaging, or floor covering materials. These products, sometimes referred to as *environmentally preferable products*

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138 UNCTAD document TD/B/COM.1/EM.21/CRP.1
139 so called "ex-outs", which means that some products have been extracted out of the HS code and defined by a description in words
140 Guinea exports aluminium hydroxide (HS281830) and Trinidad and Tobago anhydrous ammonia (HS281410) and methanol (HS290511)
141 UNCTAD document TD/B/COM.1/EM.21/CRP.1 Table 6
(EPPs), have inherent environmentally superior qualities compared to substitutes at one stage of their life-cycle.\(^\text{142}\)

In the UNCTAD discussions proposals were made for the inclusion of non-timber forest products, products based on traditional knowledge (TK) and products made from natural fibres such as jute and coir. Examples were given of tariff and non-tariff measures affecting trade in such EPPs.

Trade in Traditional Knowledge (TK) based products is affected by registration requirements, health requirements and “novel food” legislation. In the case of textile fibres such as jute and coir, tariffs in developed countries are low for raw materials, but relatively high for manufactured and semi-manufactured goods in some markets (so called “tariff escalation”). Another affect on traditional material is that certain packaging requirements could discriminate against jute as a packaging material.

In the area of renewable energy products, a case study on solar energy equipment shows that some developing countries have acquired international competitiveness, but tied aid can be an obstacle to their exports.

Most participants in the UNCTAD discussions were of the view that certain categories of EPPs would be problematic in the context of the WTO negotiations concerning paragraph 31(iii)\(^\text{143}\). Examples cited include organic agricultural products and products requiring an eco-label or another form of certification to be identified as EPPs. However, this should not detract from the importance of removing obstacles to, and promoting, developing countries’ exports of those products. For example, in the area of organic agriculture, there is a need to address problems such as standards, certification and subsidies in some developed countries. In this context, references were made to the WSSD call for actions to “support voluntary WTO compatible market-based initiatives for the creation and expansion of domestic and international markets for environmentally friendly goods and services, including organic products, which maximize environmental and developmental benefits through, inter alia, capacity-building and technical assistance to developing countries”.

UNCTAD, in cooperation with other institutions, could be of assistance, drawing on its work on commodities, BIOTRADE and the International Task Force on Harmonization and Equivalence in Organic Agriculture.\(^\text{144}\)

\(^{142}\) UNCTAD document TD/B/COM.1/EM.21/CRP.1

\(^{143}\) Paragraph 31(iii) of the Minister Declaration from Doha 2001 reads as follows:

With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.

\(^{144}\) This group is created jointly by UNCTAD and the Food and Agriculture Organization of the United Nations (FAO) and the International Federation of Organic Agriculture Movements (IFOAM).
3.3.1.4 ANALYSIS OF DIFFICULTIES IN THE DEFINITION OF ENVIRONMENTAL GOODS

Issues concerning the Harmonized System (HS)
There is no unique chapter for "environmental goods" in the Harmonized System (HS) which current custom tariff schedules are based on. The HS classification only is harmonized up to a 6-digit level. The discussion concerning the definition of "environmental goods" indicates that sometimes there may be difficulties to agree that all products under a given HS code(6-digit) satisfies the criteria for "environmental goods". If the "environmental good" only form a part of the HS code (6-digit) the use of "ex-outs" may be needed in order to identify the "environmental good".

Issues concerning multiple use
The problem of multiple use is an essential issue in the definition of environmental goods. Many environmental goods may have various uses, many of which may not be environmental. For example, a centrifuge can be used for environmental purposes to separate harmful waste from the output stream, but also for industrial production to separate ordinary substances. One report estimates that only 10% of centrifuge sales are for environmental purposes (Melling, 1996).

The probably most serious problem of the listing approach is that the frequence of multiple use is very high. While in the negotiations of voluntary sectoral liberalisation, such as information technology and civil aircraft, multiple use was a marginal issue, it is a very central issue for environmental goods. In analysis made by UNCTAD it has been found that of the five environmental goods with the highest export value from developed and developing countries, no less than four are items not elsewhere specified, such as "other plastic goods". For all these categories the issue of multiple use is central.

Issues concerning innovations
The definition of environmental goods also raises a problem concerning relatively cleaner technologies and products. A technology that reduces resource use or pollution today may be relatively dirty in a few years, as more advanced technologies become available. Thus, a review of the definition of cleaner technologies and products is necessary not to delay technical innovation or distort investment and trade decisions.

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145 The rest of Chapter 2.1 comes from the already mentioned report WTO Negotiation on Trade Liberalisation in Environmental Goods and Services and its Implications for China, by Dongmei GUO, Policy Research Center for Environment and Economy of State Environmental Protection Administration, P.R. China (This is only author’s opinions, not on behalf of any organization.)
146 "ex-outs" means that some products have been extracted out of the HS code and defined by a description in words
148 China has objected to the use of the concept of clean technologies.
3.3.2 Environmental services

There are different schemes for environmental services: Central Product Classification (CPC), Services Sectional Classification List (SSCL) under the General Agreement of Trade in Services (GATS)\(^\text{149}\) and the OECD and EUROSTAT classification.

The agreed classification of services within WTO is a part of the GATS negotiations. The current classification of environmental services – as set out in the general classification list W/120\(^\text{150}\) – contains four categories of services: sewage services, refuse disposal services, sanitation and similar services and other environmental services. There is a common understanding that this classification does not reflect the developments in the environmental services sector, especially since it focuses on end-of-pipe technology rather than on prevention.

Canada, Switzerland and the EC have presented new classification proposals:

i) The Canadian proposal is an environmental service classification that is based on an up-dated version of the four categories currently found in W/120.

ii) The Swiss suggestion contains a new classification with seven sub-sectors\(^\text{151}\), i.e. the four currently found in W/120 plus three new sub-sectors.

iii) The EC proposes a new classification with seven sub-sectors\(^\text{152}\). The main difference from the Swiss proposal is that the EC proposal covers a broader range of services, notably water distribution, water purification and recycling.

The proposals also acknowledge the importance of liberalising a number of service activities related to environmental services\(^\text{153}\). Members have so far not been able to reach an agreement on which classification to use. The discussions take place in the Committee on Specific Commitments (CSC) with focus on agreeing on a new classification.

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\(^\text{149}\) The General Agreement on Services, see Module 2.

\(^\text{150}\) W/120 from 1991 is the basic list of services sectors used by members when making commitments. It should be noted that W/120 is based on the UN classification system Provisional CPC. Division 94 of the Provisional CPC covers environmental services. W/120 only covers four of the seven sub-sectors in Division 94. Cleaning services of exhaust gases, noise abatement services, nature and landscape protection services are not found in W/120.

\(^\text{151}\) Waste water management, waste management, protection of ambient air and climate, remediation and clean-up of soil and water, noise and vibration abatement, protection of biodiversity and landscape and other environmental and ancillary services.

\(^\text{152}\) Water for human use and wastewater management, solid/hazardous waste management, protection of ambient air and climate, remediation and cleanup of soil and water, noise and vibration abatement, protection of biodiversity and landscape and other environmental and ancillary services.

\(^\text{153}\) Many services are incidental to the supply of environmental services but not classified as such since they are of "dual use", i.e. they have both environmental and non-environmental uses. Examples are research and development, engineering, construction, distribution and educational services.
China has in a study analysed the EC proposal, mentioned above. In this analysis it is said that to some extent economic reality was reflected in the EC classification, which included ‘pure’ environmental services (core environmental services classification) and conceptual services (sub-section classification of environment related services) which were ascribed to other GATS sections such as designing, engineering, R&D, etc.

3.4 Trade barriers

Trade barriers for environmental goods can be both tariff and non-tariff barriers. In many cases the non-tariff barriers are the most severe and most difficult to eliminate, especially for developing countries. If the non-tariff barriers were removed the possibilities to deliver to other countries would increase.

3.4.1 Environmental goods

3.4.1.1 Tariff barriers

In an updated version 2005 of statistical data presented in the above mentioned UNCTAD study from 2003 it has been shown that average bound tariff rates on environmental goods are significantly higher (up to 12 % for developed countries and 15-35 % for developing countries with the highest bindings of nearly 60 % for agricultural goods used to produce bio-fuels) than average applied rates. It is these bound rates that are expected to be subject to a reduction under a future WTO agreement in environmental goods.

A study from the WTO secretariat of products in the APEC and OECD lists shows that the binding coverage is higher for environmental goods than for all non-agricultural goods in developing countries as well as in developed countries. Also the average applied tariff rates are lower for environmental goods compared with the average for non-agricultural goods. For example, a presentation by Kenya at a WTO Workshop on environmental goods in October 2004 showed that their simple average applied tariff rate was reduced to 12.8% in 1998. In general, tariffs are low or zero on important environmental products.

In some countries in Asia, such as Thailand, Malaysia, Indonesia and Vietnam, deliveries to environmental projects are free from customs duties if the local customer has asked for a certain authorization. However, such a permit has to be asked for and given for each transaction. This is favourable for environmental goods but, according to some

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154 WTO Negotiation on Trade Liberalisation in Environmental Goods and Services and its Implications for China, by Dongmei GUO, Policy Research Center for Environment and Economy of State Environmental Protection Administration, P.R. China (This is only author’s opinions, not on behalf of any organization.)

155 Report by Bijit Bora and Robert Teh at the WTO Secretariat, presented at the WTO Workshop on environmental goods 11 Oct.2004
companies interviewed, the procedure for obtaining the permit can in some cases cause considerable administrative work both for the customer and for the exporting company.

Exports to developing countries seem to benefit most from tariff reductions, due to the fact that bound tariff levels are higher in these countries.

Tariff reductions in developing countries will benefit not only exporters from developed countries, but also exporters from other developing countries as the South-South trade is increasing.

Even if the applied tariffs often are lower than the bound tariffs, many developing countries are not in favour of binding their tariffs at a lower level. They are dependent on their tariff revenues and they want to have freedom to increase the tariffs when necessary to protect their growing domestic industry, or for financial reasons. To overcome these short-term financial problems in many developing countries different kinds of special and differential treatments could be analysed.

3.4.1.2 NON-TARIFF BARRIERS (NTBS)

Non-tariff barriers (NTBs) exist both for goods and services. Such barriers can be less transparent and less neutral between different producers than tariffs. The NTBs that cause most problems for developing countries are sometimes of a kind other than those disturbing developed countries.

Frequently national rules seem to favour national producers, for instance in the construction industry. It is therefore often necessary to work through local companies. For example in China, companies need co-operation with local companies if they want to make investments, not least to get lower or zero tariffs or to avoid certain restrictions for foreigners.

In some cases it is not the customs duties as such but rather the procedures, administration and special fees related to imports that cause the largest problems. The system to get permits for duty-free imports is in the hands of the national government and could be changed without any information in advance. This makes the process uncertain and without transparency.

Special attention is therefore needed to trade facilitation since administrative procedures could be both time- and money-consuming, especially for small companies from both developed and developing countries.

For developing countries, the problems often concern environmental legislation as well as different kinds of certifications and voluntary or mandatory labelling requirements, especially in developed countries. Various technical barriers to trade (TBT), such as obligations to certify the same product several times when transporting it from one developing country to another, cause problems both for developing and developed countries. Many developing countries have experienced that when exporting to, for instance European countries, they need different certificates in Germany, Sweden etc. However,
the same situation occurs to European companies when exporting to, for instance, countries in Asia.

Different kinds of non-tariff barriers were presented by Kenya in a workshop arranged by the WTO secretariat in October this year. Among barriers typical for developing countries mentioned were infrastructural problems and high cost of transportation, lack of market information on environmental goods and services, and weak capacity to produce environmental goods for export. Examples of non-tariff barriers that developed countries companies often experience are administrative barriers, bureaucracy concerning procurement, need for special certificates legalised by notarius publicus or by Court. Sometimes working licences are necessary to be allowed to work for instance with design. Such a licence is very expensive (up to US dollar 10 000). In many countries employees have to be members of the national professional union which is also very expensive. In many cases corruption is a problem.

Very often there are lengthy and cumbersome administrative procedures. They are applied both for trade and services. For investment activities in many countries, for instance China, companies need to cooperate with local companies, not at least to get lower or zero tariffs or to come around certain restrictions for foreigners.

Another example is Russia where many inspections, documents and detailed information are needed to get a permission to move a machine across the border for working on a project. Many documents are needed and all invoices have to be controlled and signed by different authorities. This administrative procedure is an obstacle to trade and can probably prevent companies – especially smaller ones – from exporting equipment to Russia. It does not matter if the equipment is important for environmental investment needed in Russia or if it does not compete with domestic production in the country.

Many Asian countries (China, India, Malaysia, Thailand, South Korea etc.) require local certification. In India and South Korea for example, certificates issued in EU Member States are not accepted. Instead a product certified in the EU also has to be certified once more in India and even a third time in South Korea notwithstanding the fact that the same product requirements may be applicable in all countries. This is very expensive and time-consuming for companies that are active in many countries.

An example that illustrates a common practice for most manufactures is the following: To produce a bus or a car in India with certified components from an EU Member State it is necessary to re-certify all components in India, as well as the final product (bus or car). If the bus or car is sold from India to South Korea or China it has to be certified yet again according to the local requirements.

Another problem both for goods and services is the lack of transparency concerning taxes and charges put on import.

A special case is the possibilities for foreign companies to tender for public procurement. This is important since many environmental investments are made after a public procurement process. The companies claim that the main problem is lack of transparency.
3.4.2 Environmental and environment-related services

Many of the barriers for services are the same as the non-tariff barriers for goods. For companies from developing countries, the obstacles facing their exporters are generally the same as the ones facing comparable suppliers of developed members. However, the effect can be different. Exporters from developing countries can be affected harder since the exporters are usually small or medium enterprises (SME) and hence more vulnerable than large multinational companies, which tend to have their origin in developed countries.

It is evident that problems facing exporters from both developing and developed countries are not only found in the sectors of core environmental services. Many exporters are more interested in sectors related to environmental services but unfortunately, barriers might be higher in many of these sectors. For example, exporters supplying environmental educational services might be seen as supplying educational services, a services sector where access is very restricted in many countries.

3.4.2.1 MAIN TYPES OF BARRIERS TO TRADE IN SERVICES

Domestic regulations

Non-discriminatory measures behind the borders are a more common obstacle to trade than the lack of market access. For example, application of numerous licences may be costly, time-consuming and hence hampering the possibility to export.

This includes the problem of lack of transparency, e.g. who to contact and what requirements must be fulfilled. Other problems explained by industry are application of different standards and non-recognition of approvals abroad. All these obstacles could make exports costly and hamper trade.

To help their suppliers, WTO Members should complete the work on domestic regulations in the Working Group for Domestic Regulations. A successful outcome could lessen the trade-distorting effects of non-discriminatory measures like licensing and qualification requirements and procedures. This will help exporters as well as domestic suppliers, as it would reduce red tape. Environmental services could be a sector where more detailed and comprehensive rules might be developed.

Public procurement

Suppliers from developing countries have their primary markets in neighbouring countries. The supply is characterized by a large degree of public spending, up to 70-80% of the markets. Non-transparent procedures and possibilities to tender reduce the possibilities of participating in public procurements.

\[156\] Many services are incidental to the supply of environmental services but not classified as such since they are of "dual use", i.e. they have both environmental and non-environmental uses. Examples are research and development, engineering, construction, distribution and educational services.
Developing countries that want to facilitate exports ought to work towards increased transparency and access to public procurement. Completing the work currently underway in GATS could improve business possibilities. In addition, finalising the work could clarify whether BOTs (Build-Operate-Transfer contracts) and other forms of private-public partnerships constitute market access or governmental procurement. Market access is currently being negotiated, and commitments undertaken before clarifying the position of BOTs might result in cases where developing countries make unintended commitments.

At the same time, most developing countries are hesitant about opening their public procurement to foreign companies, or at least developing international rules and binding market access. Balancing the competing interests, a possible outcome in GATS would be governmental procurement disciplines that clarify the scope of government procurement and lead to increased transparency. As many members are hesitant to extend market access on a multilateral level, market access could be sought on a bilateral basis with important trading partners.

This is not an optimal solution but a pragmatic approach that would facilitate market access to important markets. Nevertheless, an optimal solution would be the granting of market access on a multilateral basis.

**Market access and the classification issue**

The environmental services markets are usually quite liberalized even though few GATS commitments have been made. Besides problems with domestic regulations and public procurement market access is a severe difficulty for service suppliers. A typical market access barrier is the need to employ a certain number of local employees. Obstacles to the movement of natural persons, Mode 4, affect developing countries relatively more than developed countries. This is because Mode 4 is the main source of comparative advantage for most developing countries.

To facilitate exports, developing countries could negotiate with trading partners in order to lessen these obstacles. Focus needs to be on regional partners as these are the most important markets, but negotiations with developed countries can be foreseen. Since a large proportion of their exports are based on temporary movement of natural persons, Mode 4 deserves special attention.

Aware that foreign services suppliers can help lessen environmental problems, many developing countries have adopted a liberal approach to environmental services. Developing countries need to make commitments that can help attract foreign investments whilst securing the transfer of knowledge and strengthening the domestic environmental industry. **Mode 3, local establishment**, will be of special importance. A strategic approach will be necessary and developing countries can choose to only commit a well-defined part of a sector.\(^{157}\)

\(^{157}\) E.g. not all water services but only water purification and waste water treatment.
The situation without a clear and accepted classification creates uncertainty of what is covered by a commitment. This can hamper the willingness and possibility of making commitments. A common classification is needed to ensure certainty when making commitments and will make it easier to make meaningful commitments that correspond to current business realities and attract the investments needed.

3.4.2.2 CHINESE ANALYSIS OF BARRIERS TO TRADE IN SERVICES IN WTO

Assessing the barriers to trade in services is considered significantly more difficult than doing the same for trade in goods (Sauvé and Stern, 2000). Barriers to trade in services predominantly take the form of non-tariff barriers (NTBs), the restrictive effects of which can be difficult to determine, especially given the paucity of data on trade in services. Regulations, approval procedures, requirements of levels of commercial presence, and restrictions on capital and labour movement are all examples of barriers to trade in services. Restrictions to trade in services have been described as a policy that impedes producers and consumers interacting through any of the modes of supply (Warren and Findlay 2000). A number of other examples of measures restricting trade in services are listed below.

_Cross-border supply (GATS mode 1)_

- Requirements to get authorization, licenses or permits to supply services on the market.
- Requirement to use monopoly or otherwise specified network access or connection provider (including for Internet or other electronic networks), access limited by specific government regulation.
- Cross-border transfer of capital, payments and/or use of credit cards for such transactions not permitted or subject to authorization.
- Establishment of full commercial presence required, may be granted only to specified brand-name entities or required in the form of local partnership.

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158 From a report called “Study of Impacts on APEC Economies of Measures to liberalize and facilitate trade in environmental services, APEC Committee on Trade and Investment 2004, China Environmental Science Press. The authors are Dongmei GUO, Liping LI, Feng ZHAO and Min JIN at the PRCEE, SEPA, P.R. China. Facts also based on the OECD Secretariat’s Indicative list of barriers to trade in environmental services(Annex 5, COM/TD/ENV(00)86/FINAL).
Consumption abroad (GATS mode 2)
- Permissions are given only through firms with commercial presence in the country or to specified brands or to a designated local partner.
- Requirement to use a monopoly or otherwise specified network access or connection provider, including for Internet or other electronic networks.
- Transfer of capital, payments and/or use of credit cards for such transactions not permitted or subject to authorization.

Commercial presence (GATS mode 3)
Investment approval
- Approval based on policy guidelines and overall national interest considerations but without economic needs test or local participation requirements.
- Approval of foreign investment based on economic needs test or net national benefit.
- Automatic approval except for specific authorization or concession requirement for foreign investment in public entities or public works, newly privatised companies or government-contracted services (can be limited to nationals), or a certain value above a threshold.
- Case-by-case authorisation at political level with ceilings on permitted foreign investment varying by sector or within sectors; including without clear, consistently applied criteria for approval.
- Approval required for full or majority foreign ownership, or full or majority foreign ownership not permitted, joint venture with local partner mandatory.
- Establishment of new businesses prohibited or restricted; only minority shares in existing businesses permitted. Scope of foreign business limited to specified activities, narrower than those permitted local firms.
**Legal form of foreign company**

- Only one legal form permitted (e.g. joint-stock company, private limited liability corporation, joint venture), incorporation required with foreign equity participation ceiling and mandatory local partnership, only one single ownership or partnership permitted.

- Direct establishment of branches of foreign companies not permitted, branching permitted subject to quotas on number and/or geographic location of branches.

- Only representative office permitted (i.e. promotional work and research for head office).

**Licensing/authorisation for provision**

- Licensing and authorisation granted only to companies permitted to establish, with licences limited numerically or subject to significant limitations (e.g. on foreign equity, local staff).

**Nationality/residency requirements**

- Requirement that all or more than 50% of the directors should be citizens of the host country.

- Requirement that local agents of foreign companies should be permanent residents.

- Requirement that providers established in one part of a country have a minimum number of resident providers or agents for provision in another part of a country.

- Prior residency required to obtain operating licence, residency not permitted without a licence.
Movement of natural persons (GATS mode 4)

- Only certain types of personnel permitted, with time-limits and/or conditions not specified, such that these may then be arbitrarily or discriminatorily applied.

- Requirement to undertake further training or pass local exam in the host country to be recognised as professional or specialist; criteria for local recognition of experience and/or qualifications for professionals and specialists are vague, non-transparently or arbitrarily applied, or discriminatory.

- Permission for intra-corporate transferees and specialists subject to labour market testing/economic needs test; non-availability of local staff decided by host authorities without input from the foreign company concerned; requirement that a set proportion of foreign staff have local understudies for training/transfer of skills.

- Permission for intra-corporate transfers subject to performance requirements (e.g., employment creation, transfer of technology, ongoing level of investment).

- Requirement that specified, significant proportion (e.g. more than 70%) of staff of foreign established company should be citizens of the host country, regardless of experience/qualifications; numerical limitations on foreign citizens in senior positions.

- Provision of services by self-employed persons not permitted.

Restrictions on provision, transfer and processing of information/data (all modes)

- Prohibition or restrictions on transfer of specified types of data (personal, financial institutional, commercial) without specifying the policy reasons for the prohibition or permitting transfer subject to adherence to reasonable standards.

- Requirement that provision and transfer of all or specified types of information take place on designated or monopoly networks.
3.5 Negotiations concerning liberalisation of EGS

The negotiations are based on par 31(iii) in the Doha Development Agenda from 2001. They take place in CTESS 159 and for services in CTSSS 160. There is a close linkage between the goods and services elements of “environmental goods and services”, reflected in the fact that published commentaries on the subject typically examines both together. The negotiations will continue both in the formal groups and in informal consultations during the rest of 2005 as a preparation for the Hong Kong ministerial meeting in December 2005.

3.5.1 Environmental goods

In general, the negotiation of CTESS on 31(iii) mainly focused on the definition and list of environmental goods (a list approach). Most members agreed that the definition of environmental goods and services in the proposal should draw on the APEC list, meanwhile referring to the OECD’s illustrative categories of environmental goods. Since the Cancun Ministerial Conference, encouraging progress on this particular part of the mandate has been made. Suggestions of two types of lists have been given by USA (“core” and “complementary” lists) and China (“common” and “development” lists).

The core list should be based on the OECD and APEC lists and should be agreed upon of all members. The complementary list would embody products on which a definitive consensus could not be reached, but for which there was a “high degree of acknowledgment” that they were significant for environmental protection, pollution prevention or remediation, and sustainability.

In its submission 161 China suggested a concept of a common list and a development list. A Common List means a list for all, which comprises specific product lines on which there is consensus that they constitute environmental products. Priorities should be given to products of export interest of developing and least-developed Members in order to enhance the export capacity building on environmental goods in real terms.

A Development List is a list for Special and Differential Treatment born from the common list, which comprises those products selected by developing and least-developed Members from the common list for exemption or a lower level of reduction commitment, with a view to reflecting the principle of less than full reciprocity, taking into consideration the needs of their economic development and the vulnerability of their relevant domestic industries in the area of environmental goods.

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159 Committee on Trade and Environment, Special session (under GATT)
160 Council for Trade in Services, Special session (under GATS)
161 TN/TE/W/42
At the February session in CTE this year there was a submission from New Zealand called for a practical approach to the negotiations, in which Members could "define environmental goods by doing," and suggested that certain reference points guide the identification of environmental products. It expressed a preference for the adoption of a "single consensus list" of environmental goods, but stated that a dual list approach could be considered in the event that agreement on one list could not be obtained. Furthermore, the paper suggested the concept of a "living list," which would allow an agreed list to be updated for technological progress.

There were also suggestions from the EU that called for the use of certain "guiding principles" in the identification of environmental goods, and proposed that environmental goods include: (1) goods used in pollution control and resource management, and (2) goods that have a high environmental performance or low environmental impact. Under each of these categories, a list of examples was provided. The paper also commented on the modalities for the negotiations, calling on all Members, except the least developed, to agree to "deeper tariff cuts" in this area of the negotiations.

In the discussions, several developing country Members emphasised the need for balance in the negotiations between developed and developing country interests. In particular, they urged that the issues of special and differential treatment, of technical assistance, and of transfer of technology be considered. Furthermore, discussion was held on some of the factors on which the identification of environmental goods could be based. Some developing country Members indicated that they would also be submitting lists of environmental goods.

At the July and October meetings this year of CTESS there were basically three positions:

(i) the proponents of the list approach, which are now ready to include non-PPM-based EPPs;

(ii) the environmental project approach of India, which gained support from quite a number of developing countries. They argued that this approach would overcome a number of systemic problems inherent in the listing approach (such as dual use, transfer of technology, link between goods and services, better evaluation of costs and benefits, inclusion of NTBs). On the other hand this project approach the approach has a number of administrative-related problems regarding accessibility for SMEs, unknown transaction costs, as well as the negotiability in the WTO; and

(iii) some countries articulating concern about negotiating modalities and the need of their clarification before drawing up a list of environmental goods.
The main task for NAMA is to negotiate a reduction pattern of tariff and non-tariff barriers to trade in goods including environmental goods. The Group has taken up a number of technical issues as well as non-tariff barriers (NTBs). The Group also agreed to undertake a multilateral examination of notified NTBs. No concrete results have been obtained concerning environmental goods. The discussions include several topics such as product coverage, treatment of unbound tariff lines in relation to the formula, ad valorem equivalents, data availability, specific matters relating to the flexibility and provisions of flexibility for developing country participants, recourse to special provisions for tariff reductions by newly acceded Members, elimination of low duties, and non reciprocal preferences.

3.5.2 Current negotiations on environmental services

The main environmental content in CTSSS includes classification of environmental services, barriers to trade liberalisation in environmental services and related domestic laws and regulations etc. The EU is an active promoter of trade liberalisation in environmental services with a view to export its environmental services.

The negotiations on market access for environmental services adopt the request-offer approach. Lists of environmental services for commitment to liberalisation are established according to the positive approach and the negative approach. In the positive list, listed items must be open, while those unlisted need not to be open; but in the negative list, all items must open only if they are not listed. Developed countries prefer the negative list. With respect to national treatment for trade in environmental services, China has made commitments in its negotiations on WTO accession, which means this aspect has been confirmed.

The goals of APEC and GATS under WTO are unanimous regarding implementing and promoting trade liberalisation and facilitation.

Most of the members of WTO believe that the barriers against trade in environmental services mainly come from the restrictions on national treatment and market access. For instance, the conditions for access to services are too strict and lack of transparency; the procedures for approval are lengthy; various restrictions are set up on the operation of foreign services providers, or to increase their operational burden; various prohibition and restrictions are formulated to let foreign services provider into an unfavourable competing position.

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162 Negotiation on Market Access
163 This text comes from the report WTO Negotiation on Trade Liberalisation in Environmental Goods and Services and its Implications for China, by Dongmei GUO, Policy Research Centre for Environment and Economy of State Environmental Protection Administration, P.R. China (This is only author’s opinions, not on behalf of any organization.)
164
Most developing countries try to attract foreign investments and imports of capital goods, since they need them for their development. Even if they have not made any formal commitments in the WTO negotiations on tariffs or services, their applied tariffs are low and they have an open market access for services in this field. It is only if they have own industries producing the same goods that trade barriers may occur. As for services, barriers are mostly found in related environmental services sectors and not in the core environmental services sectors. In many cases, market access is accompanied by demands for joint ventures and, for example in China, there are obligations like having a certain percentage of domestic content.

Among the original members of GATS, 38\textsuperscript{165} members have already made commitments on environmental services, but their standards for obligations and the committed obligations for different sectors are different. 29 members had made commitments on such environmental services as sewage treatment, waste treatment and other fields; 30 members had made commitments on environmental sanitation and like; and relatively fewer members had made commitments on a few sectors in other environmental services. Although most of the members had not made commitments on environmental services, those who did are all major trading countries, and their GDP is more than 86% in proportion to that of all the members. But most of these countries are OECD countries.

Among the 21 economies in APEC, there are 9 economies had made commitments on the concession on trade in environmental services regarding market access and national treatment. On the whole, except that there is no restriction on the provision of consumption services, the others are all partly committed concession, among which, the concrete commitments on market access are to emphasize, and they are focusing on such two major modes as the commercial presence (mode 3) and presence of natural persons in (mode 4) environmental services trade, which may involve rules on foreign investment, restrictions on migration, requirements on sanitation and environment, competition policies, especially the relevant regulations on the monopoly of public business, corporation law and intellectual property.

\textsuperscript{165} EU is a member here. S/C/W/46/1998
3.6 Concluding remarks

Liberalisation of trade in environmental goods and services (EGS) could be an important step towards sustainable development. Studies from the OECD and UNCTAD show that developed countries dominate in the export as well as in the import trade in the global market for traditional environmental goods (predominantly, environmental technology). There are, however, a number of potential benefits of EGS liberalisation for developing countries, such as access to environmentally sound technology (EST) and know-how; possible reduction in the relative prices of EGS; economic, environmental and developmental gains resulting from upgraded environmental infrastructure, more efficient resource management and improved environmental conditions; and enhanced capacity to comply with environmental requirements in domestic and international markets.

Perhaps the most elementary observation to make from any comparison of the various lists of environmental goods that have been produced to date is that the number of goods that could be included in an eventually agreed list is potentially large. Clearly, both the OECD and the APEC lists have helped frame the current WTO negotiations on environmental goods. But it is also clear that many, if not most, WTO members regard the lists as just that: helpful but not definitive.

Many actors have the view that this item on the environment part of the Doha development agenda has emerged as the most likely candidate for tangible progress by the Hong Kong Ministerial Conference. In that regard, it is important that the delegations continue submitting their ideas, as well as their lists of goods, for WTO Members' consideration.

Concerning services it must also be realized that even where all market access barriers are removed, competition on many markets is fierce and distribution channels unavailable. Removal of legal barriers is by no means a guarantee for export success. Even though the environmental services sector is relatively liberal, suppliers from developing countries still face many obstacles.

Finally, the situation without a clear and accepted classification of services creates unnecessary uncertainty. In order to lessen fears among some members, the question of ownership of natural resources could be further clarified so that it is absolutely clear that the classification does not cover ownership.

The negotiations will continue both in the formal groups and in informal consultations during the rest of 2005 as a preparation for the Hong Kong ministerial meeting in December 2005.
3.7 For more information

Below are some examples of where to find more information for a more in-depth study of the different topics. In addition, extensive information on many topics including current discussions and negotiations is available at the websites of WTO, OECD and UNCTAD (see http://www.wto.org and http://www.oecd.org and http://www.unctad.org). Information about the Swedish environmental industry could be found at the web-site http://www.swedentech.com. Information on WTO negotiations on EGS as well as other WTO issues could be found at Bridges weekly, an internet journal from the International Centre for Trade and Sustainable development (see http://www.ictsd.org)

The environment industry

- UNCTAD publication Environmental Goods: Trade Statistics of Developing Countries TD/B/COM.1/EM.21/CRP.1
- Environmental goods: Identifying Items of Export Interest to Developing Countries (CBTF Briefing Note, presented by the UNCTAD Secretariat, July 2005 (see http://www.unep-unctad.org/cbtf)

Definition of environmental goods and services

- WTO Negotiation on Trade Liberalisation in Environmental Goods and Services and its Implications for China, by Dongmei GUO, Policy Research Centre for Environment and Economy of State Environmental Protection Administration, P.R. China
- Environmental Goods and Services: Defining Negotiations or Negotiating Definitions? Article by Alexey Vikhlyaev in Journal of World Trade 38(1), 2004
- Identifying Complementary Measures to ensure the maximum realisation of benefits from the liberalisation of Trade in environmental goods and services COM/ENV/TD(2003)36 (see http://www.oecd.org)
  See also COM/ENV/TD82003)10/FINAL (http://www.oecd.org)

Trade barriers
• Overview of observed non-tariff barriers to trade in goods: Progress report TD/TC/WP(2002)3 (see http://www.oecd.org)
• Study of Impacts on APEC Economies of Measures to Liberalise and Facilitate Trade in Environmental Services (APEC Committee on Trade and Investment 2004, China Environmental Science Press)

WTO negotiations
• Trade Preferences and Environmental Goods, article by Scott Vaughan, Carnegie Endowment for International Peace (Trade Equity and Development, issue 5, February 2003)
• Liberalising trade in Environmental Goods and Services: In Search of “win-win-win” outcomes. CUTS Centre for International Trade, Economics and Environment, research report, 2004
4 The TRIPS Agreement and the Convention on Biological Diversity

**Key concepts:** Intellectual Property Rights, Biodiversity, Biopiracy, Access and Benefit Sharing, Traditional Knowledge, Farmers’ rights, control of research and the ethics of patenting life forms.

### 4.1 Basics of the TRIPS Agreement

The Agreement on trade related *intellectual property rights* (TRIPS) is part of the WTO package and is binding for all WTO members. The TRIPS Agreement requires member states to introduce minimum standards for the protection of intellectual property rights (IPR). IPR are exclusive rights given to creators for a certain period of time, in order to encourage creation and give incentives and means to finance research and development activities. The TRIPS Agreement is based on the WTO’s two fundamental principles: National treatment, which states that intellectual property right holders from abroad should be treated in the same way as domestic ones, as well as the Most Favoured Nation principle, which states that all intellectual property right holders within the WTO should be given the same treatment. \(^{166}\) The TRIPS Agreement contains to some extent an inbuilt flexibility to meet national needs and possibilities for exemption for developing countries. However, many developing countries do not make use of this flexibility, (for reasons explained in this module). The agreement has wide implications for the environment, in particular linked to agriculture, biodiversity as well as to access to environmental goods and technologies.

The objectives of TRIPS Agreement can be found in Article 7:

“The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.”

It is interesting to note that the objectives are quite ambitious as they point at the necessity to conciliate the promotion of technological innovation with the dissemination of the

\(^{166}\) For a description of these two principles see module 2 (2.2.2.2 Key principles)
same technology and this, in a manner to bring mutual advantage to the producers and the user of the technology. This is the same challenge that faces all IPR legislation nationally: to find the right balance between, on one hand, the exclusive rights conferred during a period of time, and on the other, the needs of the society in terms of access to the protected innovation or creation, as well as safeguard against possible negative effects. Hence, Article 8, which covers the principles of the agreement, stresses the possibility for members to adopt necessary measures to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development.

A special WTO body, the TRIPS Council, is open to all members of the WTO, and is responsible for administering the TRIPS Agreement, in particular monitoring the operation of the Agreement. The Agreement is linked to the WTO’s dispute settlement system and Trade Policy Review Mechanism. This distinguishes the TRIPS Agreement from all previous IPR conventions that are administered by the UN organisation WIPO (World Intellectual Property Organisation), as WIPO does not have a dispute settlement mechanism.

4.1.1 Minimum standards of IPR

The TRIPS Agreement introduces obligations in relation to all categories of intellectual property rights. The Agreement incorporates existing international conventions that are administered by the World Intellectual Property Organization (WIPO). In some areas the Agreement goes further. At the same time, there are a number of WIPO conventions that regulate matters that are not taken up at all, or only partly, in the TRIPS Agreement.

IPR are customarily divided into two main areas. The first is copyright and rights related to copyright and the second area is industrial property.

4.1.1.1 COPYRIGHT AND RIGHTS RELATED TO COPYRIGHT

The rights of authors of literary and artistic works (such as books and other writings, musical compositions, paintings, sculpture, computer programs and films) are protected by copyright, for a minimum period of 50 years after the death of the author.

Also protected through copyright and related (sometimes referred to as “neighbouring”) rights are the rights of performers (e.g. actors, singers and musicians), producers of phonograms (sound recordings) and broadcasting organizations. The main social purpose of protection of copyright and related rights is to encourage and reward creative work.

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167 The substantive requirements of the TRIPS Agreement are addressed in more detail in Annex 1.
168 Amongst other, the Berne Convention on copyright and the Paris Convention on industrial property.
169 As for example WIPO Copyright Treaty (WCT) och WIPO Performances and Phonograms Treaty (WPPT).
4.1.2 INDUSTRIAL PROPERTY
Industrial property can usefully be divided into two main areas:
One area can be characterised as the protection of distinctive signs, in particular trade-
marks (which distinguish the goods or services of one undertaking from those of other
undertakings) and geographical indications (which identify a good as originating in a
place where a given characteristic of the good is essentially attributable to its geographi-
cal origin).

The protection of such distinctive signs aims to stimulate and ensure fair competition
and to protect consumers, by enabling them to make informed choices between various
goods and services. The protection may last indefinitely, provided the sign in question
continues to be distinctive.

Other types of industrial property are protected primarily to stimulate innovation, de-
sign and the creation of technology. In this category, one finds inventions (protected by
patents), industrial designs and trade secrets.

The social purpose is to provide protection for the results of investment in the devel-
opment of new technology, thus giving an incentive and means to finance research and
development activities.

A functioning intellectual property regime should also facilitate the transfer of tech-
nology in the form of foreign direct investment, joint ventures and licensing.

The protection is usually given for a finite term (typically 20 years in the case of pat-
ents). While the basic social objectives of intellectual property protection are as outlined
above, it should also be noted that the exclusive rights given are generally subject to a
number of limitations and exceptions, aimed at fine-tuning the balance that has to be
found between the legitimate interests of right holders and of users, and public interest..

4.1.2 Enforcement requirements
The WTO member countries also undertake to ensure that these norms are observed. Part
III of the Agreement on the enforcement of intellectual property rights contains provi-
sions to ensure an effective enforcement, notably procedures and remedies that shall be
put into effect if infringements occur. According to the Agreement, the criminal law sanc-
tions shall be sufficient to deter at least deliberate trademark counterfeiting and copyright
piracy on a commercial scale. It shall be possible to destroy infringing products or to
prevent them from entering the market in another way. Border control measures must be
introduced in order to prevent the dissemination of illegal products. This is the second
feature which distinguishes the TRIPS Agreement from previous IPR conventions, as
these generally lacked enforcement requirements.
4.1.3 The TRIPS provisions related to environmental issues

As already noted, the TRIPS Agreement provides some space for safeguarding public interest (e.g. in Article 8), but refers only once directly to environment. Article 27.2 of the patent section states:

“Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect ordre public or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law. 170”

Several other TRIPS provisions indirectly affect environment. In a certain way one can find some relation with environmental issues in most substantive provisions in Part 2 of the Agreement. The most debated provision is 27.3 which states:

“Members may also exclude from patentability:

(a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals;

(b) plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.”

Article 27 defines which inventions governments are obliged to make eligible for patenting and what they can exclude from patenting. Inventions that can be patented include both products and processes, and they generally cover all fields of technology. Article 27.3(b) focuses on biotechnological inventions. Broadly speaking, Article 27.3(b) allows governments to exclude some kinds of inventions from patenting, i.e. plants, animals and “essentially” biological processes (but micro-organisms, and non-biological and microbiological processes have to be eligible for patents). However, plant varieties have to be

170 Ordre public is a French concept which refers to the fundamentals from which one cannot derogate without endangering the institutions of a given society. A typical application is the freedom to contract which is limited by ordre public: for example, when a contract involves narcotics or pornography.
eligible for protection either through patent protection or an effective *sui generis* system, or a combination of the two.  

Much of the widely debated possible impact on agriculture, food safety and biodiversity is linked to Article 27.3(b). The potential effects are relatively more important for developing countries because agriculture and other natural resource based livelihoods are still a major part of their economies, but also because genetic resources and related traditional knowledge is an area where they often have a comparative advantage. The most debated issues include biopiracy, farmers’ rights, *the ethics of patenting life forms*, and to a lesser extent *corporate concentration of research*. These will be discussed later on.

Parties had a difficult time negotiating the patent section of the TRIPS Agreement as they could not agree on the issue of *patentability*. One of the issues was whether patent requirements should apply to all fields of technology in the same way. Developed countries wanted higher standards than developing countries. Many developing countries did not offer *product patent protection* at all, only *process patent protection* and could therefore produce copies of products under patent in the industrialised world. Some countries did not provide patent at all in the pharmaceutical or agricultural sector which were considered crucial for the basic human requirement of their population. At the end of the negotiations a compromise was made which included a longer transition period in those sectors, possibilities of exceptions to the rules as well as an agreement to review Article 27.3(b) after the entry into force of the agreement. In marked contrast to the fact that the relationships between TRIPS and the environment is a key item on the work programme of the WTO Committee on Trade on Environment, these issues have hardly been discussed as such in the TRIPS Council. However, during the review of article 27.3(b), which started in 1999, several issues related directly or indirectly with environment were and are still discussed in the TRIPS Council.

These issues are the relationship between the TRIPS Agreement and the CBD, the issue of traditional knowledge, and the issue of the patentability of life forms. These issues will be covered in detail in the following section.

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171 A *sui generis* system is a type of protection created for a specific purpose, in this case plant variety protection. The TRIPS Agreement does not request any other requirement than the fact that the protection should be an effective one. Because of the lack of definition the *sui generis* protection can be an option for countries which do not want a strong protection for plant varieties.
4.1.3.1 THE ISSUE OF TRANSFER OF TECHNOLOGY

Another issue that has as been discussed during the review of Article 27.3(b), although to a lesser extent, is the issue of transfer of technology.\(^{172}\) It should be noted that no provision in the TRIPS Agreement refers to the issue of transfer of environmentally friendly technology.

The only requirement on transfer of technology is the obligation for developed countries to give incentives to institutions and companies in their territory in order to promote transfer of technology to the least developed countries (Article 66.2). During the review of Article 27.3(b) some developing countries recalled that Article 7 of the TRIPS Agreement includes the transfer and dissemination of technology as one of the basic objectives of the protection of intellectual property rights. The same countries requested measures to effectively operationalise this objective. It has even been said that intellectual property rights, including those in Article 27.3(b) could impede access to, and raise the cost of technology, by virtue of the exclusive rights given to right holders to prevent others from using the technology.

In response some developed countries said that full implementation of TRIPS provisions by developing countries would build confidence among investors, both domestic and foreign, and stimulate investment in innovative business in these countries. The same countries meant that experience shows that the benefits to recipients and users of the technology exceed the cost of acquiring technology and recalled the importance of intellectual property rights for discouraging secrecy. Their argument was that the disclosure requirements of the patent system in the long term facilitate the dissemination of technology.

Many studies have been written on the subject. Most evidence shows that an effective intellectual property right system is considered to have positive economic consequences in the countries where the technology is transferred, either in the form of direct investments or licensing. The evidence is stronger for more technology advanced developing countries. However, an effective intellectual property system is not a guarantee for transfer of technology as it is not sufficient in itself. Technology is most of the time in private hands an in order to be transferred, there need to be good general environment, both economical and political, and the country in question needs to have the capacity to absorb the technology. This is why some observers consider that least developed countries have little to gain from strong patent protection as long as their domestic situation is not improved.\(^{173}\) Finally, there is not much evidence that plant variety rights encourage private in-vestments in agricultural sector in poor countries.\(^{174}\)

\(^{172}\) IP/C/W/369


\(^{174}\) Maskus and Reichman (2005).
4.1.4 The TRIPS Agreement and Developing Countries

4.1.4.1 TRANSITION PERIODS

Apart from the provisions on MFN treatment and national treatment, developing countries did not need to adapt their legislation to the requirements of the TRIPS Agreement until January 1, 2000. In addition to this, the TRIPS Agreement permits prolongation for developing countries to January 1, 2005 to enable them to extend product patent protection in the areas of technology that were not protected when the Agreement was signed.

In the light of the LDCs’ economic, financial and administrative constraints, their transitional periods for the implementation of the Agreement are extended until January 1, 2006. Where pharmaceuticals are concerned, the member states decided at the WTO’s ministerial meeting in Doha in 2001 to extend the periods of transition for the implementation by LDCs of the patent provisions of the TRIPS Agreement until January 1, 2016.

4.1.4.2 OTHER FLEXIBILITIES

The TRIPS Agreement also contains in-built flexibility in the form of a possibility for exception from TRIPS’ rules to meet national needs. Moreover, there is additional flexibility in the fact that certain concepts are not defined in the Agreement, for example an invention. In practice, a number of concepts are interpreted differently in different countries depending on what is best for the special conditions in the country. On the other hand, this flexibility means that countries cannot interfere in other member states own definition of those concepts. The low requirements of novelty in for example the US is considered by several developing countries as an important contribution to the problem of biopiracy.

Many developing countries do not make use of this flexibility. This is partly due to the fact that they lack institutional capacity to formulate adapted legislation on intellectual property rights and partly since some countries have undertaken to introduce higher norms in regional or bilateral agreements, for example with the USA and the EU. As an example, several developing countries have signed bilateral agreements with the EU which require accession to the UPOV Convention on plant variety protection in its 1991 version. This has resulted in higher standards of protection than required by the TRIPS Agreement.

175 Under the Agreement, the TRIPS Council can permit an extension of this period on receipt of a properly motivated request from a LDC


177 Novelty is one of the three fundamental requirements for inventions to be patented. The invention should be new. The two others are industrial application and the involvement of an inventive step.
4.1.4.3 TECHNICAL ASSISTANCE

Developed country members shall give LDCs and other developing countries, on request and on mutually approved terms, technical and financial cooperation to facilitate the implementation of the TRIPS Agreement. Developed members report each year on this obligation to the TRIPS Council.

In addition developed countries are obliged, under the Agreement, to give enterprises and institutions in their territories incentives to promote and encourage technology transfer to LDCs. Therefore the provisions were reinforced in Doha where the WTO members agreed on introducing an annual detailed reporting procedure to monitor full implementation by the developed countries of the undertaking in the Agreement on transfer of technology.

4.1.4.4 CONSEQUENCES OF THE TRIPS AGREEMENT ON DEVELOPING COUNTRIES

The consequences of the TRIPS Agreement for developing countries can be broken down into costs and benefits, the balance of which varies from country to country.

The implementation of the TRIPS Agreement entails considerable governmental budgetary costs for developing countries with limited resources. These costs are partly the one-off cost of legislation on intellectual property rights. The holders of these rights are mainly located in developed countries and therefore these flows entail a net loss for many developing countries.

In the long term, an efficient system for intellectual property rights can have positive economic effects for developing countries. Estimates indicate that intellectual property rights are an incentive for the development of new technology and other creative efforts and are of benefit for developing countries, particularly in terms of transfer of technology. One important aspect in this context is the capacity to absorb new technology.

In contrast, there is much that indicates that the LDCs have little to gain by introducing TRIPS norms into their legislation. The reason is that they lack the technological base to attract investments (see above).
4.2 Basics on the Convention on Biological Diversity (CBD) 178

4.2.1 Background on the CBD

One of the key agreements adopted at the Earth Summit in Rio in 1992 (see Module 1) was the Convention on Biological Diversity. **Biological diversity** means the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

**The Convention has three main goals:**

- The conservation of biodiversity,
- Sustainable use of the components of biodiversity 179
- The fair and equitable sharing of the benefits arising from the commercial and other utilisation of genetic resources.

The CBD recognises for the first time that the conservation of biological diversity is "a common concern of humankind" and is an integral part of the development process. The agreement covers all ecosystems, species, and genetic resources. It links traditional conservation efforts to the economic goal of using biological resources sustainably.

**The CBD’s three main principles are:**

- Countries sovereignty over genetic resources
- Equitable and fair benefit sharing
- Prior Informed Consent

The Convention reaffirms national sovereignty over all genetic resources and provides that access to valuable biological resources be carried out on "mutually agreed terms" and subject to the "prior informed consent" of the country of origin. When a micro-organism, plant, or animal is used for a commercial application, the country from which it came has the right to benefit. Such benefits can include cash, samples of what is collected, the participation or training of national researchers, the transfer of biotechnology equipment and know-how, and shares of any profits from the use of the resources.

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178 The information in this section is based on material from the CBD:s homepage.
179 "Sustainable use" is defined to mean the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.
The Convention also recognises the close and traditional dependence of indigenous and local communities on biological resources and the need to ensure that these communities share the benefits arising from the use of their traditional knowledge and practices relating to the conservation and sustainable use of biodiversity. Member governments have undertaken "to respect, preserve and maintain" such knowledge and practices, to promote their wider application with the approval and involvement of the communities concerned and, to encourage the equitable sharing of the benefits derived from their utilisation (art 8j).

A major setback is that the United States has not yet ratified the CBD and for example totally opposes compulsory disclosure of origin. The USA believes that the access and benefit sharing (ABS) issues are best resolved through licensing agreements.

4.2.2 The implementation of the CBD

Under the Convention, governments undertake to conserve and sustainably use biodiversity. They are required to develop national biodiversity strategies and action plans, and to integrate these into broader national plans for environment and development. Respecting, preserving and maintaining traditional knowledge of the sustainable use of biological diversity, with the involvement of indigenous peoples and local communities, is one of the main commitments of the CBD. The Convention’s success depends as well on the combined efforts of all countries. The Convention has created a global forum - actually a series of meetings - where governments, non-governmental organisations – including indigenous people’s organisations – academics, the private sector, and other interested groups or individuals share ideas and compare strategies.

The Convention's ultimate authority is the Conference of the Parties (COP), consisting of all governments (and regional economic integration organizations) that have ratified the treaty. This governing body reviews progress under the Convention, identifies new priorities, and sets work plans for members. The COP can also make amendments to the Convention, create expert advisory bodies, review progress reports by member nations, and collaborate with other international organizations and agreements.

There is a debate on who bares the responsibility for achieving the goals of the CBD: the countries themselves or other countries especially developed ones. To simplify this debate one can say that many developed countries maintain that national legislation by individual country is the most important and should come first, while developing countries ask for results on the international level in order to facilitate the introduction of national legislation. As an example, many developed countries are reluctant to impose nationally new requirements on patent applicants while many developing countries still do not have national legislation regulating these aspects in place.
4.3 Environmental related issues as discussed in the CBD, the TRIPS Council and the WIPO’s IGC

As mentioned earlier, the most debated environmental and intellectual property rights related issues include biopiracy, farmers rights, ethical aspect of “patents on life” and to a certain extent corporate concentration of research.

4.3.1 Biopiracy

An important part of the biodiversity debate involves access to and sharing of the benefits arising out of the commercial and other utilisation of genetic material, such as pharmaceutical products. Most of the world's biodiversity is found in developing countries, which consider it a resource for fuelling their economic and social development. Biopiracy is maybe the most debated issue in this field. Biopiracy refers to the appropriation of biological resources through IPRs without proper agreement with its developers (particularly concerning domesticated materials) and/or without proper consent by relevant government authorities as mandated by the CBD (concerning wild materials). Historically, plant genetic resources were collected for commercial use outside their region of origin or as inputs in plant breeding. Foreign bio-prospectors have searched for natural substances to develop new commercial products, such drugs. Often, the products would be sold and protected by patents or other intellectual property rights, without fair benefits to the source countries.

Critics associate biopiracy with the TRIPS Agreement. TRIPS cannot be said to be the cause of biopiracy but it is sometimes criticised since it does not do anything to prevent abuse. Those who argue so, often refers to the fact that TRIPS leaves the definition of the three fundamental criteria (novelty, inventive step, industrial applicability) entirely to the discretion of national governments. No minimum standard are set. Low requirements of what is considered a “novelty” or an “invention” for the purpose of patent registration is an important factor behind and facilitates biopiracy. Another critical view is that the boundary between invention and discovery is too unclear. Especially when the subject matter of a patent is a biological substance found in nature, such as DNA sequence or a cell line, the dividing line tends to be blurred. For some developing countries, the risk of biopiracy is one of the arguments for excluding living organisms entirely from patent protection thus removing the potential for biopiracy altogether.

A further example of biopiracy is when a patent is granted for biological material, despite the fact that “the novelty” prerequisite has not been fulfilled. A property of biological material may have been known amongst a group of people for a long period of time but, for some reasons, this was not known by the patent authority that granted the patent. An example of this is the US patent granted in 1995 on the use of Turmeric in wound healing, when turmeric was used in Indian traditional medicine. The patent was revoked.
Building on WTO and Environmental Protection

Building on the principles embodied in the Convention on Biological Diversity (CBD) presented in the previous section, the new international Treaty on Plant Genetic Resources for Food and Agriculture seeks to establish principles for facilitating access to plant genetic resources and establishing fair and equitable mechanisms of benefit sharing.

4.3.1.1 CASES OF APPROPRIATION OF CHINESE GENETIC RESOURCES

Some countries with a strong biotechnological sector have been exploiting the genetic resources obtained from China by deriving products based on them and applying for patents. This resulted in the patent holders taking over China’s markets. Soybean and Chinese traditional medicine are two examples.

Wild soybean

China is the country of origin of soybean with more than 6000 varieties of wild soybean, which amount to 90% of world resources. However, some countries, especially the US, (which has more than 20,000 varieties of soybean stored in US gene banks) have soybean resources in crop gene banks. Most of them have been obtained from China without consent (that is to say illegally) and no benefits are shared with China.

These countries have then subsequently improved these varieties thanks to their advanced biotechnology, applied for patents and now export a great number of improved soybeans to China. In 2001, China imported 5.7 million tons soybeans from the US for a value of 1.2 billion US$ and accounting for ca 42% of China’s total import of soybeans. Although there is a lack of official data and scientific evidence from authoritative scientific research institutions, one can arguably claim that a considerable part of the soybean imported from the US are based on Chinese resources. At the same time, a great number of GMOs soybeans have been rushing into China, which would generate potential and unpredictable risks on China’s biosafety, biodiversity, non-GMOs soybean and public health and so on.

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180 Several other examples can be found in Graham Dutfield, “Intellectual Property Rights, Trade and Biodiversity”, IUCN, 2000.
181 According to information provided by Dr Yu Hai (SEPA)
Chinese traditional medicine

On the international market for plant medicines, 210 Japanese preparations are based on traditional Chinese medicine prescriptions, the majority of which come from the famous doctor Zhang Zhongjing’s “Treatise on Febrile and Miscellaneous Diseases” and Jin Kui Yao Lue, a collection of ancient prescriptions from ancient China. About 75% of the raw materials come from China. However, on the international market of traditional Chinese medicine preparations, Japan occupies 80% of the total market volume. A relatively large number of inventions made in China in the field of traditional Chinese medicine have been appropriated by foreigners or overseas Chinese. In some cases, patent applications for those inventions are made by foreign applicants in China after that patents have been obtained in foreign countries. More than 900 varieties of Chinese herbal medicines have been granted patents by foreign companies abroad.

Miraculous Pills of Six Ingredients is a popular finished drug in China, which, however, was taken by Japanese companies to become the world famous “Heart Saving Pill” after a slight modification in the product and in the packaging. The Japanese product realizes a sales volume of US$600-700 million on the international market.

Another example is a sedative developed in Korea: Niu Huang Qing Xin Liq-uid (bezoars sedative liquid). This product is based on China’s Niu Huang Qing Xin Wan (bezoars sedative pill) and realized an annual output value of US$70 million.

Mint is a pure traditional Chinese medicinal material in Jiangsu, China. According to statistic, altogether 16 patent applications have been made in China regarding mint, of which 8 come from domestic applicants and 8 from US applicants. Notwithstanding the even division of the number of patent applications, the foreign companies’ patent applications are for high-end markets such as chewing gum products. Arrow Sugar Company of America alone stands for 4 of them. On the other hand, the domestic patent applications are mainly for low-end products, with a limited market space, such as mint lotus root, mint tea, etc.
4.3.2 Other debated issues

*Farmers rights* is another important debated issue. Traditionally, in most developing countries, farmers have been planting, exchanging and selling their seeds. Arguments have been made that the restrictions of the right of farmers to save, reuse, exchange, or sell seeds from their own harvest – which are made to various extents both by patents and by Plant Breeders Rights under the most recent UPOV text (1991) - may negatively affects local agricultural systems and biodiversity as a base for food security. It is quite likely that an increased use of IPRs on seeds could restrict developing country farmers’ choices in many cases and increase their costs to the extent that it would directly impact on food security. In this context it is important to remember that the TRIPS Agreement does not require such restrictions to farmer’s rights.

This issue is closely related to the *control of research*. Two major trends over the past 20 years include: a) the privatisation of previously public agricultural research; and b) the merging of the agricultural chemicals, plant breeding and pharmaceutical industries into multi-purpose corporations. Research in agriculture was previously mostly in the public domain – i.e. freely shared within the scientific community by means of peer-reviewed publications. Today most research is now held by private industry and hence only made available under various forms of commercial agreements. After a rapid concentration process during the last few years, this industry is now dominated by only a handful of huge conglomerates. While the exact patterns of causes and effects are very difficult to analyse, it is clear that both the development of genetic engineering and the resulting expansion of the patent system to include living organisms have been important factors behind this development.

The Food and Agriculture Organization (FAO) is responsible for maintaining the system of free exchange of genetic resources between research programs by the mechanism conceived under the International Undertaking on Plant Genetic Resources, which entered into force in 2004. Under this treaty the parties undertake to protect and promote the right of small farmers to save, use, exchange and sell harvested material.

Beside this, *ethics of patenting life forms* are also discussed. The very possibility of living organisms constituting inventions are questioned due to religious and cultural values.

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182 CIPR (2002). UPOV (International Union for the Protection of new Varieties of Plants) is a plant variety protection. In its version from 1978, farmers are allowed to reuse on their holdings harvested seeds. In the 1991 version this farmer’s exemption is optional for government and does not include the possibility of selling seeds.

4.3.3 Development of the ABS issues in the CBD

One of the three objectives of the Convention on Biological Diversity, as set out in its Article 1, is "the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding".

A framework for the implementation of this third objective of the Convention with regard to access to genetic resources and benefit-sharing is provided in Article 15 of the Convention. In addition, Article 8 (j) contains provision to encourage the equitable sharing of the benefits arising from the utilisation of knowledge, innovations and practices of indigenous and local communities.

These provisions are also linked to the provisions on access to, and transfer of technology (Article 16), exchange of information (Article 17), technical and scientific cooperation (Article 18), the handling of biotechnology and distribution of its benefits (Article 19, paragraphs 1 and 2), and financial resources and financial mechanism (Article 20 and Article 21)).

An Ad Hoc Open-ended Working Group was established in 2000 with the mandate to develop guidelines and other approaches for submission to the COP at its sixth meeting and to assist Parties and stakeholders in addressing the following elements:

- terms for prior informed consent and mutually agreed terms;
- roles, responsibilities and participation of stakeholders;
- relevant aspects relating to in situ and ex situ conservation and sustainable use;
- mechanisms for benefit-sharing, for example through technology transfer and joint research and development;
- and means to ensure the respect, preservation and maintenance of knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity, taking into account work by the World Intellectual Property Organization on intellectual property rights issues.

In 2002 the so-called Bonn guidelines on access to genetic resources and the fair and equitable sharing of the benefits arising from their utilization were adopted in order to assist Parties and stakeholders with the implementation of the access and benefit-sharing provisions of the Convention.\(^{184}\)

\(^{184}\) The Bonn guidelines were negotiated in Bonn, Germany in 2001.
The World Summit on Sustainable Development (WSSD) called for action to negotiate, within the framework of the CBD, an international regime to promote the fair and equitable sharing of benefits arising out of their utilisation. The COP decided to mandate the Ad Hoc Open-ended Working Group on Access and benefit-sharing to negotiate the international regime on access and benefit-sharing and agreed on the terms of reference for such negotiation.

The third meeting of the Ad Hoc Open-ended Working Group on ABS was held in Bangkok, Thailand, in February 2005. It addressed the nature, scope, potential objectives and elements to be considered for inclusion in the international regime. Other issues addressed during the meeting included: use of terms; other approaches, including consideration of an international certificate of origin/source/legal provenance; measures to support compliance with Prior Informed Consent and Mutually Agreed Terms and, the need and possible options for indicators for access and benefit-sharing.

Divisions among the providers and users of genetic resources were plainly evident during the discussions, revealing a wide range of expectations and understandings of the need for and scope of the new regime.

Countries that are largely providers of genetic resources, such as the African Group, the Like-minded Mega diverse Countries (LMMC) and other developing countries, called for a legally-binding international agreement that would prevent the misappropriation and misuse of genetic resources and their derivatives, ensure fair and equitable sharing of benefits arising from their use and protect traditional knowledge. Several developing countries stressed that the new agreement should complement, rather than substitute, national access and benefit-sharing legislation. Additional norms at the international level, however, were needed to support compliance with national legislation since no judicial remedies currently exist for cases where ABS arrangements or legislations of provider countries are not respected once the genetic resources have left the country. Provider countries also called for the inclusion of both genetic resources and their derivates in the scope of the regime - a proposal rejected by a number of developed countries.

Countries that are primarily users of genetic resources, such as Canada, the US and the EU, maintained that further analysis of experiences with existing national, regional and international ABS instruments and processes (a ‘gap analysis’) was needed as a prerequisite for defining the scope of the regime. Many developing countries, however, noted that the gaps were already known, namely to prevent unauthorised access and use of genetic resources and traditional knowledge, and that in any case the gap analysis could be carried out in parallel to and thereby inform the negotiations. The final recommendation adopted by the Working Group recognises the utility of the analysis of existing instruments prepared for the meeting) and supports employing the same analysis with respect to the potential additional elements and options to be identified.185

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185 UNEP/CBD/WG-ABS/3/2.
On behalf of indigenous peoples, the International Indigenous Forum on Biodiversity in their Closing Statement stressed that for them a primary objective of any proposed international regime is that it achieves consistency between human rights law and ABS law, and expressed concerns that the text emerged without any firm commitment by parties to meet human rights obligations, and that the proposed regime may lead to gross violations of Indigenous Peoples Rights.  

4.3.4 Examples of developing countries experiences in legislating on Access and Benefit Sharing

Some countries have decided to coordinate at the regional level. The Andean Community, formed by Venezuela, Colombia, Ecuador, Peru and Bolivia, adopted as early as 1996 the Andean Decision 391 on a Common Regime of Access to Genetic Resources. This regime was complemented in 2000 with the Decision 486 on a common Regime on Industrial Property and, in 2002, with the Decision 523 on a Regional Biodiversity Strategy and the Decision 524 which established an Indigenous People Regional Working Group. Decision 391 establishes the regional legal regime on access to genetic resources and benefit sharing. Key aspects of this regulation are the definition of “access”, the legal status of genetic resources, indigenous peoples’ right to decide over the use of their knowledge, innovations and practices as they relate to genetic resources and that contracts are the main instruments through which access and benefit sharing will be regulated. Progress on implementation of Decision 391 has been uneven. Venezuela which implemented directly was most successful with nine access contracts by 2003. How-ever the evidence so far has shown a limited impact in achieving the goals for the following reasons: too high expectations of the economic returns and high transaction costs.

An active member of the Andean Community, Peru adopted in 2002 the Peruvian Law on Protection of the Collective Knowledge of Indigenous People Related to Biological Resources.  

The purpose of the law is not to prevent access to traditional knowledge but to promote its use, provided that some requirements are met, such as prior informed consent of indigenous peoples, and the fair and equitable distribution of the benefits derived from the use of this knowledge. Another objective of the regime is defensive protection. According to the law, prior informed consent is to be obtained through the representative organizations of indigenous peoples who possess the collective knowledge. They may choose not to give their consent. To have access to collective knowledge for the purposes of industrial or commercial application, it is also necessary to negotiate and sign a license contract for the use of the collective knowledge. According to the law, the contract should include terms that ensure an adequate payment for access to the collective

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knowledge and an equitable distribution of the benefits derived from its use. These contracts are registered by a competent national authority INDECOPI. INDECOPI shall not register contracts which fail to comply with the requirements of the law. A fund is created as means of indirect compensation for all indigenous peoples of Peru in recognition that they deserve a reward for contributing to the development and preservation of collective knowledge in the country. A percentage of the benefits obtained from the marketing of products developed from the collective knowledge shall be set aside for this fund (no less than 10% of the value before taxes of the gross sales of the products).

Another developing country which has gone quite far in its implementation on ABS at the national level is India. A government biodiversity Bill, passed in India in 2003, regulates strictly access to biological/genetic material for non-Indian citizen on the territory of India. The purpose of this legislation is to guarantee that such biological material does not result in IP-protected commercial products without being subject to the benefit sharing rules of the CBD. In India several projects are undertaken in order to document traditional knowledge. Documentation of traditional knowledge is one way of giving recognition to knowledge holders and of preventing the patenting of this knowledge.  

4.3.5 The discussion in the TRIPS Council

In the TRIPS Council discussion on the issue of access to genetic resources and benefit sharing has mainly taken place during the review of Article 27 TRIPS which stipulates the patent requirements is the provision in the TRIPS Agreement. It should be noted that there is no mandate for negotiation on these issues in the TRIPS Council, only a mandate to discuss. This is maybe not the view of some WTO members, who see the review of Article 27.3(b) as a negotiation. The negotiating history shows that the in-build review of 27.3(b) is the result of the divergence of views on the substance of the provision. Since 1999 Art 27.3(b) is under review in the TRIPS Council, as required by the TRIPS Agreement. Some countries have broadened the discussion to cover biodiversity and traditional knowledge. The Doha Declaration has linked these issues.

Broadening the discussion, the 2001 Doha Declaration says that work in the TRIPS Council on the reviews (Article 27.3(b) or the whole of the TRIPS Agreement under Article 71.1) and other implementation issues (both inside and outside the WTO) should also look at: the relationship between the TRIPS Agreement and the UN Convention on Biological Diversity; the protection of traditional knowledge and folklore; and other relevant new developments that member governments raise in the review of the TRIPS Agreement.

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The topics raised in the TRIPS Council’s discussions include:

- How to apply the existing TRIPS provisions on patenting biotechnological inventions. The discussion has included whether, and the extent to which life forms should be patentable.

- The meaning of effective “sui generis” protection for new plant varieties (i.e. alternatives to patenting such as the 1978 and 1991 versions of the UPOV convention and other legislation developed from the actual need and priorities of the countries like the African Union Model Law from 2000. This includes the question of allowing farmers to continue to save and exchange seeds that they have harvested.

- How to deal with traditional knowledge, folklore and genetic material, and the rights of the communities where these originate. Among the key questions: how to prevent patents being granted wrongly and whether to support the creation of databases to help patent examiners; to what extent existing intellectual property rights help to protect traditional knowledge and folklore and to what extent a special purpose (“sui generis”) law is desirable; and what is the right forum to develop this subject further.

- How to implement the TRIPS Agreement and the UN Convention on Biological Diversity (CBD) together, and whether the TRIPS Agreement should be amended; in particular, whether patent applications should have to disclose the source of the traditional knowledge or genetic material; what kind of approval researchers and inventors might have obtain before they can use these in their inventions; and possible methods of sharing benefits with local communities when inventors in other countries have rights to inventions based on material obtained from the locality.

4.3.5.1 THE ISSUES DISCUSSED IN THE TRIPS COUNCIL’S REVIEW OF ARTICLE 27.3(B)

The link between the provisions of Article 27.3(b) and development

Several countries have noted that biotechnological inventions and plant varieties (subject matter of Art 27.3(b)) have an important link with development issues in the agricultural sector. In order to ensure that the needs of developing countries are taken into account in this review the WTO General Council decided in February 2000 that reviews, incl. the review of Art.27.3(b) shall give due consideration to the impact on development. In December 2001 the Doha Ministerial Declaration instructs the TRIPS Council, in its work...
on these topics, to be guided by the TRIPS Agreement’s objectives (Article 7) and principles (Article 8), and to take development issues fully into account.

Technical issues relating to patent protection under Art.27.3(b)

It is a fact that domestic implementation of Art. 27.3(b) vary from one country to another. Countries have different definitions of crucial concepts as invention or micro organism and apply different exclusions to patentability. Some developing countries, as Brazil, exclude from patentability all or part of plants and animals, except transgenic micro-organisms that satisfy the requirement of patentability and which are not mere discovery. Most industrial countries, notably the US, have been criticized for accepting overly broad claims on genetic resources. Developing countries claim it results in conflicts between TRIPS and CBD. Some developing countries have requested that the exact requirements of Art.27.3(b) should be clarified by defining specific terms like micro-organisms, “essentially biological” and “non-biological and ‘microbiological”, arguing that such definitions would be useful to ensure a clear distinction between plants and animals exempted from patentability in the TRIPS agreement. Those countries believes that this would facilitate to maintain the right stipulated in the agreement to exclude plants and animals from patenting.

On this issue the EU states that the task of the review of Art. 27.3(b) is not to agree on an exhaustive definition of each terms, but rather to see how different Members define and apply these terms. The EU believes it would be difficult to reach a consensus on clarification of technical terms. Furthermore the EU is of the opinion that the absence of definitions of certain terms gives an element of flexibility, leaving Members some freedom to interpret terms broadly or strictly within reasonable limits.”

Technical issues relating to a sui generis Plant Variety Protection (PVP)

An effective IPR protection of plants is an important requirement of Art.27.3(b) of the TRIPS Agreement. At present Members have the flexibility to choose between protections:

- by patents
- or by an effective *sui generis* system
- or by a combination thereof
Again the question has arised whether WTO members should clarify this requirement.

On this issue the EU states that the absence of definition of what is meant by “an effective sui generis system” gives a considerable degree of flexibility to Members and allows them to design a protection regime that is appropriate to their specific national situation. The EU is of the opinion that the review of Art.27.3(b) could be used to clarify the potential benefits and limitations of different national and international schemes for the protection of plants varieties.

A major decision is to identify a system that is suitable to their particular agricultural and socio-economic circumstances. Thus countries and organizations have experimented with a number of alternatives in this area. For instance, the OAU (now the African Union) has produced model legislation which it recommends African countries adapt in their own legislation.189

Another example of an effective sui generis system is UPOV. The UPOV protection is less restrictive than patents but has developed into what is considered a strong PVP not necessarily adapted to the needs of all developing countries. A disadvantage is that it was designed with the commercialized farming systems of the developed countries in mind. One of the crucial questions are whether farmer’s traditional practice of saving, exchanging, and to a limited degree selling seeds of protected varieties (so called farmers’ privileges) can be considered as an exception to plant breeders rights acquired under the plant variety protection. The version of UPOV from 1978 states that farmer’s privileges as exception. The 1991 version of UPOV turns these practices in exceptions at the discretion of governments.

On this issue the position of the EC is that while UPOV 1978 and UPOV 1991 should be considered as meeting the standard of effectiveness under Art.27.3(b) of the TRIPS Agreement, they are not necessarily the only effective sui generis systems for protection.

According to the EU main criteria to fulfil TRIPS requirements could be:

- "a clear definition of:
- the protectable subject matter
- the conditions for granting protection
- the nature of the rights conferred
- exceptions to rights
- national treatment and most-favoured-treatment
- transparency
- a sufficient period of protection to allow breeders to recover costs
- enforcement instruments"

Ethical issues relating to patentability of life forms

Ethical, cultural and religious beliefs concerning patents on life forms vary among countries. Some developing countries believe patenting of life forms is unethical and want to clarify Art.27.3(b) as to exclude natural occurring material from patentability. Other issues related to Article 27.3(b) which have an ethical dimension are biopiracy, and the protection of traditional knowledge and farmer’s rights. The dilemma for those countries that wants to maintain those values, is that the very wide scope for patents accepted by some industrialized countries, makes their ethical standpoint difficult to maintain in practice.

On this issue the position of the EU is that the TRIPS Agreement already allows Members to take ethical concerns into account. Art.27.3(b), in conjunction with Art.27.2 (exclusion from patentability of inventions the commercial exploitation of which is necessary to protect ordre public or morality) and Art.27.1 (patentability criteria) allow considerable freedom to modulate the patentability of biotechnological inventions. Therefore the EU is of the opinion there is no need to change this balance. The EC biotech legislation includes for example a list of inventions excluded from patentability, such as cloning of human beings and the processes referred to or the use of human embryos for industrial or commercial purposes.

The relationship to the conservation and sustainable use of genetic material

Developing countries believe that Article 27.3(b) as it stands is in legal conflict with Art.15.1 of the Convention on Biological Diversity. Art.15.1 CBD recognizes the sovereign rights of states over their natural resources and that the authority to determine access to genetic resources rests with national governments (see above 4.2). Patents over a Member’s genetic resources, but granted outside its territory raises the issue of potential conflict with the principle of sovereignty over genetic resources. Patents claimed over genetic resources are generally obtained without the prior informed consent of the government or of the traditional community that holds the knowledge of the material. Moreover, no fair and equitable benefit sharing from the exploitation of the subject matter is established by the right holder of the patent. Developing countries want to amend Art.27.3(b) in order to include the possibility of Members requiring as a condition to patentability:

- the identification of the source of genetic material and the related traditional knowledge used to obtain the invention
- evidence of fair and equitable benefit sharing
- evidence of prior informed consent from the Government or the traditional community
A basis for the argumentation is found in Article 16.5 of the CBD, that stipulates:

“The Contracting Parties, recognizing that patents and other intellectual property rights may have an influence on the implementation of this Convention, shall cooperate in this regard subject to national legislation and international law in order to ensure that such rights are supportive and do not run counter to its objectives.”

On this issue the position of the EU is that there is no legal incompatibility between TRIPS and CBD. However the EU recognizes the considerable interaction between both Agreements and that they therefore should be implemented in mutually supportive ways and not undermine each other. According to the EU, interfaces between the two agreements should be found at national level and international level. In order to fulfil that goal the EU proposes to give the CBD observer status in the TRIPS Council and agrees to examine the possible introduction of a system, such as a self-standing disclosure requirement, of the geographical origin of genetic resources used in inventions by patent applicants. However, this disclosure requirement should not act as patentability criterion as such. Patent law should not be used to sanction the failure to provide the origin.

The relationship with the concepts of traditional knowledge and farmer’s rights

The issue of protection of *Traditional Knowledge* (TK) is addressed under the review of Art.27.3(b) based on several issues: the prevention of unauthorized patenting of TK, *sui generis* systems for the protection of TK and documentation of TK. TK is commonly defined as a cumulative body of knowledge and beliefs handed down through generations by cultural transmission. However, it is important to not that there is no internationally agreed definition of the concept of Traditional Knowledge, which complicates negotiations about it.

*Farmers’ rights* in its broad sense (FAO) refers to a set of measures in recognition of the ancestral role of farmers in developing foodcrop varieties and preserving biodiversity. Farmers’ rights in narrow sense (as UPOV’s farmers’ exemption) refers to exemptions to PVP or patents on plants or other genetic material allowing farmers a derogation from the scope of protection. Farmer’s rights in the narrow sense has a direct link with Art.27.3(b).

On these issues the EU Position is that traditional knowledge could be protected by existing IPR, disclosure requirements and *sui generis* protection. The EU is prepared to accept a broader farmers’ exemption for the benefit of subsistance farmers, or of small farmers who customarily save, replant, exchange, share and resell seeds (to other small farmers). The EU is of the opinion that farmers’ rights can be justified under Art.27.3(b) as an exception to plant variety right protection or under Art.30 as an exception to patent protection on genetic for food and agriculture.
4.3.6 Current state of the debate in the TRIPS Council

As mentioned above the discussion in the TRIPS Council has gone into consider-able detail with a number of ideas and proposals for dealing with these complex subjects. The current state of the debate can be summarised as such:

EU has presented a concept paper where it proposes to examine a requirement that patent applicants disclose the origin of genetic material as a subject in itself, with legal consequences outside the scope of patent law.

Switzerland has proposed an amendment to WIPO’s Patent Cooperation Treaty (and, by reference, WIPO’s Patent Law Treaty) so that domestic laws may ask inventors to disclose the origins of genetic resources and traditional knowledge when they apply for patents. Failure to disclose could hold up a patent being granted.

A group of developing members incl. Bolivia, Brazil, Cuba, Ecuador, India, Peru, Thailand, Venezuela and others want to amend the TRIPS Agreement so that patent applicants are required to disclose the origins of the biological resources and traditional knowledge used in the inventions; evidence that they received “prior informed consent” (a term used in the Biological Diversity Convention), and evidence of “fair and equitable” benefit sharing. China supports and associates itself with those views. China is of the opinion that it is necessary to amend the TRIPS Agreement to support the CBD because it believes TRIPS does not adequately consider principles of national sovereignty, prior informed consent and access and benefit-sharing as provided in the CBD.

The African Group wants the TRIPS Agreement to prohibit patenting of all life forms (plants, animals, micro-organisms) and wants “sui generis” protection for plant varieties to preserve farmer’s rights to use and share harvested seeds. It proposes requirements on disclosure — including amending the TRIPS Agreement — similar to those above. One of the proposal’s main aims is also procedural: it looks at possible areas of agreement and areas of divergence and proposes a decision in the Trade Negotiations Committee to confirm these. The paper also proposes a draft decision on traditional knowledge designed to prevent “misappropriation”.

The United States, which has not ratified the CBD and opposes the CBD getting the observer status at the TRIPS Council, has argued that the CBD’s objectives on access to resources and traditional knowledge, and on benefit sharing, could best be achieved through national legislation and contractual arrangements based on the legislation, which could include commitments on disclosure.

Since the September 2003 Cancún Ministerial Conference, the TRIPS Council has continued to discuss these issues, particularly the proposal on disclosure of sources. However, it is quite clear that there no consensus on these issues.
4.3.7 The WIPO IGC on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore

On the initiative of developed countries work on the same issues as in the CBD and WTO are undertaken in WIPO, which by developed countries is considered as the obvious fora to discuss amending existing intellectual property standards and/or creating new ones.\(^{190}\)

The governing bodies of the World Intellectual Property Organisation established, in September 2000, an Intergovernmental Committee to provide a forum for the Member States to discuss these issues. Generally, about 100 States participate in its meetings and, in addition, a number of intergovernmental organisations and about 100 non-governmental organisations representing a wide variety of interests. Also representatives of indigenous peoples and local communities participate very actively in the sessions of the Committee.

The work program adopted by the Committee at its First Session contained five elements of which some are of a legal nature and others more aim at the solution of practical problems.

4.3.7.1 GENETIC RESOURCES

Provisions or guidelines for national patent laws

The development of appropriate provisions or guidelines for national patent laws in order to better ensure consistency between the granting of patents and such measures which States have undertaken to control access to genetic resources. This is an issue which flows from the Convention on Biological Diversity (CBD) and concerns the much debated issue of “prior informed consent” as a condition for the granting of patents on the basis of genetic resources.

Patentability of Biotechnology Inventions

The second “legal” issue concerns the development of legal standards (in the form of guidelines) concerning the availability and scope of patent protection to structures and compositions derived from, or isolated from, naturally occurring living organisms and also to early stage biotechnology inventions.

Benefit-sharing

The third issue concerns benefit-sharing from the use of genetic resources as provided for in for instance the CBD and the FAO International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) The task of the Committee in this respect is to develop practical and low-cost mechanisms to implement benefit-sharing arrangements under multilateral systems for access to genetic resources and such benefit-sharing.

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\(^{190}\) Based on a training course by Henry Olsson, Former Chair of the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore.

\(^{191}\) Another international organisation dealing with these issues is the FAO.
**Guide Contractual Practices**

This is a very practical issue, namely the development of what could be called “guide contractual practices” which means guidelines and model intellectual property clauses for contractual arrangements for access to genetic resources and benefit-sharing. This is an essential task as it is practical and will greatly facilitate various types of transfers of genetic resources or access to them.

4.3.7.2 TRADITIONAL KNOWLEDGE

The second pillar of the Committee’s task has proved to be particularly important for a number of reasons. One such reason is that exploitation of traditional knowledge has become an increasingly important element in a great number of industrial activities. Another reason is that the borderlines between traditional knowledge and folklore is not always very clear, nor is the borderline between such knowledge and genetic resources and their use.

As regards more specifically traditional knowledge, the calls for a better protection concern two distinct elements. One is what could be called “passive protection” mainly how to ensure that patents are not granted for inventions based on previously known traditional knowledge. The second element concerns what could be called “active protection” i.e. the development of a sui generis protection system for such knowledge.

Broadly speaking the protection of traditional knowledge could be set up according to two different tracks, namely the “folklore track” (stressing the cultural contexts in which traditional knowledge operates) or the “biodiversity track” (concentrating on biodiversity-associated traditional knowledge).

4.3.7.3 FOLKLORE/TRADITIONAL CULTURAL EXPRESSIONS

The third pillar in the work of the Committee concerns folklore, that is, in a way, artistic traditional knowledge. The notion of folklore covers a number of artistic expressions in the form of song, music, dance and handicraft developed over the centuries but at the same time a living and ever changing phenomenon. In 1982 the WIPO/UNESCO Model Provisions on the protection of expressions of folklore were adopted. Efforts at that time to establish an international convention on the issue failed and were not taken up again.

The issue is now on the agenda of the Intergovernmental Committee. At the outset three tasks were proposed in this con-text, namely the updating of the Model Provisions, improving of the protection of handicrafts and other tangible expressions of folklore and a revival of the efforts to establish an international protection system.
4.3.7.4 THE STATE OF THE WORK SO FAR

On almost all items under the headline genetic resources, work has not progressed very far in the Committee.

However, it is interesting to note that the Executive Secretary of the CBD requested the Committee to prepare a technical study on the consistency with WIPO treaties of some issues of particular importance for the implementation of the CBD. Those issues concern whether the disclosure of certain elements could be made a condition for the granting of patent for a genetically-based invention. More specifically those elements concern to what extent it could be required to disclose which genetic resources had been used in the claimed inventions, their country of origin, the source of associated traditional knowledge and, last but not least, evidence of prior informed consent. That study has now been adopted by the Committee and transmitted to the Conference of the Parties of the CBD.

After the transmission of that study, WIPO received an invitation from the CBD Secretariat to examine the interrelation of access to genetic resources and disclosure requirements in intellectual property rights applications. That should include, among other matters, options for model provisions on proposed disclosure requirements, practical options for triggering disclosure requirements, options for incentive measures for applicants, identification of the implications for the functioning of disclosure requirements in various WIPO-administered treaties, and, intellectual property issues raised by a proposed international certificate of origin/source/legal provenance.

The more practically-oriented task of the Committee, the development of what could be called “guide contractual practices”, has progressed well. This is an essential task as it is practical and will greatly facilitate various types of transfers of genetic resources or access to them. At its Third Session in June 2002 the Committee gave its support for the structure of a proposed WIPO database containing information in this respect and to the dissemination of a questionnaire to gather information to be put into the database.

The Committee, at its Third Session, had a demonstration of certain already existing databases in this field, namely the Indian Health Heritage Test Database, the Indian Traditional Knowledge Digital Library of Ayurveda, the Venezuelan Biozulu database and China’s Patent Dataset of Chinese Traditional Medicine and Search System. This Chinese database was presented in WIPO in August 2001 and is considered as a model in the field of Traditional Knowledge dataset. The amount of documented literatures and patents embodied by this dataset has reached 19,000 pieces and continually increased.
Important work is as well undertaken on the issue of *traditional knowledge*. The Committee has started the exploration of the possible structure of a sui generis system for the protection of traditional knowledge. Broadly speaking, certain elements were found to require further study and discussion, namely 1) the policy objective of the protection, 2) the subject matter for protection, 3) the criteria according to which such subject matter should be protected, 4) ownership of the rights, 5) the rights to be granted, 6) the means for acquisition of the rights, 7) the administration of the rights, and, 8) term of protection and expiry of the rights.

Broadly speaking the protection of traditional knowledge could be set up according to two different tracks, namely the “folklore track” (stressing the cultural contexts in which traditional knowledge operates) or the “biodiversity track” (concentrating on biodiversity-associated traditional knowledge). Also the issue of the interaction between a possible sui generis system and existing intellectual property protection systems needs to be explored.

As far as folklore is concerned, the support has mainly been given to two activities. One of those include increased legal-technical assistance to countries principally for a better protection of folklore for instance through the development of preservation and conservation. The other activity includes studying the relationship between customary laws and protocols in the folklore field and the formal intellectual property system. The Secretariat is preparing an analytical and systematic document on national experiences of protection of folklore either by means of traditional intellectual property or by means of sui generis legislation and the implementation of such legal frameworks. That document should include the role of customary law and the interaction of national protection systems with legal systems in other countries.

The last meeting of the IGC held in June 2005 ended without agreement on the major issues before it. These included proposals that could form the basis for an international mechanism for the protection of traditional knowledge and folklore, and a funding mechanism for the participation of indigenous peoples. Clear lines of disagreement emerged between developed and developing countries over moves toward developing a legally binding, international instrument designed to prevent the misappropriation of traditional knowledge and folklore and designing respective access and benefit sharing mechanisms. Developing countries were not successful in an attempt to narrow the IGC’s mandate and the Committee decided to recommend the WIPO General Assembly renew its mandate as it stands for a further two years. Behind this proposal was a desire by the developing countries to focus their efforts on patent disclosure requirements in other fora such as the Standing Committee on Patent (WIPO) and the TRIPS Council, which is they consider as fora for discussion on genetic resources-related issues.

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192 Bridges Weekly Trade News Digest, 15 June 2005, on the ictsd.org
4.4 The Chinese experience

4.4.1 China’s implementation of the ABS regime

The ABS regime has not yet been really implemented in China. The international ABS regime is now under negotiation but there is no real progress as far. The Bonn Guidelines, issued two years ago, have not been implemented in China. The State Environmental Protection Administration (SEPA) is planning case studies focusing on traditional Chinese medicine. SEPA has proposed a plan for a national legislation on ABS. Further work on this plan requires the support of the Ministry of Agriculture, the State Forestry Administration and other relevant agencies. In 2004, SEPA initiated the establishment of a task team composed by officers from several ministries as well as experts from universities and research institutions. The first two meeting of the task force have been focused on discussion. The research as such not yet started.

However, the ABS issue has been paid great attention by the State Council. In 2003, a Ministry-joining Conference on bio-species protection was set up by arrangement of the State Council. As a coordinating mechanism, the Conference is headed by SEPA and joined by 17 other ministries including agriculture, forestry, health, science and technology, finance, construction, customs, development and reform, the State Intellectual Property Office (SIPO), the Ministry of Commerce (MOC), etc. The Conference has convened two meetings in 2003 and 2004 respectively and several actions have been conducted. Firstly, an on-spot inspection was implemented in end of 2003, which focused on protection and management of genetic resources. The inspection was organized by SEPA and joined by other 10 member ministries. The inspection covered 12 provinces and inspected more than 50 institutions of research, education, market, customs, etc. The inspection is significant to warn institutions and people to prevent genetic resources from flowing out and assure fair and equitable access and benefit sharing.

Secondly, a research project was approved by the Conference and financed by Ministry of Finance in 2003 with a fund of 10 million yuan special for investigation and identification of genetic resources. The project is headed by SEPA and joined by more than 100 scientists from over 20 institutions under other 7 ministries. The project almost covers all kinds of genetic resources. It will be finished in early 2006. The financing of the follow-up project on genetic resources investigation for 2006-2007 has already been secured by the Ministry of Finance.

The State Council issued a circular on March 31, 2004 with the topic of Enhancing Protection and Management of Bio-species and Genetic Resources. The Circular includes 15 key requirements including development of national regulations for access to and benefit sharing of genetic resources, setting up inspection system of customs for export and import of genetic resources, dealing with patent issues, international cooperation on

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193 According to information provided by Professor Dayuan XUE (SEPA)
genetic resources, etc. SEPA is now starting its work of implementing the Circular. Some initiatives have been taken. For example, SEPA is working on a new piece of legislation: the Law for Transgenic Organisms and Regulation for Access and Benefit Sharing of Genetic Resources. The State Inspection and Quarantine Administration are developing a system of declaration for importing and exporting genetic resources for customs inspection.

Finally, the National Patent Strategy Research Project has been established recently. It is a key national project approved by the State Council focusing on development of a pack of national patent strategy for a series of industries. The Project is headed by a board which gathers over 30 ministries. It includes 20 key elements, of which two are directly related to genetic resources and traditional knowledge. As the heading ministry, SEPA is responsible for the National Patent Strategy for Bio-species and Genetic Resources as well as Traditional Knowledge related to genetic resources. The State Chinese Medicine Administration is responsible for traditional knowledge and focus its work on patents related to traditional medicine. The project started August 2005 and will be finished in August 2006.

Other research is underway at the Ministry of Agriculture (MOA), SIPO and State Chinese Medicine Administration (SCMA) on different related different topics. As MOA is responsible for the FAO Treaty of ITPGR, MOA is in charge of the work on Mutual Transfer Agreement for genetic resources. Also they are developing the lists for genetic resources protection and multilateral and bilateral change of genetic resources. ACMA is conducting a research for definition, categories and inventory for traditional medicines.

For the moment foreign persons or organization are prohibited from obtaining genetic resources and traditional knowledge without permission. However, there is not a specific legislation. China has no specific legislation which requires Prior Informed Consent on Mutually Agreed Terms regarding access to genetic material or/and traditional knowledge to be used commercially. China has only enacted some policy and administrative measures whose sanctions are weak.

4.4.1.1 CHINA’S IMPLEMENTATION OF THE TRIPS AGREEMENT

Based on the undertaking made by China for entry into the WTO, China has amended the Patent Law, Trademark Law, Copyright Law and has enacted Regulations for the Protection of Layout-Designs of Integrated Circuits and Regulations for the Protection of New Varieties of Plants. Except for few exceptions, inventions in all fields of technology are eligible for patent protection, provided that they are new, involve an inventive step and

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194 See IP/Q/CHN/1/Add.1, Review of legislation, China, WTO, 9 June 2004, IP/C/34, Report to the General Council by the Chair, Transitional Review under Section 18 of the Protocol on the accession of the People’s republic of China, WTO, 9 December 2004. Further information was provided by Doctor Yu Hai (SEPA).
are capable of industrial application. The few exceptions are provided for in Article 5 and Article 25 of the Patent Law. According to Article 5 of the Patent Law “no patent right shall be granted for any invention-creation that is contrary to the laws of the State or social morality or that is detrimental to public interest”.

Article 25 reads as follows:
“For any of the following, no patent right shall be granted:
1) scientific discoveries;
2) rules and methods for mental activities;
3) methods for the diagnosis or for the treatment of diseases;
4) animal and plant varieties;
5) substances obtained by means of nuclear transformation.”

For processes used in producing products referred to in items (4) patent right may be granted in accordance with the provisions of this Law.

Article 25 provides that the animal and plant varieties are excluded from patentability, but the products and processes based on animals and plants can be granted a patent. It is China’s understanding that the provision of China's Patent Law excluding substances obtained by means of nuclear transformation from patent protection is to protect ordre public or morality and to protect human, animal or plant life or health or to avoid serious prejudice to the environment. It should be noted though that there are no specific or explicit articles for environmental exceptions. Neither are there exceptions in favour of small farmers or reference to the CBD in the Chinese intellectual property legislation.

The definition of micro-organism in the Chinese Patent Law consists of bacteria, epiphyte, virus, protozoa, alga, etc. The micro-organism is neither animal nor plant in light of the explanation of Patent Law. The micro-organism existing in the nature without any technical process by human beings is excluded from patentability. If, and only if, a micro-organism is isolated and has a specific industrial use, the micro-organism itself can be the object of the patent protection. Under the Chinese law there is no obligations to disclose the origin of the genetic material or/and traditional knowledge used in inventions, when inventors apply for a patent. The relevant provisions in China’s Patent Law are almost identical to the Art.27.3(b) of the TRIPS.

195 There are three types of patent, i.e. patent for invention, patent for utility model and patent for design. The duration of patent for invention is twenty years, the duration of patent for utility model and design is ten years, counted from the filing date in China.
196 See IP/Q/CHN/1/Add.1, Review of legislation, China, WTO, 9 June 2004,
New plant varieties per se are not patentable. However, new plant varieties may be protected under the Regulations on the Protection of New Plant Varieties enforced on October 1, 1997. The term of protection of new plant varieties, counted from the date of grant thereof, shall be 20 years for vines, forest trees, fruit trees and ornamental plants and 15 years for other plants, subject to the payment of annual fees. This regulation is considered by China as a *sui generis* system as referred to in Article 27.3(b) of TRIPS Agreement. China does not plan to implement the UPOV 1991 Act. However, China is increasing the number of new varieties of plants under protection and expanding the scope of new varieties of plants under protection. As mentioned above there are no exceptions in favour of small farmers.

### 4.5 Concluding remarks

To some extent the TRIPS Council in WTO and the Intergovernmental Committee in WIPO undertake work on the same issues related to environment and biodiversity. In the TRIPS Council there is as yet no consensus on the substance, although these issues have been discussed since 1999. There are even differing views on how the work should proceed. Most developing countries would prefer the ABS related intellectual property work to be conducted in first hand in the TRIPS Council, while most developed countries would prefer the work of the WIPO Intergovernmental Committee to be concluded first.

That this work is politically sensitive and difficult is demonstrated by the fact that it appears on the agendas of several organisations, including the WTO, FAO and CBD. This is in a way quite natural because these issues enter some, in legal terms, totally new areas where there are a number of sometimes conflicting interests. At the same time these issues have attracted the attention of the media and the civil society which applies pressure for quick results. It is interesting to note that the Intergovernmental Committee WIPO has organised the discussion in a constructive way; because not only governments and intergovernmental and non-governmental organisations participate actively in the debates but also indigenous peoples and local communities have a possibility to make their voices heard.

These issues are complex and controversial as well as they have implications for a variety of different national interests. Therefore, it is crucial that coordination takes place between all relevant ministries and governmental agencies in order for countries to formulate consistent and coherent positions which take all concerns into consideration.
4.5.1 China’s future work

Although several workshops and publications have been dedicated to the relationship between the TRIPS Agreement and the CBD, as well as related issues, the Chinese government has not yet made a systematic analysis on the subject. The framework of coordination between the concerned ministries of the central government has not been established. In China, SEPA is responsible for the CBD and Ministry of Commerce (MOC) and State Intellectual Property Office (SIPO) are responsible for TRIPS. SEPA, MOC and SIPO still have to sit down together to deal with these issues and formulate a national implementation strategy for TRIPS and CBD.

197 According to information provided by Professor Dayuan XUE(SEPA)
4.6 For more information


5 Relationship between WTO and MEAs

**Key concepts:** MEA, trade measure, specific trade obligation, like products, sanitary and phytosanitary measure, risk assessment, technical regulation, technical standard, processes and production methods (PPMs), non-product related PPMs

In this module, the relationship between the WTO and multilateral environmental agreements (MEAs) will be examined. After a brief introduction to MEAs and a summary of how they have developed in recent years, the use of trade measures \(^{198}\) will be discussed. Following this is a discussion of the general relationship between the WTO and MEAs, before entering into a more detailed discussion of the compatibility of trade measures in MEAs with WTO rules. This module also provides an overview of current discussion and negotiations in the GATT/WTO on this subject. Finally, there is also a discussion of procedures for dispute settlement, should these arise, and of how to avoid conflicts.

5.1 Introduction – two regimes evolving

Over the past 50 years the number of so-called multilateral environmental agreements has risen, from a handful of agreements, foremost on wild life protection, to more than 250 treaties covering everything from protection of the ozone layer to transport of toxic waste. \(^ {199}\) (For a definition of an MEA, see fact box 2 below.) This is in line with the globally recognised principle that international agreements are preferable to countries acting on their own to address global or transboundary environmental problems. \(^ {200}\) Together with institutions and organisations associated with these legally binding agreements, these arrangements have been described as a wide-range of regimes. \(^ {201}\) Although the rules of the regimes differ, they “all draw on customary international law and a range of practices

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\(^ {198}\) See fact box 4 for a definition of trade measures.

\(^ {199}\) In 1999, UNEP listed 238 MEAs (UNEP (1999). *Register of International Treaties and Other Agree-ments in the Field of Environment*). Since 1999 new agreements have been concluded. Searching databases such as http://sedac.ciesin.columbia.edu or www.ecolex.org results in more than 250 hits. The exact number is likely to be between 250 and 300 MEAs.

\(^ {200}\) Principle 12, Rio Declaration.

\(^ {201}\) “that they involve a number of constituencies and actors, and no longer reflect the dynamics of power between sovereign states alone.” UNEP/IISD (2000), *Environment and Trade – A Handbook.*
and principles that have become widely accepted.” Common tools and principles of MEAs include cooperation, capacity building, the transfer of technology and science, common but differentiated commitments and equity between developed and developing countries.

**Fact box 2: MEA defined**

A multilateral environmental agreement (MEA) can be defined as an international agreement (treaty, convention, protocol) between more than two countries to secure prevention of pollution, conservation of the environment, rational utilisation or resource management.

Some MEAs attempt to address environmental problems between several numbers of countries in a certain region, for example the Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992), while others are focussed on global problems, such as climate change.

Their membership can be open or limited. Parties to an MEA are those countries that have “consented to be bound by the treaty and for which the treaty is in force.”

At the same time as MEAs have been emerging, the multilateral trade law embodied in the trade regime has also evolved, from rules on trade in goods between a small number of countries, to a set of agreements covering trade in goods, services, and intellectual property rights between some 150 member countries. No doubt, the evolution of these bodies of public international law and their regimes has brought the relationship between them to the fore, both in negotiations and in public debate.

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203 According to Rio principle 7 both developed and developing countries have responsibilities for the health and integrity of the Earth's ecosystem. However, these responsibilities differ, because of different financial and technical capabilities and depending on their different contributions to global environmental degradation. Developed countries have recognised their responsibility in this regard.
204 Nordic Council of Ministers (1996), The Effectiveness of Multilateral Environmental Agreements. Copenhagen, Denmark, p. 4. However, there is no internationally agreed definition of an MEA.
5.1.1  Environmental issue areas and important MEAs

Today, MEAs dealing with transboundary or global environmental problems cover issue areas such as biodiversity and wildlife, the marine environment, protection of the atmosphere, chemicals use and waste. Some important MEAs in these areas are listed in Table 8.

Table 8: Important MEAs in environmental issue areas

<table>
<thead>
<tr>
<th>Issue area</th>
<th>MEAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity and wildlife</td>
<td>Convention on International Trade in Endangered Species (CITES), 1973</td>
</tr>
<tr>
<td></td>
<td>Convention on Biological Diversity (CBD), 1992,</td>
</tr>
<tr>
<td></td>
<td>and its Cartagena Protocol on Biosafety, 2000</td>
</tr>
<tr>
<td>Protection of the atmosphere</td>
<td>Montreal Protocol on Substances that Deplete the Ozone Layer, 1987</td>
</tr>
<tr>
<td></td>
<td>Kyoto Protocol to the UN Framework Convention on Climate Change, 1997</td>
</tr>
<tr>
<td>Marine environment</td>
<td>Convention for the Prevention of pollution from Ships, 1973</td>
</tr>
</tbody>
</table>

Apart from the above named agreements, there are also agreements on environmental impact assessment, access to information, participation and justice regarding environmental issues, as well as regional environmental agreements. Hence, today most global environmental subjects are addressed by some form of international environmental law.

Over time the focus of MEAs has expanded from being on the protection of individual populations of fauna or flora to addressing global environmental problems, such as the depletion of the ozone layer. This has meant that the implications of MEAs for the global economy have also become more noteworthy (see Table 9). In fact, one of the most recent MEAs to have come into force, the Kyoto Protocol, is arguably better described as an economic agreement than an MEA. Besides the direct economic consequences of environmental policies and measures introduced under an MEA, competitiveness effects may trigger adjustment measures in parties to MEAs. In addition, the international community agreed in the early 1980s and has since confirmed that in order to achieve sustainable development, environment and development issues need to be integrated in economic and political decision-making. According to developing countries and

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206 This section draws on Brack, D. & K. Gray (2003), Multilateral Environmental Agreements and the WTO, Report, RIIA and IIID.
environmental NGOs, developed countries have to take on a greater responsibility and show leadership in working towards the goal of sustainable development. These potential developments have resulted in greater attention being paid to the WTO/MEA-relationship.

Table 9: Economic aspects of MEAs

<table>
<thead>
<tr>
<th>Sector/Products regulated by MEA</th>
<th>Production ($b)</th>
<th>Export ($b)</th>
<th>Year</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>The global economy</td>
<td>48,443</td>
<td>7,838</td>
<td>2002</td>
<td></td>
</tr>
<tr>
<td>Endangered species (CITES)</td>
<td></td>
<td>20</td>
<td>2003</td>
<td></td>
</tr>
<tr>
<td>Ozone depleting substances</td>
<td>2.2</td>
<td></td>
<td>1987</td>
<td>1997 prices</td>
</tr>
<tr>
<td>(Montreal Protocol)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous waste (Basel Convention)</td>
<td>30</td>
<td></td>
<td>2003</td>
<td>Recyclable/reusable</td>
</tr>
<tr>
<td>Manufactured products produced with fossil fuel (UNFCCC/Kyoto Protocol)</td>
<td>3,895</td>
<td></td>
<td>2001</td>
<td></td>
</tr>
<tr>
<td>Hazardous chemicals and pesticides (Rotterdam Convention)</td>
<td>4.2</td>
<td></td>
<td>2002</td>
<td></td>
</tr>
<tr>
<td>GM crops (Cartagena Protocol)</td>
<td>5</td>
<td></td>
<td>2005</td>
<td>Projection</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td></td>
<td>2010</td>
<td>Projection</td>
</tr>
</tbody>
</table>

5.2 The WTO-MEA relationship overall

Broadly speaking, the purpose of MEAs is environmental protection and resource management, while the objective of the WTO is an open, transparent and strong multilateral trading system, to the benefit of member countries. Most often actions taken in either of the two systems do not directly affect the other. However, when there are overlaps the relationship between the two becomes important. Bill Krist has been widely cited, in saying that MEAs and the WTO are “neither friends nor foes, but neighbours”. 208 As neighbours, arguably, they need to respect each other’s jurisdiction and preferably give each other a hand, when needed.

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207 Reproduction of table in Brack and Gray (2003). To be used with caution, due to very rough estimates and lack of good data.

5.2.1 Synergies and similarities
It is too often neglected that synergies and similarities exist between the two regimes. Some examples of the type of synergy that may exist are:

- Common or harmonised environmental rules may not only benefit the environment but also facilitate trade and business.
- Through trade, environmental technology that is necessary for implementing MEAs can be diffused, benefiting the environment.
- The removal of environmentally harmful subsidies is considered to provide a win-win outcome for both the trade and environmental regimes.
- WTO rules can contribute to more cost-effective environmental measures.
- WTO rules may also contribute to a business and investment environment that fosters investment.²⁰⁹

Possibly, another effect of WTO rules is that they prevent environmental measures from becoming more trade restrictive than necessary to attain the environmental goal. Notification requirements provide a useful source of information on foreign environmental and health related standards. All this is potentially important to developing countries that would like to export to developed countries where environmental standards are high.

A further similarity between the trade and environmental regimes is the prefer-ability for multilateral rather than unilateral action. From a trade and economic perspective, multilateral action may decrease the risk for unnecessary, negative economic effects, arbitrariness and adverse effects on trade.²¹⁰ From an environmental perspective multilateral action to transboundary or global environmental problems is preferred.²¹¹

5.2.2 Dissimilarities and scope for conflict
However, some dissimilarities and scope for potential conflicts exist. One basic difference between the WTO and MEAs stems from their basic objectives – liberalised trade vs. proper environmental management. The WTO has an important role to facilitate trade flows. Unnecessary barriers to trade should be removed. MEAs, on the other hand, are to ensure adequate levels of environmental policies and measures to attain certain environmental goals. Other differences may be on principles, such as the relationship between the

²⁰⁹ This is necessary for transforming economies to promote sustainable development. In addition, MEAs may create new markets or strengthen existing ones, to the benefit of the global trade.
²¹⁰ See e.g. the CTE report to the Singapore Ministerial meeting, para. 171, and Kunzer, K. E. (2001) in the Heinrich Böll Foundation publication referred to in section 5.8.
²¹¹ See e.g. United Nations (UN), Agenda 21: The UN Programme of Action from Rio. Chapter 2; Principle 12, Rio Declaration;
precautionary principle and scientific certainty, or as to how risk assessment and risk management is defined. Another dissimilarity has been the “best endeavour” nature of MEAs in contrast to legally binding and actionable provisions of the WTO including a very effective dispute settlement mechanism. This could be characterised as ‘soft’ versus ‘hard’ law.

Conflicts are therefore possible and perhaps more likely in the future as multilateral trade and environmental law expand, and as more and more economic activity is affected by MEAs. For example, mandatory provisions of MEAs such as export bans to non-parties could be brought to the WTO dispute settlement by aggrieved non-parties. If the dispute settlement body were to rule that such measures were to be in breach of WTO rules the consequences could be serious. 212 Would the MEA be subordinate to WTO agreements? If so, this could arguably undermine the status of the MEA. Furthermore it could lead to the alleged “chilling effect” of trade law on environmental policy-making (see module 1). On the other hand, a ruling that allows a disputed measure would almost certainly be criticised by some for upset-ting the balance between WTO-members’ rights and obligations. 213

It should be noted, however, that to date there has not been any head-on conflict between an MEA and the WTO. That is, neither in MEAs nor in the WTO has a dispute arisen where the other set of rules has been directly challenged. Members would probably think twice before challenging a multilaterally agreed convention, if only for political reasons. It appears unlikely that WTO members who are both parties to a specific MEA would challenge the other’s measure in the WTO, especially if the measure explicitly is mandatory under the MEA (or amendment). 214 Disputes between parties and non-parties to an MEA could be more problematic and are looked at again in section 5.4.3.

This is not to say that conflicts will not occur and certainly not that steps should not be taken to prevent unnecessary conflict. In a number of cases unilateral environmental or health measures have been challenged in the WTO. If a mandatory trade-related measure of an MEA would be brought to the WTO for dispute settlement we would have the first direct conflict rising.

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212 Especially if the measure would be an explicit and mandatory obligation of the MEA.
213 The dispute settlement body could also be criticised for transgressing its mandate (trade law).
214 This even if only one of the members has signed the amendment, since both are obliged to strive to attain the MEA objectives. Political ramifications are also aspects that would be considered.
5.3 MEAs and the use of trade measures\footnote{This section draws on OECD (1999) and Nordic Council of Ministers (1996), for references, see section 5.8.}

MEAs serve to tackle transboundary or global environmental problems. A wide variety of means can be applied to attain this goal, for example, “command and control” measures, market-oriented instruments and information-based instruments (see Table 10). Instruments in the first and second categories include so-called \textit{trade measures}, such as, import quotas, standards, notification requirements, customs tariffs and subsidies. For a definition of trade measure, see Fact box 4. Often, several measures are needed in an MEA to address all aspects of an environmental problem. Criteria to consider when choosing among available measures are, among others: economic efficiency, environmental effectiveness, feasibility, equity, etc.

\begin{table}[h]
\centering
\caption{Main means for achieving environmental goals}
\begin{tabular}{|l|l|l|}
\hline
Type & Explanation & Examples \\
\hline
Direct regulations & Sets certain level of pollution/abatement to follow, in order to avoid penalties & Laws, directives, standards, quotas, bans, permits, etc. \\
\hline
Market-oriented & Attempts to internalise external costs or create or support new markets. Other types include voluntary agreements and eco-labelling. & Taxes and charges (including tariffs), subsidies, emissions trading systems, establishment of property rights, etc. \\
\hline
Information-based & Attempts to change behaviour by providing information. & Education, training, campaigns, making information on environmental performance public, etc. \\
\hline
\end{tabular}
\end{table}

\begin{factbox}
\textbf{Fact box 3: Trade measures}

A trade measure can be defined as “any policy instrument, which attaches requirements, conditions or restrictions on imported or exported products or services themselves, or the processes of their importation or exportation. So trade measures can range from trade bans to product standards, and from notification procedures to labelling requirements.”\footnote{OECD (1999, p. 173), referred to in section 5.8.}

Of the hundreds of MEAs that exist, about 30 are related to trade as:
\begin{itemize}
  \item the agreement contains trade measures, or
  \item parties have agreed on trade provisions in decisions under the agreement, or
  \item there are provisions of the agreement, whose implementation may have possible consequences for trade.\footnote{WTO-document WT/CTE/160/Rev.2, Annex 2.}
\end{itemize}
\end{factbox}
14 of these MEAs have been included in a matrix on trade measures pursuant to MEAs prepared by the WTO secretariat. In the discussion and negotiations under the WTO Committee on Trade and Environment (CTE), six of the conventions have been in particular focus, namely:

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),
- Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol),
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention),
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam (or PIC) Convention),
- Stockholm Convention on Persistent Organic Pollutants (Stockholm (or POPs) Convention), and
- Biosafety Protocol (Cartagena Protocol).

### 5.3.1 Rationale for trade measures and different kinds of trade measures

According to economic theory, the most efficient way to deal with an environmental problem is to correct the problem at its source. Thus, from an economic efficiency point of view, trade measures should be avoided, if more direct means are available. For example, it is considered to be most efficient to internalise external effects of chemicals production by imposing a tax on emissions from the factory, rather than to use other more distant means such as an export ban on its products. However, sometimes there are no other ways to address certain aspects of transboundary or global environmental problems than through trade measures. Some MEAs have an explicit aim to control and manage international trade, the most prominent example being the CITES, which aims to prevent trade in endangered species. Other MEAs consider trade as one aspect related and important to the environmental problem, such as with the Montreal Protocol and the problem of ozone depletion. Therefore trade measures range from being the central instrument at the core of the MEA, such as in CITES, to one series of complementary measures. In the text below, the usage of trade measures in four MEAs is described, without attempting to be exhaustive. The four treaties are different in a number of respects: their age, their emphasis on trade and the character of the agreements. What they have in common is that they have entered into force, there is wide participation, global environmental problems are addressed and trade measures are used in all four cases. Important rationales behind the

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218 WT/CTE/160/Rev.3.
219 See WTO-documents TN/TE/R/3, para. 30 and e.g. TN/TE/6, para. 9 and TN/TE/7, para. 5.
use of different types of trade measures in two of them, CITES and the Montreal Protocol, are also tabulated in Table 11.

Table 11: Main trade measures used in CITES and the Montreal Protocol

<table>
<thead>
<tr>
<th>Trade measure/Objective</th>
<th>Labelling</th>
<th>Reporting</th>
<th>Notification incl. PIC</th>
<th>Permit or licence</th>
<th>Selective intra-party export ban</th>
<th>Selective intra-party import ban</th>
<th>Party/non-party trade ban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring/data collection</td>
<td>CITES, MP</td>
<td>CITES, MP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promote participation in regime</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CITES, MP</td>
</tr>
<tr>
<td>Promote environmental control of trade or compliance with treaty</td>
<td>CITES, MP</td>
<td>CITES</td>
<td>CITES, MP</td>
<td>MP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Punish non-compliance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CITES, MP</td>
<td>CITES, MP</td>
<td></td>
</tr>
<tr>
<td>Assist by others enforcement</td>
<td>CITES, MP</td>
<td>CITES</td>
<td>CITES, MP</td>
<td>MP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generate environmental information</td>
<td>CITES, MP</td>
<td>CITES</td>
<td>CITES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevent trade diversion</td>
<td>CITES, MP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevent free riding</td>
<td>CITES, MP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevent industrial relocation</td>
<td>MP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MP = Montreal Protocol; PIC = prior informed consent to receive shipments, before exportation is allowed.

In CITES, the oldest of the four (1973), various measures are included in order to ensure that environmental information is incorporated in international trade in endangered species: labelling, reporting, notification and permits. Those involved in such trade should be aware of environmental aspects of it. Notification, permits, etc can also assist parties in their control of domestic production and consumption.

In contrast, the Montreal Protocol (1987), although focussed on phasing out of production and consumption of ozone depleting substances (ODS), includes trade bans to make the agreement more complete and effective. This as phasing out of production and consumption of ODS, the objective of the Protocol, is very difficult to ensure without controlling imports and exports. The bans are also to encourage participation by other countries, avoid reallocation of industries and assure industries that their compliance will not be made impossible by production in countries outside the Protocol. In addition, a party in non-compliance is not allowed to export substances regulated by the agreement.

In both these cases “the use of trade sanctions is limited … to trade in the same prod-

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uct areas, i.e. there is no scope for cross-sectoral application of punitive trade sanctions”, as in the WTO.221

Two other MEAs are the Kyoto Protocol (1997) and the Cartagena Protocol (2000). Both are more recent MEAs. The Kyoto Protocol affects trade among other things through its economic impact. Both it and the Cartagena Protocol explicitly acknowledge linkage to international trade, in the treaty texts.

In the Kyoto Protocol, the objective is to stabilise greenhouse gas concentrations in the atmosphere at a safe level. Legally binding emissions reductions commitments play a key role. However, trade measures complement the Protocol, to realise its goals. Provisions mentioned in the Protocol are likely to require parties to implement measures such as technical regulations and subsidies, which could affect trade. Economic impacts may lead to calls for compensation to stay competitive, again affecting trade. Emissions trading available under the agreement is limited to certain parties, thereby restricting trade with other parties and non-parties. Further, compliance with the Protocol is encouraged by withdrawal of rights of non-compliant parties to participate in the international emissions trading system of the Protocol.222

The Cartagena Protocol aims to secure safe the transfer, handling and use of living genetically modified organisms (LMOs), especially in transboundary movements, in order to avoid adverse effects on the conservation and sustainable use of biological diversity, also taking into account risks to human health. In doing so, requirements on notification, labelling and permits are central to the agreement. Participation by other countries is encouraged through implicit bans on trade in LMOs with non-parties who are not in compliance with the objective of the Protocol.

5.3.2 Effectiveness of trade measures 223

How effective are trade measures when used by an MEA? In a study by the OECD (1999), the effectiveness of trade measures in the Montreal Protocol, CITES and the Basel Convention is reviewed (for a more detailed summary, see appendix). The results of this study suggest that the use of trade measures in MEAs are appropriate when international trade needs to be managed in order to tackle the environmental problem. They can also be used to encourage ratification and compliance with an MEA. The study notes that some trade measures, such as subsidies, may not be specifically targeted towards controlling trade or encouraging ratification, but that they may nevertheless have a profound impact on trade. While the use of this type of measure can help to achieve the overall MEA objective, negative effects on trade should be minimised and positive measures such as financial or technical assistance may be needed.

221 OECD (1999, p. 179), referred to in section 5.8.
222 Presuming the proposed compliance mechanism is adopted at the first meeting of the parties, in December 2005.
223 This section draws heavily on OECD (1999), for reference, see section 5.8
Thus, “trade measures should of course be carefully designed and targeted to the environmental objective”. The more trade-restrictive the measure is, the more important it is to consider potential effects. For example, subsidies to specific companies may distort trade seriously as well as discourage innovation and the emergence of new companies. Therefore, general subsidies are often to prefer, as the effect on the environment can be the same but the negative effect on trade is minimised. Effects of trade measures can also vary substantially, depending on a country’s development, market structure, etc. For example, in a country without adequate resources for enforcement etc. trade measures can be less effective and have unintended consequences, such as illegal trade. 224 Moreover, trade measures should not be unnecessarily fixed and inflexible. An example with hazardous waste in China illustrates these issues (see below). How clear and flexible trade measures are varies across MEAs, as do supportive measures. Unfortunately, many positive measures cannot be used since funding is lacking and since they are not mandatory.225

China and hazardous wastes
China has joined the Basel Convention and incorporated control measures into national legislation. Despite this, in recent years, foreign hazardous waste has been illegally entered China. In some joint ventures, such wastes has been mixed with reusable wastes and imported as raw materials. This constitutes a difficult challenge for Chinese authorities. Stricter trade controls are not enough and so a whole package of measures have been identified including education and training, technology development regarding hazardous waste disposal and employing market mechanisms.226

To sum up, trade measures may be necessary as part of an MEA’s toolbox of measures, but are rarely sufficient to achieve global environmental objectives on their own. Complementary instruments at different levels are often needed. In particular, different kinds of support to ensure administrative and technical capacity that is key to implementation may be critical, especially for developing countries, as well as support to countries with particularly high adjustment costs. “One-size-fits-all” trade measures may be inappropriate for countries with different conditions, priorities and interests, particularly at different stages of development. Finally, clearly defined trade measures, together with science-based criteria for their application, are more effective and efficient, and avoids them being perceived as protectionist measures in disguise.227

224 Note that differentiated commitments or incomplete bans may also contribute to illegal trade in various ways. If some trade is allowed, there is an incentive to try to convert illegal trade to legal trade.
225 Hoffmann in Unctad (2003, p. 20f and 5), for reference, see section 5.8.
226 Lulian, C (2003, p. 58), “The implementation status in China of the CBD and the MEAs with specific trade obligations to which China is a Party”, paper presented at the Training Workshop on Trade, Biodiversity and Sustainable Development, October 2003, Beijing, China.
227 This para. draws partly on Hoffmann in Unctad (2004, p 13f), listed in section 5.8.
5.4 Discussions and negotiations on the WTO and MEA relationship 228

5.4.1 Discussions on GATT – MEAs in the working group

As the number of MEAs increased, the issue of potential conflict between environmental policies that contain trade measures and the principles of the GATT (and later the WTO) entered the discussions during the Uruguay Round (1986 – 1994). Members agreed that a working group should be established to examine three items, of which the “trade provisions contained in existing multilateral environmental agreements vis-à-vis GATT principles and provisions”, was one.

The working group met between November 1991 and January 1994.

Among the issues discussed were potential inconsistencies between the general principles of the GATT and the consequences of trade restrictions that could be imposed in response to a violation of a MEA. Two of the identified areas of possible conflict that were paid special attention to were; (i) the use of trade measures to help protect environmental resources that do not fall within the national jurisdiction of any one or more Contracting Parties nor necessarily affect their environments and (ii) trade provisions that apply separately to non-parties. There was also concern that the GATT provisions could work to inhibit, if not prevent, a desirable conclusion of a future MEA.

Several proposals from members were put forward during the discussions. Views on the need to revise the WTO – MEA relationship differed substantially between members. Some argued that the possibility to consider trade provisions contained in MEAs already existed under the GATT and thus no revision was necessary. Another proposal promoted the introduction of a consensus based, time-limited waiver, whereby members would take a decision to deviate from their obligations for a limited period of time. Any perceived incompatibility would then be dealt with on a case-by-case basis through recourse to the waiver provisions provided in Article XXV of the GATT. Other members, adhering to the “environmental window” approach, called for a carefully defined, pre-established criteria for the use of trade measures in the context of a MEA to ensure that the GATT would accommodate the measures.

228 The first part of this chapter (up till Doha negotiations) draws on “Annex I: Background Note by the Secretariat” of the Special Report no 4: Trade and Environment, if not otherwise stated.

229 For example, the Montreal Protocol on Substances that Deplete the Ozone Layer, the Washington Convention on International Trade in Endangered Species and the Basle Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
5.4.2 The Marrakech Decision

In April 1994 members met in Marrakech, Morocco, and formally agreed to establish the WTO. The CTE was established. The first item in its broad mandate was to investigate and make appropriate recommendations on modifications of the WTO regulation on “the relationship between the provisions of the multilateral trading system and trade measures with significant trade effects and the provisions of the multilateral environmental agreements”.

The CTE also granted observer status to a number of intergovernmental organisations including UN bodies such as the Commission for Sustainable Development (CSD), and the Food and Agriculture Organization (FAO).

5.4.3 MEAs in the Singapore Report

As decided in Marrakech, the CTE prepared a Report for the 1996 Singapore Ministerial Conference on all the items in the mandate. The Report was adopted in Singapore with the understanding that it “did not modify the rights and obligations of any WTO member under the WTO Agreements”.

On GATT/WTO and MEAs the Singapore Report concluded that multilateral solutions based on international cooperation and consensus were considered the best and most effective way for governments to address global and transboundary environmental problems. However, the relationship between the GATT/WTO and MEAs is complex, particularly given the varying nature of the issues involved in each MEA. Further investigation on the item was therefore considered necessary.

Although no recommendations on modifications of WTO rules were made, the Report clarified a number of issues. On the dispute settlement procedures, the report concluded that problems were unlikely to arise in the WTO over trade measures applied and agreed in consensus among parties to a MEA. Such disputes should be resolved through the dispute settlement mechanism available under the MEA. However, the issue involving non-parties remained unsolved. The Report recognised that members had the right to bring disputes over trade measures pursuant to MEAs to the WTO dispute settlement systems, but stated that the question of dispute settlement with non-parties should be included in negotiations over future MEAs. The Report also stressed the importance of ensuring policy coordination between trade and environment experts in order to prevent WTO disputes from arising over the trade measures contained in the MEAs.

5.4.4 Post- Singapore

Between Singapore and the launching of the Doha Agenda in 2001, CTE discussions continued on the interaction between WTO rules and MEAs containing trade provisions, and various ways of accommodating the two sets of rule. Several meetings with the Secretariats of the MEAs were arranged in order to inform members on the latest developments in these instruments and help them to better understand the relationship between the environmental and the trade agenda. Furthermore, a number of international intergovernmental organisations were granted observer status. Members repeatedly noted the important contribution of MEA Information Sessions to increasing mutual understanding of the relationship between the WTO and MEAs.

5.4.5 From Doha to Hong Kong

One of the main negotiation topics for the CTE in Special Session (CTESS) in the Doha round is how WTO rules apply to WTO members that are parties to environmental agreements and to clarify the relationship between trade measures taken under the environmental agreements and WTO rules. One other important task is to discuss the procedures for regular information exchange between secretariats of MEAs and the WTO and to create observer criteria in the WTO for international governmental organisations. (For a fuller treatment of the negotiations, see appendix and for an early analysis, see for example, the paper by Hoffmann, which is referred to in section 5.8.)

5.4.5.1 NEGOTIATIONS ON MEA-WTO RELATIONSHIP

The first meeting of the CTESS was held in 2002. During the meeting many WTO members made statements on how to go forward with the task to negotiate on the relationship between existing WTO rules and so-called specific trade obligations (STOs) set out in MEAs. It seemed obvious that much work lay ahead in developing a common understanding of the scope of the negotiation mandate.

The negotiations so far have distinguished: the different steps in the negotiations, including procedure to be followed; definition of MEA and STO; party versus non-party issue; and possible outcomes of the negotiations.

Several members including China and many other developing countries have supported a procedural or systematic approach, which includes identification and information-exchange on relevant STOs and WTO rules. Six MEAs could be taken as a starting-point for the discussions on STOs. Some other members suggested a conceptual approach defining STOs and clarifying the principles governing the relationship between

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231 Annual Reports (1997-2002) of the Committee on Trade and Environment
232 The reason for negotiations being limited to parties to the MEA in question is that members who have not joined the MEA want to be sure that their rights under the WTO are not affected.
233 CITES, the Montreal Protocol, the Basel Convention, the PIC Convention, the POPs Convention and the Biosafety Protocol.
WTO rules and MEAs. Governance principles mentioned included that multilateral environmental policy should be made within multilateral environmental fora, not in the WTO. The principles emphasized also the importance of MEAs, the equal status of the WTO and MEAs and the mutually supportive relationship between WTO rules and rules of MEAs.

Issues on how to define an MEA include whether the MEA has to be open to all WTO members and need to have come into force when the Doha negotiations started.

One member presented a definition of STOs. It classified trade measures in MEAs as being of different types, who are basically distinguished by whether the measure is: explicitly provided for and mandatory under the MEA; identified in the MEA; consequential of the obligation to achieve results; or generally provided for through a general provision mandating stringent measures in accordance with international law.

Discussions in the CTESS have focussed on which of these types of measures can be classified as STOs – where the cut-off point lies. In the discussions that have followed it is clear that the term STOs is narrowly defined by one key developed country as well as several developing countries. Several submissions by members have identified STOs in selected MEAs such as CITES, the Basel and the Rotterdam Conventions. The identified STOs for a particular MEA vary however across the members’ submissions.

Expectations from the outcome of the negotiations still vary among the members. Some members are of the view that the ‘burden of accommodation’ should lie on MEAs. Others feel that WTO and MEAs should have equal legal status and that both systems should support one another. At the ministerial meeting in Cancún in 2003, ministers noted “progress made in developing a common understanding of the concepts” of the mandate and reaffirmed their commitment to these negotiations.

In general, several developing countries are sceptical to the WTO further considering trade measures in MEAs. One argument is that the relationship between MEAs-WTO is already a good one. Criticism is also expressed to the WTO showing deference to MEAs, but not the same be applied to MEAs. This seems to give MEAs primacy rather than ensuring that the two sets of rules are on an equal footing. Other developing country members argue that technical assistance and financial support is as effective as or more effective than trade measures. Yet another view is that trade measures should not be applied until technical assistance has failed to solve the problem, and then it could be considered to be an STO.
5.4.5.2 NEGOTIATIONS ON INFORMATION-EXCHANGE AND CRITERIA FOR OBSERVER STATUS

At the first meeting of the CTESS most members agreed that certain arrangements were already in place for information exchange between the WTO Secretariat and MEAs. It seemed however that the members disagreed on how to go forward with the task to enhance information exchange. Since the first meeting, several suggestions on how to enhance procedures for information exchange have been made. Much of the discussion has been on proposals for formalising information exchange or holding such sessions more regularly. So far, there has been no agreement on how to proceed.

So far in the negotiations, discussions on criteria for granting observer status have not moved substantially. Nevertheless, in February 2003, members agreed to consider inviting six MEAs and UNEP to each negotiation session. So far, this ad hoc invitation has been renewed at each session and in June 2004 the invitation has been extended to include two MEAs recently into force (Stockholm and Rotterdam conventions).

5.4.5.3 POTENTIAL EFFECTS OF THE NEGOTIATIONS

To sum up, the results of the negotiations in the CTESS are difficult to predict but some potential effects of an outcome could include: international coordination and increased coherence between policies and measures in MEAs and the WTO, complementing national coordination on trade and environment (or lack thereof), for the benefit of the environment and trade; increasing the strain on developing countries’ resources for participating in international processes, if information exchange is not properly devised; promotion of multilateral rather than unilateral environmental action. Positive effects could be expected for both developing and developed countries. However, bearing possible negative effects in mind, each member has to decide its positions in the negotiations. (For other potential effects of an outcome or the lack thereof, see section 5.7.2.)

5.4.6 Chinese perspectives and negotiation positions

As a large developing country in the world with significant trade and environmental importance, China recognises “the appropriate relationship” between WTO rules and MEAs. MEAs have been playing an important role in addressing global and transboundary issues and in promoting the global sustainable development. In the meanwhile, with the increase of trade measures for environmental purpose, the interaction between MEAs and WTO rules is increasingly notable.

With respect to facilitating and enhancing the relationship between MEAs and WTO rules, China supports the principle of “appropriate and moderate”. On the one hand, trade

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234 The International Tropical Timber Organisation only participated once since one member subsequently objected to inviting the organisation to future sessions.

235 This section is based upon a contribution by SEPA.
measures for environmental purposes should not conflict with the rules and principles of the multilateral trading system. On the other hand, members differ to a varying degree in environmental policy measures and regulations due to different levels of economic development as well as specific national conditions. Therefore, it should be expected that one country’s environmental policies and practices may not be necessarily appropriate for application in other countries. For this reason, China fully support the principles of common but differential responsibilities between developed and developing countries in environmental protection, and the principle of special and differential treatment to developing countries, especially the LDCs. China emphasises the importance of fostering the capacity building for developing countries, in particular, their export capacity related to environmental protection.

According to China, the outcome of negotiations on paragraph 31(i) of the Doha Mandate shall help to facilitate the development of international trade and global environmental protection, especially to realise the sustainable development of developing and LDCs. China is against any trade protectionism measures under the disguise of environmental protection. With respect to the negotiation approach, the analytical and bottom-up approach is to prefer, at current stage, this in order to move the negotiations forward in a pragmatic way and avoid a stagnant situation.

5.5 WTO rules and MEA trade measures – risk of conflicts?

In this section, the relation between key principles and rules of the WTO agreements (already introduced in module two) and trade measures in MEAs will be examined. It should be stressed that any determination of WTO-compatibility of a potential trade measure has to be done on a case-by-case basis. A general examination here can only give an idea of important issues and WTO rules to consider in such a determination. In addition, although focus in this text is on the compatibility of environmental trade measures with WTO rules, it is important to keep in mind that both MEAs and WTO rules are both part of public international law, and no hierarchy is presumed to exist.

Trade measures range from technical regulation including reporting requirements to trade bans. Trade bans are normally not allowed under WTO law. Most other measures (for example, technical regulation and standards, including eco-labelling, and subsidies) are either not outrightly prohibited by WTO law, nor simply allowed – it depends very much on their design and application. Consequently, to avoid conflicts, enhance synergies and promote mutual supportiveness, it is very important to be aware of basic principles and key agreements of the WTO.

Key agreements to consider are the GATT, the SPS agreement, the TBT agreement and the SCM agreement. The GATT includes principles, which are central to WTO law.
The GATT is relevant for most, if not all, the mentioned trade measures. The SPS agreement, in turn, is also relevant for all the trade measures, but only if they are to protect the interests covered by the agreement, such as to protect humans from diseases. In contrast, the TBT agreement only applies to a subset of trade measures under MEAs, so-called technical regulations, standards and conformity assessment procedures. Which of the SPS and TBT agreements apply to technical regulation, standards and conformity assessment procedures depends largely on the purpose of the trade measure. Finally, the SCM agreement applies to subsidies.

5.5.1 The GATT

Central GATT principles are non-discrimination, ban on quantitative restrictions and transparency. The most-favoured-nation principle (MFN) and national treatment prohibit discrimination between ‘like products’, whether at the border or domestically.\(^{236}\)

Clearly, there are implications of these rules for trade measures in MEAs (even though an exceptions article does exist). Regarding reporting and notification requirements under MEAs, if, for some reason, the burden would be considerably higher for non-compliant parties or non-parties, a WTO-challenge might be made on the grounds of an MFN-violation. If an import permit is required for imports of a good from one country but not from a like product from another country, this would also be inconsistent with the MFN-obligation.\(^{237}\) It is also conceivable that an import permit requirement could be challenged as a restriction on import from another member, under the ban on quantitative restrictions, even without discriminatory features. Turning to export and import bans on goods, they are not allowed under basic WTO rules, irrespective of whether they are general or selective.\(^{238}\) Thus, such a trade measure is vulnerable to complaints from other members.

Less favourable treatment of the same imported product, for example on environmental grounds pursuant to an MEA, is not allowed if the products are like. If a strong argument can be made that they are not like, the treatment is in compliance with the provisions on non-discrimination. An interesting issue here is whether consumer demand for environmentally preferable products could be used to demonstrate that such products are not like conventional products.

The term like products is widely used in WTO Agreements but there is no single definition.\(^{239}\) Therefore, the obligation of non-discrimination has different interpretations.

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\(^{236}\) For an explanation of these principles, please see module 2.

\(^{237}\) In addition, discrimination between members regarding the required special notification procedure called prior-informed-consent (PIC) might be questionable under GATT art. XIII, see OECD (1999, p. 195), listed in section 5.8.

\(^{238}\) If not covered by an exceptions article.

\(^{239}\) For instance, the SCM Agreement has its own definition. For an introduction and analysis of the concept like product, see e.g. National Board of Trade (2004), Interpreting the Concept of “Like Product” in Article I and III GATT, document no. 110-2831-04.
depending upon which Agreements and provisions apply. An evaluation has to be done on a case-by-case basis. Important aspects could be physical characteristics, tariff classification as well as economic aspects including end use, tastes and habits of consumers. Conditions of competitiveness are likely to be taken into account – considering end use, tastes and habits. Health risks may also be paid attention to in such ‘like product’ determinations.\(^{240}\)

Were it not for the GATT exceptions article XX b) and g) (introduced in module 2), several trade measures under MEAs would be more vulnerable to challenges from other WTO-members.\(^{241}\) However, with GATT art. XX there is a possibility that trade measures that would be found to violate other GATT provisions could be allowed. Previous disputes findings can provide guidance in interpreting this article, although such findings are not binding in later cases (for a summary of findings, see section 2.5 in module 2). For example, according to ‘case-law’ regarding paragraph b), life or health must be sufficiently at risk and there should hardly exist any other less GATT-inconsistent measures to address it. Therefore discriminatory or restrictive aspects of the trade measure can be justified. Under paragraph g) the permissibility of a measure would among other things hinge on the actual aim of the measure. Here, binding commitments in the MEA could be helpful.\(^{242}\) Another key factor is that a measure is applied not only to imports but also to domestic products, or together with other restrictions on domestic products. Additionally, under the introduction to GATT art. XX, discriminatory effects should be avoided as far as possible.

To conclude, according to the GATT, trade measures under an MEA must not discriminate and bans, permits and licences that restrict or prohibit trade are not allowed. This circumscribe room for manoeuvre to obtain common objectives of MEA trade measures, such as prevention of free-riding and trade diversion and disciplining non-compliance.\(^{243}\) However, if a trade measure was found to be in conflict with basic GATT provisions it does not necessarily imply that the measure is not allowed under the GATT, since recourse could be taken to the exceptions article XX b) and/or g).

5.5.2 The SPS agreement\(^ {244}\)

The SPS agreement covers regulatory measures in the fields of human and animal health protection (sanitary measures) and plant health protection (phytosanitary measures). Only

\(^{240}\) This para draws on WTO dispute findings, which can be helpful but are not binding on later panels.

\(^{241}\) Another paragraph mentioned as potentially applicable is paragraph d): “necessary to secure com-pliance with laws or regulations which are not inconsistent with the provisions of this Agreement”.

\(^{242}\) An analysis of necessity and proportionality could be assisted by the fact that parties are obliged by the MEA to fulfil specific obligations.

\(^{243}\) A question raised in OECD (1999), see reference in section 5.8, is whether prior informed consent procedures are “import and export licensing”, which if restrictive is not allowed under the ban on quanti-tative restric-

\(^{244}\) This section draws partly on www.wto.org.
certain well-defined risks (such as pests) are within the scope of the agreement. Whether a trade measure under an MEA is covered depends on the purpose of the measure, and has nothing to do with its type. Hence, the character of an SPS-measure can vary considerably. Such purposes are listed in Annex A to the agreement. For each purpose there is a target group (for example, humans) as well as a source of risk (for example, diseases).\textsuperscript{245}

This implies that an environmental measure, in order to be covered by the agreement, must target one of the sources of risk of the agreement, which in turn must threaten one of the listed target groups. Other measures to protect the environment, interests of consumers or animal welfare are excluded from the coverage of this particular agreement.

A fundamental provision of the agreement is that measures must not be more trade-restrictive than required to fulfil its objective (compare with the necessity criterion of GATT art. XXb)). The agreement requires that members base their SPS-measures “on international standards, guidelines or recommendations, where they exist.”\textsuperscript{246} (Harmonisation is explicitly encouraged.) By doing so, the measures are considered as required and as presumably consistent with the agreement and the GATT. However, a member has the right to introduce measures that achieve a higher level of protection if it can be justified with scientific evidence. This is important, as scientific and public opinion may differ across countries.

If the measure is contested, its necessity is evaluated by considering, on the one hand, the risks that can occur without the measure or if another less rigorous measure is applied, and on the other hand, the trade-effects of the measure. In such a determination the risk assessment of the country is relevant. Before a measure is notified to the WTO a risk assessment must be done in accordance with the usual scientific principles determined by the relevant standardising organisations.\textsuperscript{247} If other members so request, the country has to inform about factors considered, how risk has been assessed and what risk level has been accepted. Finally, on risk assessment, there is a possibility to apply temporary measures, in absence of full scientific evidence, provided that the member seeks to obtain the information that is lacking and reviews the measure accordingly within a reasonable period of time. This is in line with the precautionary principle. However, the principle has received different interpretations in treaties, for example, the WTO version is more restrictive than the one in the Cartagena Protocol, and this may open up for tensions.

\textsuperscript{245} The target group of the agreement is humans, animals or plants, whose life or health is threatened by a number of clearly defined sources of risk. By definition, the target group also includes “fish and wild fauna, as well as of forests and wild flora.” Sources of risk covered are pests (including weeds), disease-causing or disease-carrying organisms, additives, contaminants and toxins.

\textsuperscript{246} SPS art. 3.1.

\textsuperscript{247} Codex Alimentarius, International Office of Epizootics (OIE) and International Plant Protection Convention (IPPC).
As in the GATT, arbitrary or unjustifiable discrimination between members has to be avoided. Likewise, measures must not “be applied in a manner which would constitute a disguised restriction on international trade.”

Another provision obliges members to accept others’ measures as equivalent if they can demonstrate that those measures achieve the same level of protection. Transparency and openness are other central elements of the SPS Agreement.

To conclude, the SPS rules are obviously relevant for MEA trade measures. For example, it is possible that information is required under an MEA, in order to protect humans, animals or plants from risks covered by the SPS agreement. In absence of an international standard, it is important that such national information requirements are scientifically based, and thereby proportional to the risks involved, and not more trade-restrictive than necessary. If national information requirements would be based on multilaterally agreed requirements in an MEA this could lend support to the fulfilment of such conditions of the SPS agreement. Nevertheless, demanding that non-parties fulfil exactly the same MEA information requirements as parties may not be in accordance with the agreement, especially if existing non-party information requirements achieve the same level of protection.

General trade bans on import from non-parties only could also be in danger of violating the SPS agreement; here the scientific basis would have to be particularly solid as the measure is very trade restrictive. Finally, provisional SPS-measures that are not standards-based have to be scientifically based in the long run, and in the meantime information must be sought and the measure reviewed accordingly.

5.5.3 Product requirements under the TBT Agreement and GATT

Technical regulations (mandatory) and standards (voluntary), for instance, labelling or a prior informed consent notification, could be mandatory under an MEA. However, such measures can affect trade and be contested both under the TBT Agreement and the GATT (both introduced in module 2).

Therefore both Agreements need to be considered in the preparation, adoption and application of such measures. Hopefully, as a by-product, the scope for such environmental measures being perceived as and accused of raising trade barriers could be limited.

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248 SPS art. 2.3.
249 Our analysis deals with voluntary standards only to the extent that they are under governmental control (or that standardising bodies have accepted the Code of Good Practice). Moreover, the TBT Agreement only covers them insofar as standardising bodies have accepted the aforementioned Code.
250 Hopefully, as a by-product, the scope for such environmental measures being perceived as and accused of raising trade barriers could be limited.
This means that such technical regulations must not be more trade-restrictive than necessary to fulfil a legitimate objective, including environmental protection.  

The GATT, in turn, demands that imports and like domestic products must be treated in an equally favourably manner with respect to preparation, adoption and application of technical regulations and standards. Such treatment has been interpreted to include an obligation to afford “equality of competitive conditions.” Requirements that in effect favour domestic over imported products might be defended on the grounds that domestic products are not like. Still, if a trade measure, such as this, was found to be in conflict with the GATT provision on national treatment, recourse could be taken to the exceptions under GATT Article XX b) or g).

It is likely that measures under MEAs increasingly will use technical regulations and standards that focus not only on the characteristics of products but also on how products are made, that is, their production and processing methods (PPMs). This is in line with environmental policies that are based on a life-cycle analysis, where the three key issues are the production, usage and disposal of the product.

Technical regulations and standards on how products are produced and processed raise two issues on WTO compatibility: How do PPMs themselves relate to WTO rules? May environmental measures encompass the environment abroad? Regarding the second issue, environmental requirements on PPMs may be perceived as a means to influence domestic environmental policies of other countries or to be disguised protectionism. Hence it might be viewed as compromising members’ sovereignty. Moreover, from an environmental and developmental perspective foreign product requirements might be inappropriate since environmental conditions differ across countries as do production conditions. Finally, there is a concern that allowing discrimination based on how environmentally friendly products are made, may open up for considering other issues too, such as labour standards. It should be added that the permissibility of discrimination on the basis of non-product related PPMs is indeed a contentious issue in the WTO.

On WTO rules, it is not settled whether the TBT Agreement allows and applies to product requirements on non-product related PPMs. Nevertheless, under the GATT,  

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251 There is no jurisprudence on the concept of ‘necessary’ in the TBT Agreement. However, one interpretation could be that it means that there are hardly any other GATT-inconsistent measures available to address the legitimate objective; an interpretation drawing on jurisprudence regarding GATT Article XX and its term ‘necessary.’

252 GATT art. III:1 and 4.


254 Still, according to the second Rio principle, states do not only have the right to explore their natural resources but also an obligation to avoid their activities from damaging the environment of other countries.


it cannot be ruled out that such measures may be permissible under Article XX, even if the measures are unilateral.\textsuperscript{257}

To conclude, whether specific product requirements under MEAs are to be justified under the TBT and GATT Agreements have to be judged on a case-by-case basis. However, the scope for conflict between product requirements under MEAs and WTO rules can be significantly diminished if members consider trade implications and the agreements in designing and implementing technical regulations and standards pursuant to an MEA. The following three general conclusions can be drawn. Paying attention to them will benefit competitive conditions that are equal for imported and like domestic products.

- First, it should be beyond doubt that the actual and primary aim of a product requirement is fulfilment of the environmental objective, avoiding protection in disguise.
- Second, \textit{de facto} discrimination must be avoided, as well as unnecessary trade restrictions. Therefore performance-based requirements that are modelled on international standards are to prefer, which also promotes transparency; this calls for development of international standards where they are absent. If possible, other members’ requirements should be given equivalence. Market based instruments seem to be preferable as trade is restricted less than with other regulations.
- Third, design and implementation should be as transparent as possible, for example through notification, and others’ eventual concerns should be heeded.

It is not unlikely that Parties to some MEAs will adopt product requirements on non-product-related PPMs. Whether the TBT Agreement applies to non-product related PPMs or not is unclear. Under the GATT, it cannot be ruled out that other trade-restrictive environmental measures, even unilateral ones, such as those based on non-product related PPMs, may be permissible under Article XX.

\textbf{5.5.4 Subsidies and the SCM Agreement}

Subsidies are frequently used to encourage certain production, technologies, etc which is considered important for the subsidising country. Some subsidy schemes contribute to

sustainable development and the goal of an MEA, while others smooth the way for more rapid overexploitation of valuable resources or pollution.258

Apart from removal of environmentally harmful subsidies, environmental subsidies can be introduced as important instruments to support developments towards the goal of a MEA. In order to ensure their continued use parties should take the rules of the SCM Agreement (introduced in module 2) into account when using subsidies to pursue MEA objectives.269

The SCM Agreement does not prohibit environmental subsidies as such.260 However, they may be actionable if they cause adverse effects to (harm) other members’ interests; that is, the effect of a subsidy is important. In order to avoid adverse effects members must ensure that environmental subsidies are not discriminatory.

This means that to avoid such subsidies from being challenged, the following must be considered. Firstly, subsidies pursuant to the Protocol must be applied objectively and even-handedly to industries within the subsidising country, irrespective of production for the home or foreign markets. This supports that they are neither regarded as specific, nor as export subsidies. It is worth stressing that key is whether a subsidy is open and de facto non-specific, rather than whether it is non-specific in legal terms. Secondly, potential effects of the subsidies need to be considered. For example, identical or closely resembling products from abroad, so-called like products, should not risk to be discriminated against. A third factor to pay some attention to is transparency. The Agreement details notification requirements, which shall be paid attention to. Although there are no sanctions for those who fail to comply with these rules, notification might demonstrate that the objective of a subsidy is legitimate, namely to address the MEA objective.

Until January 2000, subsidies for research and development as well as subsidies to certain environmental adaptations were provisionally non-actionable.261 (A number of criteria had to be fulfilled for them to be non-actionable, though.) However, in 1999, the provisions lapsed and the subsidies are now, at least technically, actionable.

A certain type of environmental subsidy is arguably more vulnerable to be taken action against. The issue concerns subsidies introduced to decrease the environmental impact of the production and processing of a product, that is, PPM-based subsidies. Still, if the subsidies only are aimed to assist domestic producers in producing their products in

258 For example, on the one hand, subsidies are used to promote energy efficiency, cut GHG emissions, including enabling new technologies and renewable energy sources to become competitive. In this way they facilitate reaching the objectives of the Kyoto Protocol. On the other hand, some industrialised countries support conventional energy sources, thereby contributing to the entrenchment of fossil fuels as the predominant energy source.

260 Governmental subsidies alone are analysed in this study.

261 SCM Agreement Art. 8.2. "Environmental adaptations" denotes: "adaptation of existing facilities [footnote excluded] to new environmental requirements imposed by law and/or regulations which result in greater constraints and financial burden on firms."
an environmentally-friendly manner, and if this results in no adverse effects on the other member’s interests, then the subsidy would pass untouched.

To conclude, it seems as if the SCM Agreement is not likely to pose a threat to environmental subsidies, even if based on PPMs. Rather, the Agreement ensures a level playing field for members’ industries. This requires, though, that the rules of the agreement are respected in particular that specific and export subsidies are avoided. A developing country concern to be mentioned, though, is that subsidies to comply with environmental requirements or sustainable development should be non-actionable.

5.6 Where to settle disputes?

Where would a dispute be settled on a trade measure of an MEA? A trade measure taken by a state to comply with obligations under an MEA could impact international trade and hence potentially conflict with WTO rules. Similarly, action or inaction by a state with or without reference to WTO law could conflict with MEA rules. Related to this are the questions on how would MEA law and measures fare under WTO law, and how would WTO law and measures fare under MEA law. For an example, see box below. For several reasons, here we will focus on the trade effects of MEA measures and where and how they can be dealt with.

Where to settle disputes – an example

Consider a case where a state imposes limits on imports of heavy trucks with low fuel economy in order to reduce emissions of CO₂. The state that introduces such a restriction might see it as a legitimate regulatory measure to enable it to comply with obligations of the Kyoto Protocol. A truck-exporting state might however view the legislation as protectionist and in violation of WTO law. Where would such a dispute concerning trade-impacting measures introduced to comply with the Kyoto Protocol be addressed? Would the parties to such a dispute have the option of pursuing the dispute either within the dispute settlement mechanism of the Kyoto Protocol or within the WTO system? Might the same issue be brought by two states to two different dispute settlement systems? Are there rules for which treaty should prevail?

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262 Without over-compensation, which could affect relative prices.
263 The following could be added: If industries that adopt environmentally-friendly PPMs would need extra support, beyond compensation for environmentally friendliness of their production, to stay competitive or take<br>over markets, such support might be challenged under the SCM Agreement.
264 Therefore, it might not be useful to call for an extension of the lapsed provision to allow limited support to, for instance, certain environmental adaptations.
265 This has received most of the attention in writings on the MEA-WTO relationship. Firstly, this is because the WTO dispute settlement mechanism is perhaps the most effective of all international dispute settlement systems. Secondly, a reason is that WTO law on the whole tells countries what not to do, for example, not to discriminate. A third reason could be that non-compliance with MEA law traditionally is dealt with in other ways than the “WTO-style bilateral dispute between individual parties over the interpretation of a treaty’s text” (Brack & Gray (2003, p. 28), referred to in section 5.6). Typically, MEAs’ mechanisms are less confrontational and include both “carrots and sticks” in promoting compliance and dealing with non-compliance.
As noted above, it is possible that a measure introduced in an effort to comply with an MEA leads to a restriction on trade that is in violation of WTO law. In such a situation, it might seem natural that a state challenging the measure would initiate a dispute before the WTO. However, the case could be dealt with within the MEA, on three conditions. Firstly, provided that the MEA contains provisions on trade effects of the measure or excludes the measure altogether. Secondly, given both countries are parties to the MEA so that the case can be taken to its dispute settlement mechanism. Thirdly, the MEA mechanism must have the mandate to decide on compliance with the trade effects provision.

From this it is clear that cases could either be taken to the WTO, if both countries are members to the WTO, or to the MEA, if all three conditions mentioned are fulfilled. In many cases there is likely to be only one forum to which to take disputes, the WTO. However, if both sets of conditions are satisfied, the country that is discontent can choose where to take the case. This opens up for so-called forum shopping, that is, to take the issue to one mechanism (one forum), and if discontent with it’s ruling, take the case to another forum. Another possibility with this is that a direct conflict could occur between rulings of the two regimes, the MEA and the WTO. In such a case, there would not be a possibility to appeal to a supreme judiciary body and it is not clear that the case could be resolved “in court”, rather it might be solved in negotiations. The consequences of such a case are hard to foresee.

The potential of actual forum shopping seems more academic than genuine. The jurisdiction of the WTO and the MEA are likely to be different, in most cases. The WTO Dispute Settlement Body (DSB) appears to have exclusive jurisdiction to address violations of WTO provisions. Further, the WTO cannot resolve disputes on non-compliance with MEA rules. MEAs, on the other hand, are not likely to have a MEA-mandate to decide on compliance with WTO rules.

Against this background, the relevance of the two concepts of *lex specialis* and *lex posterior* sometimes figuring in debate appears small. Still, they should be mentioned as they are part of the discussion. The concepts relate to which treaty is to prevail, in the case of conflict between treaties. Public international law contains rules for this. According to *lex specialis*, the more specialised treaty prevails, and according to *lex posterior*, the later treaty prevails when two treaties apply in an issue area. But as said, they do not appear to be very helpful in this context. This, as jurisdictions are not likely to sub-

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267 *Lex specialis* is a "principle of treaty interpretation" recognised by the Permanent International Court of Justice (Brack and Gray, p. 27) and the *lex posterior* principle exists in art. 30(4) of the Vienna Convention on the Law of treaties (1969). Brack, D. & K. Gray (2003), *Multilateral Environmental Agreements and the WTO*, Report, RJIIA and IISD.
substantially overlap, as there is no supreme judiciary body to resort to and as it is difficult to determine which is the later (or more specific) agreement.

Another feature of international law to consider is so-called savings clauses. Public international law states “that where a treaty specifies that it is not to be considered as incompatible with an earlier or later treaty, the provisions of the other treaty are to prevail.” 268 Some new agreements include such a provision – a savings clause – to ensure that already existing treaties, for example WTO agreements, are not made ineffective. The advantages of a savings clause are to clarify the relation and create a hierarchy between treaties. 269 However, the risk with a savings clause is that is complemented with writings on the treaties being “equal bodies of law” and mutual supportiveness. Then, in effect, rather than contributing to clarity, the writing weakens certainty – it creates an impression of hierarchy without this being the case. 270

Arguably, the most serious problem in the MEA-WTO relationship is potential conflicts between two members to the WTO where the aggrieved state is not a party to the MEA but the other one is. Some argue that the importance of this issue will increase as the regimes of MEAs develop while several states may not join from the start. 271 The problem is that a member that is not party to the MEA would only be able to resort to the dispute settlement mechanism of the WTO regarding the trade effects of a trade measures pursuant to an MEA. At issue then is whether the measure is in compliance with WTO law, including exceptions articles such as GATT art. XX. Theoretically, the WTO dispute settlement panel could decide that if one member of the dispute is not a party to the MEA, the treaty will not be considered. This, since according to public international law, the consent of a state is necessary for it to have obligations or rights under a treaty. 272 However, recent WTO practice appears to support the case for considering whether a measure is applied pursuant to an MEA in determining the aim, necessity or importance and implementation of the measure, even if the aggrieved member is a non-party to the MEA.

5.6.1 Addressing inconsistencies

Even if there would be no conflict of forum between WTO and a MEA dispute settlement systems, conflicting application of substantive provisions can lead to tensions and inconsistencies between the two systems. It is in the interest of both systems and the parties to those systems to limit the scope for such inconsistencies.

One way to avoid such conflict is simply for states to avoid initiating WTO dispute settlement proceedings against measures intended to implement MEA obligations, and

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268 Brack and Gray (2003, p. 27), referring to art. 30(2) of the Vienna Convention.
269 Writings on mutual supportiveness could potentially contribute to the treaties being viewed in the larger context and to a focus on synergies rather than conflict.
270 The Cartagena Protocol is but one example where uncertainty appears to have been reinforced. This paragraph draws heavily on Brack and Gray (2003, p. 30), see section 5.8 for reference.
271 Brack and Gray (2003, p. 32), see 5.8 for reference.
272 Art. 34, Vienna Convention.
instead turn to the MEA’s mechanism on compliance or disputes. However, only under certain conditions would this be possible, including an MEA mandate to deal with trade effects.

However, states can make use of consultative processes to help them settle disputes while avoiding politically sensitive legal rulings. In the WTO context, third party assistance such as WTO mediation is provided for.

Bringing a claim that is most closely connected to an MEA before the regular WTO DSM can be regarded as necessary, although it would not be in line with the understanding in the CTE’s Singapore Report. Moreover, it is very unlikely that a WTO panel would decline jurisdiction of any case that concerns rights and obligations under a WTO Agreement. However, in such a case, an MEA could still come into play. As recent case law indicates, the WTO dispute settlement mechanism takes notice of international environmental developments. Panels and the Appellate Body can also seek information from, for instance, the MEA secretariats. Decisions by the MEA non-compliance mechanisms may be interpreted as “evidence of a justification of a measure under …(GATT)… Article XX.” Some are of the view that the possibility to hear MEA experts, at an early stage, would facilitate assessment of MEA compliance, something that is relevant in the WTO DSM too. A parallel could also be drawn to the MEA. For example, in the Kyoto Protocol compliance mechanism, the adjudicating body may also “seek expert advice”, apart from receiving “relevant factual and technical information” from “(c)ompetent intergovernmental … organizations” such as the WTO.

How likely is it that cases involving trade measures taken by parties pursuant to MEAs will be brought to the WTO? With multilateral trade and environmental law expanding, and more and more economic activity affected by MEAs, and the existence of non-parties, it appears increasingly likely. However, so far, there have been no WTO disputes involving MEA trade measures. In this context it should be added that most WTO cases are settled outside of Panels, in consultations.

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274 Regarding this WTO provision, see DSU Art. 5.
275 Even if another forum was perhaps more closely connected to the dispute.
276 However, the objective of the WTO DSM is that it “serves to preserve the rights and obligations of Members under the covered agreements, and to clarify the existing provisions of those agreements in accordance with customary rules of interpretation of public international law.” (DSU Art. 3.2). Covered agreements are the WTO Agreements set out in Appendix 1 to the DSU.
277 DSU Art. 13.
278 On decisions by MEA bodies, see Brack and Gray (2003, p. 29), referred to in section 5.8.
279 DSU Art. 13.
280 Marceau and González-Calatayud (2001, p. 83), referred to in section 5.6 here.
282 Brack and Gray (2003, p. 25), referred to in section 5.8. Possibly legal, economic and political considerations involved will make a decision to file a complaint an awkward one, only taken after other avenues have been exhausted.
If a case is brought before the WTO, it is hard to predict what the outcome might be in the specific case. Still, in case of conflict, over the last ten years the WTO has become more knowledgeable and sensitive to environmental issues, as reflected in ministerial declarations and panel and appellate body reports. The organisation is now much more in the spotlight and has consultations with civil society. It is therefore more likely than before, although not certain, that “prudent rulings” will be produced where careful judgments have been made considering relevant aspects and perhaps consulting with environmental experts.

5.7 Discussion – how to avoid conflicts?

The MEA-WTO relationship has been one of the key trade and environment issues for more than a decade. Today the two regimes are perhaps more related than ever before. Clearly, there are tensions between the two, and potentially there will be conflicts too. Nevertheless, knowledge in this area has evolved, and a range of steps have been identified on how to avoid tensions and conflicts and promote a good relationship between MEA-WTO, and trade and environment in general.

Before considering such measures, it should be recognised that there is nowadays a political commitment by developed and developing members in the WTO to a mutually supportive relationship. (Additionally, this has been confirmed at the Johannesburg World Summit on Sustainable Development, report paragraph 98.) Case law also has indicated that WTO rules should not be interpreted in “clinical isolation” and without considering other complementary bodies of international law, including MEAs. In addition, in the WTO, there are possibilities for exceptions to other general rules for environmental or health reasons.

5.7.1 Coordination is necessary …

Both in literature and in the extensive discussions that have taken place in the GATT/WTO, it is acknowledged that the most important step to avoid conflicts and promote mutual supportiveness is coordination and cooperation between the two regimes. This involves WTO members and parties to MEAs as well as secretariats improving their understanding of institutions and rules of the two regimes. Although coordination and more contact is necessary it may not be sufficient. Therefore, following this section, other complementary options will be discussed.

283 See the section below on discussions in the WTO on these issues.
284 Rulings that give a large degree of deference to environmental considerations would likely be criticised by some WTO Members. Rulings that reject MEA interest might however be strongly criticised by other MEA Parties. Moreover, “international conflicts of laws doctrine favors finding incompatibility between treaties only as a last resort.” (Lulian and Glazer (2004, p. 35), listed in section 5.8).
At the national level, parties to MEAs should consider how to increase cooperation between the trade and environment communities. It is does not seem acceptable, whether from an environmental, developmental or trade perspective, that a country’s trade negotiators definitely resist any new environmental trade measures, while the same country’s environment negotiators make the case for more restrictive trade measures in MEAs. A country’s positions, policies and measures need to be coordinated. Trade and environment ministries and authorities should cooperate. Environmental trade measures should be designed and implemented by relevant actors while keeping trade concerns of the WTO agreements in mind, this applies to both unilateral measures and measures pursuant to MEAs.

In many cases there is ample scope for trade measures pursuant to environment policies or MEAs without compromising WTO rules, provided those rules are paid attention to. Frequently, following those rules may benefit effectiveness and efficiency in such efforts as well as minimising adjustment costs etc.

Coordination and cooperation at the national level also should apply to positions when negotiating and developing MEAs. Developing MEAs is widely acknowledged as the preferred approach for addressing transboundary environmental problems. Among other things multilateral agreements are more likely to reflect common concerns and stay clear of unnecessarily discriminatory policies and measures.

It might be illustrative to look at coordination and cooperation in an actual member country. For example, in Sweden, coordination between the trade and environment ministries and authorities is well established. Coordination results in common positions reflecting both trade and environmental concerns. Apart from consultations and cooperation at different levels, reference groups as well as hearings are used. This signifies openness and accountability in policy-making, providing stakeholders with access to information and assisting decision-makers to be well informed. (For more on coordination in Sweden, see appendix.)

If challenges to environmental trade measures arise there are a number of ways for a member to avoid a unnecessary conflict. Primarily, if bilateral consultations with the member fail, the dispute should arguably be solved in the compliance or dispute settlement mechanisms of the MEA, if possible. (Many MEAs have compliance mechanisms and some of them have more actual teeth than others, although normally they are less confrontational than the mechanism of the WTO.) This would be in line with what members agreed in the Singapore report. If that option does not exist (for example, if no such

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285 According to Brack and Branczik, this tendency has been observed. (Brack and Branczik (2004, p. 10), Trade and Environment in the WTO: after Cancun, Briefing paper No. 9, RIIA, February 2004.)

286 In the UNEP/IISD (2000), Environment and Trade – A Handbook, the importance of openness in trade policy making at domestic and multilateral level is expanded upon. It can be added that, in China, negotiations on trade and environment are led by MofCom, with the support from SEPA and expert groups at these two bodies.
mechanism exist or if both members are not parties to the MEA), consultative processes of the WTO could be used, such as third party assistance. Nevertheless, if unsuccessful, the complaining member would have to resort to the regular dispute settlement track.

At the international level, parties to MEAs may discuss ways to promote mutual supportiveness between regimes of MEA and the WTO. Experiences in implementing the MEA and working towards its objective can be shared and if appropriate guidelines on implementation can be developed which promote synergies and avoid conflict with WTO rules; drawing on best practice. At the WTO, members can also share experiences in negotiating, designing and implementing environmental trade measures, in order to attain environmental objectives and using synergies and avoiding tensions with trade rules. Another option that may become increasingly important is development of common standards or systems of labeling related to the environment, for instance, on energy efficiency.

At the institutional level, the WTO secretariat and MEA secretariats already have certain information exchange. But from the discussions and negotiations under the CTE it is clear that there are several ways to improve it. Further, the dispute settlement or compliance mechanisms of the WTO and MEAs could seek each other’s information and advice in cases before them, as appropriate. At least in the WTO, this possibility already exists but has never been used, as far as we know. The secretariats could perhaps also perform advisory functions outside dispute settlement.

5.7.2 ...but coordination may not be enough
Besides coordination and cooperation additional steps may need to be taken, ranging from capacity building to rewriting existing WTO or MEA rules or even creating new institutions.287

Regarding negotiations on STOs in MEAs and the WTO rules, several outcomes have been mentioned, apart from maintaining status quo. Firstly, an explanatory footnote could be added to GATT article XX. This solution is interesting, as it is arguably faithful to the restriction of the mandate that WTO rules must not be amended, at the least not significantly.288 Secondly, an interpretative decision can be made.289 A “milder” version would be a political statement on the MEA-WTO relationship. (Non-binding recommendations are not uncommon in the WTO.290) Thirdly, a waiver from WTO obligations for STOs could be given. However, the use of WTO-waivers is very restricted and often have time limits. More-over, a waiver “would imply a hierarchy ... which would be unlikely to be

287 This section draws partly on Brack and Gray (2003), referred to in section 5.8.
288 Unfortunately, this proposal has not been developed further by Lulian and Glazer (2004, p. 41), referred to in section 5.8. According to the mandate, the negotiation cannot be allowed to “add to or diminish the rights and obligations under existing WTO agreements”.
289 Non-binding recommendation defining areas of competence and clarifying mutual supportive-ness, levels of deference and hierarchy.
290 Brack and Gray (2003, p. 35), referred to in section 5.8.
accepted” by environmental policy makers and stakeholders.\textsuperscript{291} Fourthly, the introduction and/or exceptions to GATT article XX could be amended to allow for STOs, conceivably under certain conditions. Fifthly, a new WTO agreement on MEAs could be adopted. This option appears less likely, taking negotiations in the CTESS into account.

A solution of some sort would arguably be beneficial for the multilateral system and for developing countries. The dispute settlement mechanism will more likely remain responsible for legislation rather than politicised and unilateral action by developed countries will be circumscribed.\textsuperscript{292} The “chilling effect” that the WTO might have had on MEA negotiations and implementation, to some degree because of a lack of clarity in the relationship and limited contact between the two regimes, could be reduced. Implementation of MEAs may be facilitated as there is more clarity on WTO-compatibility. But implementation could also become more clearly “circumscribed”. It is not entirely clear how the solutions above would affect future developments in the environmental area. There is also a risk for creating two classes of trade measures, with the effects that might entail. Furthermore, if a solution would include a wide definition of STOs, the scope for discretionary measures can increase, which could be harmful for developing country market access.

In discussing the way forward for developing countries in the negotiations, Hoffmann (2003) argues that it is in their interest that “STOs … leave little discretion to Parties for unilateral measures that are taken “pursuant to MEAs”.\textsuperscript{293} This would suggest that STOs should not include those that are discretionary.” Then, after a careful analysis of STOs in a limited number of MEAs, non-WTO-compatible measures could be brought to the respective MEAs for discussion and potential improvement of the measure, supportive measures or increased flexibility for developing countries. An advantage with this approach is that “decisive discussion would remain under the control of MEA constituencies.” An alternative could be for the WTO provide a general solution for those STOs or to issue guidelines for all STOs in MEAs. Regarding discretionary trade measures pursuant to MEAs, an introduction in the WTO negotiated outcome could emphasise that “WTO advocates the scope for countries to implement sound environmental measures that are consistent with the objectives of MEAs while adhering to established WTO rules and obligations”.\textsuperscript{294}

### Options for clarifying or revising the WTO rules

- An explanatory footnote to GATT article XX
- An explanatory interpretative decision, understanding or general statement
- Waiver from WTO obligations for certain trade measures

\textsuperscript{291} Unctad early training material “Trade-related MEAs, module 5,” p. 6.
\textsuperscript{292} Lulian & Glazer (2004) and Sawhney (2004), for details on their papers, see section 5.8.
\textsuperscript{293} Hoffmann in UNCTAD (2004, p. 24ff).
\textsuperscript{294} This paragraph draws on Hoffman in UNCTAD (2004), referred to in section 5.8.
• Revising GATT article XX, for example by amending its introduction or exceptions
• A new WTO agreement on MEAs

For the WTO, it is probably necessary to secure a positive outcome in the negotiations on trade and environment, if not only to consider expectations among stakeholders and those critical or opposed to the WTO. Apart from the negotiations on trade measures in MEAs-WTO, this could include the liberalisation of environmental goods and services as well as improved information exchange between the WTO and MEA secretariats. Another way to promote mutual supportiveness can be to provide each other with observer status. For example, in the area of climate change, the MEA – the UN Climate convention – allows the WTO to participate at its meetings, but the CTESS only gives ad hoc observer status to the Climate convention. (Finally, it cannot be ruled out that changes to WTO rules, such as for subsidies in the SCM agreement, may be appropriate in the future.)

On the MEA-side, increased participation by countries in MEAs can foster sustainable development, especially in developing countries where “economic and social effects of most global and transboundary environmental problems tend to be more direct and severe in the light of limited abatement or adjustment capacities.” Structural effects can be achieved and adjustment costs alleviated by supportive measures. Parties to or the secretariats of MEAs could analyse MEA effectiveness and ways to promote compliance with the MEA, primarily, but also with key WTO principles. For example, supportive measures may need to be delivered, levelled up or improved, since non-compliance is most often due to limited capacities in administration, technology, etc. Compliance and dispute settlement mechanisms of MEAs might also be developed further. Moreover, MEAs can develop their own ideas on how to facilitate mutual supportiveness between the two regimes. Developing countries could “insist on clear definitions of STOs alongside the use of objective, science-based criteria for their use.”

Finally, many have made proposals for a new international environmental organisation that would increase efficiency and effectiveness of the current environmental regime and act as a natural partner to institutions like the WTO. Some envision a strengthened UNEP modelled on the WTO – a World Environmental Organisation. However, support is still too weak. In the meantime, incremental step to amend the existing structures – the UNEP – seems more likely.

295 UNCTAD early training material “Trade-related MEAs, module 5”, p. 16.
5.8 For more information

Below are some examples of where to find more information for a more in-depth study of the different topics. In addition, extensive information on many topics including current negotiations is available at the WTO website at: http://www.wto.org. (See also useful references listed in the appendix).

General overview of the issues

The WTO negotiations on the WTO-MEA relationship
On specific MEAs and the WTO

6 Market Access and Environment Protection

**Key concepts:** compliance, implementation, transparency, NAMA, tariff escalation, standard-takers, ISO 14001, environmental management system, legitimate policy objectives, production and processing methods (PPMs), eco-labelling programmes, ISO 14020.

In this module environmental measures and their effects on market access are examined, in particular the effects on small and medium-sized enterprises (SMEs) in developing countries. A number of case studies have been conducted to determine, amongst other issues, the impact of environmental policies on the market access and competitiveness of developing countries and economies in transition. Environmental policies may have differentiated competitiveness effects on developed and developing countries. In most cases, however, competitiveness effects of environmental policies can be addressed by appropriate policies at the national, regional and international levels. The CTE will conduct further work on all issues concerning market access with respect to developing countries and least developed countries.

6.1 Introduction

A central question in this module is how the negative impacts of environmental requirements on market access for developing countries can be minimised, and what can be done in the WTO discussions with respect to environmental requirements and market access? First comes a general description of various measures that can affect market access. This is then illustrated by several examples mentioned by developing countries. After that comes a description of the debate in the WTO. Eco-labelling and its impacts on trade and environment are examined specially. The relation between eco-labelling and WTO rules is discussed. Finally the debate in WTO about eco-labelling is described.

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298 Jha, Markandya, and Vossenaar (forthcoming publication). The countries examined include: Zimbabwe in Africa; China, India, Malaysia, the Philippines, and Thailand in Asia; Brazil, Colombia and Costa Rica in Latin America and the Caribbean; and, Poland and Turkey in other regions. Sector-focused country-case studies on leather and footwear, horticultural products, organic produce and electrical and electronic goods for a group of Asian (including China) and Central American countries can be accessed at: www.unctad.org/trade_env/test1/projects/field.htm

299 From the 2004 Report by the Task Force on WTO and Environment, submitted to the China Council for International Cooperation on Environment and Development
Environmental measures and market access is an issue of concern primarily to China and other developing countries. As a major player and also the largest developing country in the world, it is of fundamental interests for China to promote its foreign trade and safeguard its domestic environment. In recent years, with the adoption of more and stricter environmental measures and requirements by developed countries, with the European Union as a prominent example, environment-related trade measures have become increasingly important for China's export products especially for some of its major profitable sectors and products.\(^{300}\)

Gradually, China will need to comply with international environmental legislation and standard making. Foreign environmental measures can be used for reference in the establishment and improvement of China's environmental standard and legal systems in order to boost the adjustment and improvement of related domestic laws and regulations. It is important to make a positive linkage between environment instruments such as eco-labels, different environmental requirements on goods etc. and the possibilities of increasing market access for developing countries, without creating non-tariff barriers to trade.

Greater market access for products from developing countries is a key to meeting the objectives in the Preamble to the Marrakech Agreement Establishing the WTO. Among these objectives are raising living standards and ensuring full employment in accordance with the objective of sustainable development.

Most of the environmental protection measures, both in developed and developing countries, are consistent with WTO rules, but some of them may not necessarily be so. Major difficulties faced by Chinese exporters include lack of information and awareness of rapidly changing requirements, lack of financial resources to undertake renovation or to obtain international certification, lack of technological solutions for meeting the requirements of importing countries, and difficulty in meeting test requirements and conformity assessments. Another important problem is the lack of adequate institutional capacity.

\(^{300}\) From the Report "Effects of Environmental Measures on Market Access", August 2004, by Shen Xiaoyue for the Task Force on WTO and Environment, CCICED
6.2 Environmental measures that could affect market access

Environmental measures affect market access of foreign suppliers, particularly those from developing countries. The effect, in particular, is mostly felt by small and medium-sized enterprises (SMEs) in developing countries. Developing countries are also more vulnerable to the adverse effects of environmental measures on market access and competitiveness for several reasons including:

- lack of infrastructure (both human and physical) and monitoring facilities,
- limited technology choices and inadequate access to technology,
- inadequate access to (and relatively more expensive) environmentally friendly raw materials, and
- inadequate access to information.

Environmental requirements are also common and very demanding in the sectors of export interest to developing countries such as textiles and clothing, leather and leather products, footwear, forestry products and food products. These are all sectors in which there is a high number of SMEs.

Environmental characteristics of products and production processes are increasing factors influencing market access, product quality and international competitiveness. In general, environmental measures and requirements having potential effects on market access include:

- Technical regulations (which are mandatory) and standards (which are voluntary) relating to environmental and human health safety, for example: product content (e.g. limit values for certain substances); banned substances; recycled content; energy efficiency and recyclability; degradability; and other product characteristics.
- Conformity assessment certification relating to environment and health, such as: eco-labelling, organic product certificates, energy saving and recycling label and so on.
- Certain sanitary and phytosanitary (SPS) measures to safeguard human health and plant and animal safety, for example residue standards for pesticide, bans on the importation of certain plants or animals.

On the other hand compliance with environmental requirements is very important to ensure product quality and international competitiveness for developing countries. To facilitate market access for developing countries it is important to make the requirements as transparent and easy to comply with as possible. Technical assistance to developing countries that facilitates such compliance has been discussed in several fora for instance in the TBT Committee.
The impact of environmental requirements on exporters in developing countries depends primarily on five factors:

(i) the technical requirement or specification itself;

(ii) procedural issues in the preparation, adoption and implementation of the requirement;

(iii) transparency, inclusiveness, and impact assessment before developing the requirements;

(iv) pro-active and strategic national adjustment policies in developing countries; and

(v) other policies than environmental policies in the developing countries that can support the process and facilitate the implementation of environmental requirements.

6.3 Examples of different kinds of barriers to market access

Various countries, especially developing countries (for instance India) have in their submissions to the Committee for Trade and Environment (CTE) and the Negotiation on Market Access (NAMA) in the WTO cited examples of environmental measures affecting their market access by increasing the costs of compliance with these measures.

At present, the three largest trade partners of China are Japan, the U.S. and the European Union. They have the most numerous and strictest trade-related environmental measures, some of which have already exerted a direct negative impact on China’s foreign trade. Stricter and more diversified environmental measures taken by foreign countries have brought about not only directly adverse impacts on the market access of China’s major export products, but also many other impacts both positive and negative. In this Chapter some conclusions from a Chinese study are briefly presented. In the appendix to this module is a more in-depth analysis of the impacts on China.  

6.3.1 Tariff barriers

Since the 1940s successive rounds of multilateral trade negotiations have contributed to the reduction in average tariff rates to low levels. However, high tariffs – tariff peaks – remain a significant problem in a number of sectors. These tariff peaks may place important limits on the benefits of the multilateral trading system. In addition to the level of the tariff, the tariff structure may impose constraints on market access. Tariff escalation

occurs if tariffs increase with successive stages of processing of the imported product. 

**Tariff escalation** may hamper the ability of countries that export unprocessed resource-based commodities to innovate and diversify their export structures through moving into greater value-added production activities. Problems with tariff escalation exist especially in agricultural products, metals, textiles and clothing, leather products, rubber products, and wood products and furniture.302

Reductions in tariff peaks and tariff escalation could have a particularly important indirect impact through their effects on market access opportunities.

### 6.3.2 Non-tariff barriers

Besides tariffs, governments can intervene in the market by using other measures, such as labelling, import bans and technical specifications. These measures can be seen as welfare enhancing even though they potentially can restrict trade. Import bans and technical specifications are used where the characteristics of products pose serious individual or collective health or safety risks whereas labelling is used only as a complementary tool. The reason is that direct regulation offers more certain and consistent specifications of safety for all consumers than labelling. A disadvantage of import bans and technical specifications, however, is that they restrict some products’ ability to access markets directly and thus limit the consumer choice and deprive buyers and sellers of trading opportunities. For these reasons, economists usually recommend the use of labelling or other information tools when regulators deal with low-risk products and consumer preferences differ widely.

#### 6.3.2.1 TECHNICAL BARRIERS TO TRADE

One important kind of non-tariff barriers are technical requirements and conformity assessment procedures, often called technical barriers to trade (TBT). For instance, when there are different and more strictly demands on imported than domestically produced goods, trade may be impeded (negatively affected). In addition, when they are insufficiently transparent, are frequently amended, and involve translation costs, additional impediments may arise.

Technical requirements may also have an adverse impact on trade when products are over regulated (i.e. when they must conform to too many requirements), when incompatible requirements are set for the same products by different countries, etc. Conformity

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assessment procedures may also do so when the same products have to be tested in different countries using different procedures; when the assessment facilities to be used are inconveniently sited and charge high fees; etc. The resource constraints of developing countries may exacerbate these problems.

Furthermore, technical requirements and conformity assessment procedures impose “compliance costs” on business. They include both the costs of achieving compliance and the costs of demonstrating compliance through established conformity assessment procedures.”

In general, all compliance costs can act as obstacles to trade when high. However, such costs can be made particularly high for developing countries in the absence of the required technology or the necessary human resources for compliance. Also, SMEs may be unable to foresee such high compliance costs due to their limited financial resources, and recurring ones when they cannot achieve economies of scale.

Within the WTO system, the TBT Agreement has binding disciplines on the development and application of standards, technical regulations and conformity assessment procedures. These disciplines seek to ensure that the measures that member countries apply do not create unnecessary barriers to trade. In order to keep potentially adverse effects of technical barriers on trade at a minimum, the TBT Agreement states that members shall ensure that technical regulations are not applied to complicate international trade. The TBT Agreement also encourages the harmonisation of national technical regulations based on international standards (see module 2).

Developing countries tend to be "standard-takers" rather than "standard-setters", which means that most standards are developed by developed countries, rather than by developing countries. This concerns even products that are exclusively or primarily produced in developing countries, such as tropical beverages. As industrialisation has taken place on a greater scale in developed than in developing countries, and has been accompanied with a rise in the level of safety, health and environmental protection, standards development in these countries has out-paced the developing world.

There are two issues of particular importance: (1) the extent to which developing countries rely on standards which they do not themselves develop, with all the difficulties that such a situation could entail (such as, a lack of familiarity with the process of standardisation in export markets, with how to best comply, etc.), and (2) the limitations involved in carrying out conformity assessment activities domestically.
6.3.2.2 EXAMPLES OF NON-TARIFF BARRIERS MENTIONED BY DEVELOPING COUNTRIES

**India**, among other countries, has identified many environmental requirements that need to be addressed to improve India’s export performance. India has presented these cases to the WTO.  

In the appendix to this module is a more extensive description of the various examples mentioned by several countries. Below is a short summary of the problems mentioned.

- India mentions that regulations on dyestuffs (azodyes) affect textile and leather sectors. Standards involving the use of certain chemicals based on the ‘precautionary principle’ affect textiles in particular. The presence of formaldehyde, glyoxal and PCP residues in cotton T-shirts led to denial of market access to exporters.

- The tea-exporters in India, Philippines and Japan have been affected due to developed countries’ concerns about pesticide content. There are rules on maximum levels of pesticide contents, different for USA and European countries.

- Strict regulations in the food processing and agro-products sectors in some developed countries raise questions not only regarding viability of compliance costs but also on their environmental justification. The ban on the use of all hormones, natural and synthetic, in livestock production by the EU is an example. Arguably, the ban is pervasive, not based entirely on scientific principles and may entail trade restrictions of proportions much higher than the risks that non-fulfilment may create. India may not be affected on this account as there is little use of hormones in India, but restrictions on milk/milk products from animals not being stall-fed has led to problems in market access.

- Marine products have been facing market access barriers on account of metallic, pesticide and antibiotic content (e.g. more than 0.2 per cent of benzoic content in shrimps from India compared to 0.6 per cent from elsewhere) or handling, processing and storage regulations, (e.g. strict EU regulations on packaging, treatment systems and transport arrangements).

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304 See document WT/CTE/W/207 on the WTO web-site
305 Food safety not environmental requirement (National Board of Trade comment)
One set of regulations having cross-sectional effects concerns packaging materials, product charges, deposit-refund systems and take-back obligations. The European Packaging and Packaging Waste Directive, for example is based on the "polluter-pays-principle" a concept that may act in favour of the local producers, in addition to imposing on foreigners a cost that may not be necessary based on their local conditions. As applied today, these are perceived more as restrictive trade practices than as tools for achieving global environmental objectives.

The Philippines has had experiences of the ISO 14001 certification, adopted in the export area of semiconductors. Although voluntary, ISO has become a prerequisite for the country due to a greening of the supply chain. However, setting up an ISO 14000 environmental management system (EMS) is expensive.

Environmental measures may also affect imports. The Basel Convention is affecting the used-lead acid battery recycling industry that used to import used batteries to recover lead metal. With the ban on the import of used-lead acid batteries under the Basel Convention, the largest companies in many developing countries are forced to obtain their feedstock from the local market, thereby competing with smaller and "informal" recyclers. The operations of these smaller recyclers tend to lack environmental measures.

A number of case studies have been conducted by the OECD to determine, amongst other issues, the impact of environmental policies on the market access and competitiveness of developing countries and economies in transition. Some studies show that there is no empirical evidence to suggest that existing environmental policies have widespread effects on market access. However, effects could be more significant for some sectors and for small and medium-sized enterprises. Environmental policies may have differentiated competitiveness effects on developed and developing countries. In most cases such effects can be addressed by appropriate policies at the national, regional and international levels. The studies also indicate that account should be taken of the fact that the "compliance costs of environmental policies may become more significant in future. For example, increased efforts to avert the problem of

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306 Jha, Markandya, and Vossenaar (forthcoming publication). The countries examined include: Zimbabwe in Africa; China, India, Malaysia, the Philippines, and Thailand in Asia; Brazil, Colombia and Costa Rica in Latin America and the Caribbean; and, Poland and Turkey in other regions. Sector-focused country-case studies on leather and footwear, horticultural products, organic produce and electrical and electronic goods for a group of Asian (including China) and Central American countries can be accessed at: www.unctad.org/trade_env/test1/projects/field.htm
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climate change may have strong trade and competitiveness effects on certain sectors." One other conclusion is that environmental requirements need not act as barriers, but could open up new trade opportunities for environmentally friendly products. Compliance with foreign environmental requirements can become a driving force for sustainable development. A perhaps even more essential component is a pro-active and systematic policy approach that goes beyond trade policy and gradually overcomes capacity constraints.

Numerous examples of impediments to trade are documented in the literature, but, overall, their effects are not seen to have been significant, and it is argued that appropriate national policies could have mitigated them. (Cited in the literature, for instance, are the difficulties that India experienced in phasing out azodyes in the textiles sector in response to a new German regulation, and the high compliance costs that were involved.307)

UNCTAD indicates that Less Developed Countries (LDCs) experience particular difficulty in complying with the environmental regulations of their export markets. Packaging requirements, such as the German Packaging Ordinance of 1994, have been of concern. In addition, non-governmental organisations (NGOs) have pointed out the low environmental and labour standards in LDCs, which have created problems for some LDCs.308 UNCTAD states that:

"LDCs have in general had some difficulty in adapting to environmental and health-related standards in their export markets. Some of these standards, particularly technical regulations and sanitary standards, are consistent with WTO rules but may nevertheless entail significant costs for LDCs wishing to comply with them. It would thus be useful to examine the extent to which technical assistance provisions in the TBT Agreement and the SPS Agreement have alleviated the burden of compliance for LDCs."

It can be added that UNCTAD's new Consultative Task Force on Environmental Requirements and Market Access for Developing Countries deals with market access issues, (for more info see: www.unctad.org/trade_env/test1/projects/taskforce.htm.) Moreover, the OECD has made a lot of case studies on the development dimension of trade and environment presented in documents to the Joint Working Party on Trade and Environment (JWPTE).309 (See Appendix.)

307 Ibid. In addition, the problems experienced by the Colombian flower industry due to foreign eco labelling schemes was recently presented to both the CTBT and the CTE (G/TBT/W/60 and WT/CTE/W/76).
309 The following is based on the document COM/ENV/TD(2002)86 "The development dimension of trade and environment: Case studies on environmental requirements and market access see web-site http://www.oecd.org
6.4 WTO discussions on market access

6.4.1 Historical background

The Marrakech Decision on Trade and Environment includes a work programme of the Committee on Trade and Environment, where an examination of the environmental benefits of removing trade restrictions and distortions is one of the points being discussed.\(^{310}\)

The Singapore Ministerial Declaration drew attention to the work of the Committee in examining the scope of the complementarities between trade liberalisation, economic development and environmental protection. Discussions in the Committee have recognized the complexity of the issues involved in the relationship between trade liberalisation and the environment. At the same time, many delegations have drawn attention to the potential for a “win-win” strategy where trade reform could contribute to improvements in both trade and environmental conditions.

Paragraph 32 (i) in the Doha Development Agenda (DDA) includes mandate for further analysis of the effects on market access of environmental measures.\(^{311}\) In the Doha mandate it says that work in the CTE should include the identification of any need to clarify relevant WTO rules. The Committee shall report to the Fifth Session of the Ministerial Conference, and make recommendations, where appropriate, with respect to future action, including the desirability of negotiations.

It is evident that country specific technical assistance should be given to facilitate the participation of the WTO Members in the negotiations. Finally, notwithstanding the outcome of the current negotiations, it must be realised that even where all market access barriers are removed, competition on many markets is fierce and distribution channels not developed or inexistent. Removal of legal barriers is by no means a guarantee for export success.

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\(^{310}\) The original CTE Mandate contains four items concerning market access, namely Item 2, 3, 4 and 6 which read as following:

Item 2: "the relationship between environmental policies relevant to trade and environmental measures with significant trade effects and the provisions of the multilateral trading system"

Item 3: "the relationship between the provisions of the multilateral trading system and:

(a) charges and taxes for environmental purposes

(b) requirements for environmental purposes relating to products, including standards and technical regulations, packaging, labelling and recycling"

Item 4: "the provisions of the multilateral trading system with respect to the transparency of trade measures used for environmental purposes and environmental measures and requirements which have significant trade effects"

Item 6: "the effect of environmental measures on market access, especially in relation to developing countries, in particular to the least developed among them, and environmental benefits of removing trade restrictions and distortions"

\(^{311}\) The effect of environmental measures on market access, especially in relation to developing countries, in particular the least developed among them, and those situations in which the elimination or reduction of trade restrictions and distortions would benefit trade, the environment and development.
6.4.2 Discussions in the CTE

In the CTE discussions it was generally recognised that improved market access for developing countries' products was a key to the goal of achieving sustainable development. It was recalled that, in line with Rio Principle 11, environmental standards, objectives and priorities needed to reflect the particular environmental and developmental context to which they applied and that standards applied by some countries could be inappropriate and of unwarranted economic and social cost to others, particularly developing countries. Small and medium-sized enterprises (SMEs) were especially vulnerable in this regard.

The CTE discussed the two aspects of paragraph 32(i) separately: (1) The effect of environmental measures on market access, especially in relation to developing countries, in particular the least developed among them (the "market access aspect"); and (2) Situations in which the elimination or reduction of trade restrictions and distortions would benefit trade, the environment and development (the "sector analysis").

Protection of the environment and health are legitimate policy objectives and WTO Members have the right to set their own appropriate level of environmental protection so as to address such objectives. However, it has also been acknowledged that environmental requirements can affect exports adversely. Therefore several Members have in discussions in the CTE stressed the importance of involving developing countries in the design and development of environmental measures as a way of mitigating negative trade effects. Similarly, the facilitation of effective participation of developing countries in the early stages of the international standard-setting process is important. Furthermore, once developed, flexibility in the application of environmental measures is seen as key and several Members mentioned longer time-frames as an example of this.

A principle (but arguably too simplistic) view that the EU has taken is that such standards should not be weakened, rather that assistance needs to be given to exporters to enable them to meet these standards.

Several Members stressed that there was sufficient scope in existing WTO Agreements to ensure that environmental measures did not unduly restrict exports; the rules of the Agreement on the Application of Sanitary and Phytosanitary Measures ("SPS Agreement") and the Agreement on Technical Barriers to Trade ("TBT Agreement") were referred to in particular.

In striking the appropriate balance between safeguarding market access and protecting the environment, it was felt that there was a need to examine how environmental

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312 Rio Principle 11 reads as follows: "States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries."
measures could be designed by importing countries in a manner that was consistent with
the WTO rules, was inclusive, took into account capabilities of developing countries, and,
met the legitimate objectives of the importing country.

Several Members agreed on the need for more *analysis*, and the identification of concre
te cases regarding the effects of environmental measures on market access, particularly
on exports of products of importance to developing countries. Such analysis, particularly
if sector-specific and based on real situations, could further the understanding of the is
sues and could serve to target positive measures. In this regard, several Members referred
to relevant work undertaken by the OECD and UNCTAD.

The sector analysis has focused on agriculture, fisheries, energy and forests. Sound
management regimes and avoiding over-exploitation of natural resources enforced by
technical assistance are some of the most essential issues that have been discussed in the
CTE. In 2003, Japan presented a paper on fisheries subsidies under paragraph 32(i).

In relation to sector analysis it is worth mentioning the results from a UNEP Work
shop on Fisheries Subsidies and Sustainable Fisheries Management, where the benefits
for trade, environment and development of reduction of trade restrictions and distortions
were discussed.

### 6.4.3 Discussions in NAMA

Decisions of the procedures for negotiating tariff reductions in the sectors discussed in the
CTE have been left to the Negotiation group on Market Access (NAMA). The group has
taken up a number of technical issues about tariffs as well as non-tariff barriers (NTBs).
This has worried environmental NGOs, for example Friends of the Earth International
(FOEI) who maintain that the negotiations in NAMA could prevent countries from intro
ducing environmental regulations.

An analysis of non-tariff measures (NTMs) by FOEI found that in total 72 specific
challenges to environmental and health standards have been challenged through
NAMA. Legislation covering chemical testing, fisheries, timber and petroleum produc
tion, energy efficiency, recycling and standards in the electronics and automobile indus
tries has all been cited as "barriers to trade". For instance China and other countries have
mentioned EU policies to promote energy efficiency in household appliances, air condi
tioning units and heating, the CE Marking scheme which ensures imports comply with
the essential requirements of EU health, safety and environmental protection laws.

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313 In particular: the OECD "case studies" contained in the publication "The Development Dimension of Trade
and Environment: Case Studies on Environmental Requirements and Market Access", 19 November 2002,
314 With regard to relevant work by UNCTAD, there is more detail under paragraph 33.
315 WT/CTE/W/226
316 WT/CTE/W/236
As a comment to this analysis it is important to remember that NTBs is an important issue to address but should not be used as a vehicle to prevent/obstruct the legitimate use of environmental and health standards. Furthermore the studies mentioned earlier have shown that compliance with environmental rules often strengthens the competitiveness for exporting countries. It is often not the rules as such but the bureaucratic administration and the lack of transparency that causes the non-tariff barriers. Trade facilitation is also one of the main points in NAMA.

### 6.5 Impacts of eco-labelling on environment and trade

Labelling requirements specify the information given on a label and the presentational aspects of a label. The central function of labelling is to inform consumers to make it easier for them to choose products that comply with certain criteria. An eco-label means a certificated label for products issued by a third party for environmental purposes.

Labelling may be mandated by public authorities or provided voluntarily by producers. Government-mandated labelling requirements describe the type of information that the label must contain and the private voluntary labelling schemes refer to market-based initiatives for the optional use of a label.

To ensure that the information on the label is accurate and that the product is labelled as required, labelling regimes involve some mechanism of demonstrating compliance. The compliance systems vary, ranging from pre-market surveillance to surveillance after labelled products have been placed on the market. Certification programmes require assurance of conformity with specified criteria before the producer can use the label. Conformity assessment procedure is carried out by a competent private or public body and they exist regardless of whether the labelling program is mandatory or voluntary.

How to promote and support policies and systems for labelling that are transparent and non-discriminatory, but give incentives for a sound economic, ecological and social development is one of the main tasks for the CTE in co-operation with the TBT Committee.

#### 6.5.1 Impacts on environment

Labelling can be used to stimulate behaviour change. Through eco-labelling schemes consumers can be motivated to buy and manufacturers to supply products with more environmentally friendly materials. Thereby well-designed eco-labelling schemes/programmes can be an effective instrument for the development of an environmentally conscious consumer public. Chapter IV of Agenda 21 encouraged the expansion of environmental labelling and other environmentally related product information programmes designed to assist consumers in making informed purchasing decisions.
Unfortunately, there are very few studies of the environmental effects of labelling. One study, however, is an assessment of the Nordic Swan label. This assessment found that the Nordic swan label indirectly had a positive environmental impact, through the development of criteria for procurement, and more awareness by consumers, professional buyers and producers.\footnote{For further information see Report Tema Nord 2001:521 from the Nordic Council.}

### 6.5.2 Impacts on trade

As has been mentioned above labelling is one of a range of regulatory measures that governments can use to correct market failures. If the regulations are applied discriminately, barriers to trade arise. However, barriers to trade arise also where regulations are applied equally to domestic and imported products but differ across countries. Foreign suppliers have to produce and pay for different labels and compliance procedures when labelling standards differ across national markets. These additional costs can be so high that some producers are not able to compete in the market and the trade is reduced.

An important issue is to improve the functioning of commodity markets through efficient rules of the game for the actors on the market. The question of eco-labelling is central to this concept.

Besides labelling-related costs trade is also affected by how the burden of costs is distributed along the supply chain. Passing costs to consumers in the form of higher prices at the retail level can give different trade effects than passing costs to foreign exporters in the form of lower prices paid for the imports.

On the other hand, labelling in general is also important for producers as a vehicle for marketing, promotion and competition. Individual companies have an interest in making claims for particular attributes that differentiate and promote their products. Hence, it can be an important measure for producers to obtain market access.

### 6.6 Eco-labelling and market access for developing countries

*Eco-labelling programmes* differ in their design. Some are based on the environmental aspects of the product itself. In many labelling systems in developed countries the labelling criteria are based on life-cycle criteria.\footnote{That means that they take into consideration the environmental effects of products all the way through their production process until their final disposal.}

It is the latter category that causes most concerns among developing countries since also non-product-related *production and processing methods (PPMs)* are included. They argue that eco-labelling awarded on the basis of non-product-related production and processing methods means that the environmental concerns of importing countries are effec-
tively imposed on their trading partners. This criticism is especially relevant for mandatory eco-labelling. However, it may apply also to voluntary labelling since exporters may have little choice other than to adapt their production methods to requirements included in such labelling schemes.

Yet, from the WTO legal standpoint, the disciplines on voluntary labelling are less demanding than the corresponding disciplines on mandatory labelling. In turn, this may invite misuse of voluntary labelling for protectionist purposes.

Such systems are difficult for developing countries to comply with. Different kinds of capacity building and technical assistance have been suggested to make it possible for developing countries to produce in an environmentally friendly way. For instance UNCTAD has initiated special capacity-building activities such as the CBTF.320

On the other hand many developing countries have environmentally friendly production processes even if not certified according to criteria in developed countries. They might have comparative advantage of their products, particularly, environmentally friendly products, and could increase their share in environmentally conscious markets.

India has in its submission to the WTO 321 suggested that, to truly achieve the objective of sustainable development, environmental requirements should be flexible. Today, products from other countries are unable to satisfy the environmental requirements of the importing country for various reasons, although they are equally environmentally friendly. Products that achieve similar or greater environmental objectives in the exporting country should not be subjected to the environmental requirements in the importing country, even though they do not conform to the environmental requirements of the importing country. The importing countries need to show this flexibility into the design of environmental measures. Flexible adjustments could be provided, for example, to the environmental standards in the exporting countries, which are equivalent in effect with the environmental standards in importing country, though the standards themselves may be different. The effect would be to achieve the environmental objectives, as well as mitigate the negative effects on the market access of exporting countries and promote environmentally friendly products.

India has in another report to the CTE 322 mentioned that in addition to mandatory environmental requirements, voluntary measures affecting market access of Indian products have also been studied. The most extensively studied voluntary measure is eco-labelling. Costs of compliance with eco-labelling criteria in the textile and leather sectors

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320 UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and development. (see http://www.unep-unctad.org/cbtf)
321 WT/CTE/W/207 (see http://www.wto.org)
322 WT/CTE/W/177
have been found to be prohibitive, compounded by difficulties in accessing technologies, developing testing facilities and verifying compliance. For example, the costs of compliance with eco-label schemes by Indian footwear exporters may be 33 per cent of the export price. Emerging voluntary arrangements may also need to be analysed for their market access impact.

India has had an eco-label in place for approximately ten years, but it has rarely been used by industry. The Philippines is currently developing an eco-labelling program, starting with ozone-depleting substances (appliances and chemical processing) and energy efficiency ratings (appliances). As the eco-labelling program progresses, it is likely that imports will have to deal with this new market requirement.

A description and analysis of the Chinese eco-labelling system is presented in the appendices to this module. It also mentions that six key sectors, including electronic and electrical applicants, agriculture, forestry, textile, construction materials and automobiles, have been selected to measure their economic, social and environmental impacts of eco-labels. The detailed impacts for each sector are described in the appendices.

6.6.1 Examples of traditionally environmentally friendly production

Environmental requirements are applied to address local as well as global environmental problems. With respect to global environmental problems, the regulations should be internationally agreed through multilateral environment agreements, such as for example requirements under Montreal Protocol.

In the case of local environmental problems, it is necessary to incorporate in the standards the uniqueness of the environmental conditions in each country, with reference to the Rio Principle 11: “Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to others, in particular developing countries.”

Eco-packaging requirement are being imposed in a number of developed countries to reduce packaging or to make existing packaging more environmentally sound. These include changes of the packaging materials being used, recycled content provisions, deposit-refund systems and take-back obligations. These requirements are being imposed to reduce packaging waste. Jute is a common packaging material in India and South Asia. Jute, being biodegradable, is one of the most environmentally-sound packaging
materials. It also provides employment to large populations in India and Bangladesh who are employed in farming and processing of jute. However, exports with jute packaging are not able to meet the packaging requirements in developed countries because these requirements are not designed keeping jute as the packaging material in mind. Jute despite being an environmentally sustainable product fails to comply with developed country environmental requirements. The requirements of recycling and take-back obligations should not be applied for jute packaging, which is biodegradable and is not produced from the cutting of forests.

There are a number of environmental requirements in developed countries relating to restrictions on the use of tropical timber because of concerns about deforestation. These requirements include regulations for cardboard boxes having a certain recycled content. Packaging materials made from wood taken from sustainable forestry or plantations, despite not having a recycled content, could be considered to be equally environmentally friendly, and should be exempt from such requirements.

Traditional farming practices, which rely on rain-fed irrigation or dry-land farming without using chemical fertilisers and pesticides, are quite common amongst small, resource-poor farmers in large under-developed parts of India, as well as other developing countries. Such food products, made with traditional practices, however, find it difficult to get organically produced certification or meet the high standards in developed countries because of requirements for documentation, certification, traceability, etc. Food products produced by resource-poor farmers through traditional, sustainable practices fail to find market access in developed countries due to the multiple requirements of conformity assessment. There is a need to recognise local certification, which can certify farmers using traditional practices, without imposing onerous conditions on them.  

6.7 WTO rules relevant to eco-labelling

Eco-labelling has been one of the more controversial aspects of the working programme of the WTO Committee on Trade and Environment (CTE). The CTE recognizes that well designed eco-labelling programmes can be effective market instruments to foster environmental awareness amongst consumers. At the same time, these programmes raise some concerns about their possible trade effects and their potential of becoming a disguised restriction on international trade, especially among developing countries.

There is no agreement in the WTO on eco-labelling as such. This does not mean that the use of eco-labels fall outside the jurisprudence of the WTO. Several agreements and

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325 A Report on Market access for organic agriculture products from developing countries; analysis of the EC Regulation (2092/91) has been made by the National Board of Trade (dnr 100-422-2003), see http://www.kommers.se
provisions may apply, but which ones depend very much on the details of each individual labelling programme.

The agreement that is most directly applicable to eco-labelling issues is the Agreement on Technical Barriers to Trade (TBT Agreement). Labelling requirements are explicitly included in the term ‘technical regulation’ and are defined in the TBT Agreement. Labelling with which compliance is not mandatory is included in the definition of ‘standard’ in the TBT Agreement.

It should also be noted that the preamble of the TBT Agreement refers to “protection of the environment” as one legitimate policy objective.

There are no pronouncements from the WTO dispute settlement bodies on whether labelling requirements based on non-product-related PPMs violates GATT Article III:4. However, several panels in the past have pronounced that the term “like products” refers to characteristics of goods, but not to PPMs. In other words, two products that are “like” apart from their PPMs must be granted equal treatment.

The traditional interpretation of “like products” has been questioned by the Appellate Body in the “Shrimp-Turtle” dispute – a ruling that may have opened a door for using non-product-related PPMs to distinguish between products.

Eco-labelling programmes that are inconsistent with GATT Article III:4 may under certain conditions be excused under the general exceptions defined by GATT Article XX. Paragraphs (b) and (g) of GATT Article XX are designed to allow WTO members to adopt policy measures that would normally be inconsistent with GATT, when “necessary” to protect human, animal or plant life or health (which together can be taken to mean “environment”), or if related to the conservation of exhaustible natural resources.

An analysis of the WTO Dispute settlement practice has been made by UNCTAD. According to this study there has been some evolution in the interpretation of the necessity requirement of Article XX (b) – protection of human, animal or plant life or health – and (d) – securing compliance with laws or regulations that are not inconsistent with the provisions of the GATT 1994. The interpretation has evolved from a least trade-restrictive approach to a less trade-restrictive one, supplemented with a proportionality test (i.e., a process of weighing and balancing a series of factors).

326 Annex 1.1 “document that lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.”

327 Annex 1.2 “document approved by a recognised body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.”

328 See, e.g., the WTO-panel 1996 “Japan- Taxes on Alcoholic Beverages”.


330 For further analysis of WTO Disputes see module 2
An example mentioned in the study is that the recent shrimp-turtle case suggests two conclusions on the extraterritorial application of environmental regulation. First, such application is permissible if it is implemented in the context of an international agreement such as an MEA. Second, such measures need to be applied in a transparent, predictable and uniform way to all WTO members.\footnote{331}

6.7.1 Debate in the WTO

Compared with import bans and technical specifications labelling can be viewed as a less intrusive form of government regulation. This does not necessarily mean that labelling causes less interference in trade than the other regulatory policies. Most eco-labels are based on voluntary requirements, including supply-chain requirements in the market. Their advocates are not part of WTO debate and their requirements are outside WTO disciplines. Even so they often have great impacts on trade and competition. How to deal with such voluntary life-cycle-based eco-labels has been one of the main issues in the debate in the Committee on Trade and Environment (CTE) in the WTO.

Impacts of labelling on market access have been discussed both in the CTE and in the TBT Committee. There is much evidence that also labelling can create trade friction. For instance the process of obtaining a label may be more difficult for foreign producers if compliance procedures are stricter. Also adjustments that labelling schemes require suppliers to make may go beyond producing and paying for the label.

6.7.1.1 THE COMMITTEE ON TRADE AND ENVIRONMENT (CTE)

The major part of the CTE’s work so far under item 3 \footnote{332} has involved examination and analysis of voluntary eco-labelling schemes/programmes, including those based on life cycle approaches, and their relationship to WTO provisions and to the Agreement on Technical Barriers to Trade (TBT) in particular. The CTE stresses the importance of WTO Members following the provisions of the TBT Agreement and its Code of Good Practice, including those on transparency. In this context, the CTE underlines the particular importance of ensuring fair access of foreign producers to eco-labelling schemes/programmes.

Some members have argued that the wide scope of eco-labelling systems and standards used by developed countries were acting as market access barriers, particularly for small and medium enterprises in developing and least-developed countries. Other delegations insisted that studies had been conducted that showed that eco-labelling schemes had no significant impact on market access, but instead could advance national environmental

\footnote{331} WTO document WT/CTE/W/203 of 8 March 2002
\footnote{332} Item 3: "the relationship between the provisions of the multilateral trading system and:
(b) requirements for environmental purposes relating to products, including standards and technical regulations, packaging, labelling and recycling"
regulation also in developing countries. Concrete examples of eco-labelling programmes and their impact on trade were discussed.

Increased transparency can help deal with trade concerns regarding eco-labelling schemes/programmes while it can also help to meet environmental objectives by providing accurate and comprehensive information to consumers. The CTE felt that an important starting point for WTO Members to address some of the trade concerns raised over eco-labelling schemes/programmes is to discuss how to ensure adequate transparency in their preparation, adoption and application, including affording opportunities for participation in their preparation by interested parties from other countries.

6.7.1.2 THE TBT COMMITTEE

Questions about labelling in general are discussed in the TBT Committee. In the Second Triennial Review of the Operation and Implementation of the TBT Agreement (N346A1R1EN) it was pointed out that it would be useful to have a clearer guidance on the level of product information necessary for the consumer. The triennial review should consider the development of multilateral guidelines on labelling to lower the risk of trade restrictive regulation.

Members have very specific obligations in the TBT Agreement concerning transparency. Whether a measure is voluntary or mandatory, governments and private standardising bodies are obliged to provide public notice of a proposed standard, technical regulation or conformity assessment procedure. They also have to take comments from interested parties into account before adopting a final measure. In addition, when members develop or modify mandatory measures that may affect trade, they must notify the proposed measure to the WTO Secretariat for distribution to other members. When the measures are voluntary, notification is made pursuant to the Code of Good Practice through publication of a work programme. Finally, members should maintain an information clearing-house for inquiries related to their technical barriers.

The comments given by interested parties are treated in meetings of the TBT Committee and during these meetings a number of labelling-related notifications filed from 1995 through 2001 have been discussed. The most questioned matter has been the necessity and the justification of a labelling measure. Also concerns about a labelling measure’s discriminating effect on foreign products and implementation of a labelling measure have been raised. However, labelling-related issues have arisen only four times in the WTO dispute settlement process.

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333 The transparency provisions contained in the TBT Agreement, including the Code of Good Practice for standardizing bodies contained in Annex 3 of the Agreement provide a reference point to the further work of the CTE in enhancing transparency of eco-labelling schemes/programmes.

334 Those standardizing bodies that have signed the Code of Good Practice
The two most frequently stated objectives of labelling in the notifications are consumer protection and consumer information. Nearly half of the labelling notifications mention one of the objectives as the rationale for labelling. Protection of human health and safety and prevention of deceptive practices are other frequently mentioned objectives.

Regulations on labelling cover a wide range of products, but a big majority of notifications made during 1995-2001 relate to food and agricultural products. Processed food and tobacco with agricultural products account for 58% of the notifications.

A classification system for labelling has been developed in ISO 14020 on Environmental Labels and Declarations, where three types of labels are mentioned. The type is determined by the purpose of the labelling or the product attribute addressed by the labelling standard. For nearly one third of the notified measures the main purpose of labelling is to inform about quality and composition. Quality labelling can refer to quality as a grade issue where different grades are associated with differences in the value of products as perceived by market participants. Quality can also reflect the product's more general attributes such as health or safety. Other relatively frequent measures notified are labelling standards for product use and care, labelled warnings and transport-related handling instructions.

6.8 Concluding remarks

Environmental characteristics of products and production processes are an increasing factor influencing market access, product quality and international competitiveness. Environmental measures affect market access of foreign suppliers, particularly those from developing countries. The effect, in particular, is mostly felt by SMEs in developing countries.

Developing countries (for instance India) have in the CTE and NAMA mentioned examples of environmental measures affecting market access by increasing the costs of compliance.

Environmental policies may have differentiated competitiveness effects on developed and developing countries. In most cases, however, competitiveness effects of environmental policies can be addressed by appropriate policies at the national, regional and international levels”. Case studies also indicate that account should be taken to the fact that the "compliance costs of environmental policies may become more significant in the future”.

However, there are cases where environmental policy measures create impediments to trade. Numerous examples are documented in the literature, but, overall, the effects of these measures are not seen to have been significant, and it is argued that appropriate national policies could have reduced the problems.
Concerning China, as a WTO Member, it will gradually have to comply with international environmental legislation and standard making. This is an effective path toward the elimination of trade barriers and the need to realise sustainable development. However, this calls for gradual and steady efforts. Foreign environmental measures can be used for reference in the establishment and improvement of China's environmental standard and legal systems in order to boost the adjustment and improvement of related domestic laws and regulations.

The CTE will conduct further work on all issues concerning market access with respect to developing countries and least developed countries. Such further work could involve cooperation with the TBT Committee and take into account the work of other international fora, for instance UNEP, UNCTAD, OECD, ITC and ISO, as appropriate. It is important to make a positive linkage between environmental instruments such as eco-labels, different environmental requirements on goods etc. and the possibilities of increasing market access for developing countries, without creating non-tariff barriers to trade.

6.9 For more information

Below are some examples of where to find more information for a more in-depth study of the different topics. In addition, extensive information on many topics including current discussions is available at the websites of WTO, OECD and UNCTAD (see http://www.wto.org and http://www.oecd.org and http://www.unctad.org). Information on WTO discussions on market access as well as other WTO issues could be found at Bridges weekly, an internet journal from the International Centre for Trade and Sustainable development (see http://www.ictsd.org)

**Examples of different kinds of barriers to market access**

- European Unilateralism, Environmental trade barriers and the rising threat to prosperity through trade (Monash University, The Australian APEC Study Centre, August 2003, conducted by Alan Oxley, Kristen Osborne and Lisa Marty).
WTO discussions on market access
- Trade liberalisation and the Environment: A positive Agenda for Trade reform, submission by Australia (WT/CTE/W/105), see http://www.wto.org
- The study of the effects of environmental measures on market access, communication from India (WT/CTE/W/177 and WT/CTE/W/207) see http://www.wto.org

Impacts of eco-labelling on environment and trade
- Can Labelling Policies do more harm than good? An analysis applied to environmental labelling schemes (European Journal of Law and Economics, 19:5-16, 2005)
- Report Tema Nord 2001:521 about the Nordic Swan-label (from the Nordic Council)
- Eco-labelling and the Trade-Environment Debate by Daniel Melser and Peter E. Robertson, University of New South Wales, Australia (The World Economy, vol. 28, Jan 2005).

Eco-labelling and market access for developing countries
- Chinese study on Implications of Eco-Labelling Scheme of China and possible policy recommendations for China, CCICED TFW report co-ordinated by Hu Tao.
- An overview of recent literature on the market access impact of eco-labels as well as principal environmental labels is given in WT/CTE/W/150 from the WTO Secretariat (see http://wto.org)

Eco-labelling discussions in WTO
- Contributions from the EC on labelling for environmental purposes (WT/CTE/W/225) and from Canada (WT/CTE/W/229) available at http://www.wto.org
- Internationally agreed definitions of environmental labelling within the International Organisation for standardisation (ISO) and related work (WT/CTE/W/144), available at http://www.wto.org
- Progress in environmental management systems (EMS) standardisation, statement by ISO at the regular CTE-meeting (WT/CTE/GEN/1) and reported in WT/CTE/W/114) see http://www.wto.org
7 Sustainability Impact Assessment of Trade

Key concepts: sustainability impact assessment, environmental impact assessment, strategic environmental assessment, causal chain analysis, vulnerability analysis, trade measure, sustainability indicator, target indicator, process indicator, core indicator, second-tier indicator.

7.1 Introduction

This module looks at methods for assessing the impacts of trade, and of trade negotiations. The module begins by providing an overview of impact assessment methodologies, an explanation of what sort of methodology is used in what situation, as well as a summary of how these methodologies have evolved in recent years.

Sustainability Impact Assessment (SIA) is a methodology that has been developed in recent years, to assess, in an integrated manner, the social, environmental and economic impacts of trade negotiations. The discussion of SIAs is carried out in three parts and focuses on the methodology that has been developed for the European Commission:

1. A description of the SIA methodology used by the European Commission
2. A presentation of two case studies.
3. An analysis of strengths and weaknesses of the SIA methodology and alternatives

The first part provides a summary of the methodology developed for the European Commission by C. Kirkpatrick and N. Lee. It describes the distinction between preliminary and detailed SIAs, outlines stages of the methodology and some requirements, and provides some examples of tools that are suggested for use within the method.

The second part gives an overview of two case studies that have used the SIA methodology. The overview describes the trade measures that are analysed, methodological specifications, and also presents some results from these studies.

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The third part discusses the methodology developed by C. Kirkpatrick and N. Lee, with reference to arguments of the authors themselves as well as of WWF and SEI. Some alternative approaches are also presented as a comparison. It is finally suggested that a vulnerability assessment tool, which can deal with more local and differentiated impacts, would be useful to improve SIA methodology.

### 7.2 Overview of Assessment Methodologies

In its broadest sense, impact assessment is the process of identifying the anticipated or actual impacts of a development intervention, on those social, economic and environmental factors that the intervention is designed to affect or may inadvertently affect. The assessment may take place before an intervention (ex ante) or after completion (ex post).

In this chapter we will focus on the ex ante assessment methodologies. There are several kinds of impact assessments used in society depending on scale, sector, area etc, that one wants to analyse. Some examples of impact assessment are: Environment Impact Assessment (EIA), Strategic Environment Assessment (SEA), Health Impact Assessment (HIA), Social Impact Assessment (SIA) and Sustainability Impact Assessment (SIA).

This section will present an overview of the first three of these methodologies and how they relate to each other.

#### 7.2.1 Environmental Impact Assessment

*Environmental Impact Assessment (EIA)* is a procedure for which the objective is to ensure that the environmental implications of decisions made at project level are taken into account before these decisions are made. Examples of projects for which EIAs are made are the construction and building of motorways, factories, airports and dams. The first formalised, mandatory system for environmental assessment on project level came into operation in the USA in 1970. At the EU-level a Directive on EIA was introduced in 1985 (85/337/EEC) and amended in 1997. The EIA Directive outlines which project categories shall be made subject to an EIA, which procedures shall be followed and the content of the assessment.

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336 Colin Kirkpatrick is professor of development economics and director of the Impact research centre at the University of Manchester. Norman Lee BSc (Econ), PhD - is an Honorary Senior Research Fellow of the EIA Centre in the University of Manchester. He was until September 1996, Co-Director of the EIA Centre and Senior Lecturer in the School of Economic Studies.

337 A definition of EIA made by IAIA (International Association for Impact Assessment) also include other effects than environmental: “The process of identifying, predicting, evaluating and mitigating the biophysical, social and other relevant effects of development proposals prior to major decisions being taken and commitments made”. 
EIA has certain limitations, for example, when considering alternatives and non-project measures, and when evaluating cumulative impacts. These limitations can be overcome by using strategic environmental assessments earlier in the planning and decision-making process. For example, at a project level the alternative to a plan for a specific motorway is in general, not to build the motorway or to modify the design or choose an alternative route for the motorway. At the strategic level other alternatives may be taken into consideration, such as the development of the public transportation and the organisation of housing, working and shopping areas in a way that minimises the need for road transportation. Another limitation of the EIA methodology is that health effects are seldom addressed. Of course health is the focus of a health impact assessment (HIA) (see below).

### 7.2.2 Strategic Environmental Assessment

Whereas EIA is an assessment of decisions taken at the project level, Strategic Environmental Assessment (SEA) looks at the impacts of decisions taken in the form of proposed plans and policies. SEA is a process designed to ensure that significant environmental effects arising from proposed plans, programmes or policies are identified, assessed, mitigated, subjected to public participation, taken into account by decision-makers, and monitored. SEA sets the framework for future assessment of development projects some of which require Environmental Impact Assessment (EIA). The origins of a formalised system are the same as for EIA (see below). And already in the mid 1970s Australia and New Zealand had legislations regarding environmental assessment of plans and policies. Although, some SEAs were conducted also by the European Commission during the second half of the 1970s the development of SEA has been much slower than EIA and only a small amount of SEAs had worldwide been conducted until the mid 1990s.

The UN/ECE Protocol on SEA includes the policy level (as well as plans and programmes) while the EU Directive 20001/41/EC “on the assessment of the effects of certain plans and programmes on the environment” only include plans and programmes. Besides that there are no big differences between the UN Protocol and the EU Directive.

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338 It's a protocol to the convention on environmental impact assessment in a trans-boundary context, often referred as the Espoo convention. It was adopted in Kiev 2003.
The Directive came into force in 2004. It aims “to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promote sustainable development...”. Plans and programmes that according to the Directive should be subject to SEAs are those which are:

1. subject to preparation and/or adoption by an authority (…) and
2. which are required by legislative, regulatory or administrative provision and
3. which are likely to have significant effects on the environment.

There are several important aspects of the directive of which four are stressed here:

1. The word “environment” should be understood in a broad sense and include issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage and the interrelationship between these issues.

2. Consultation of the public and stakeholders should be made during several stages of the process. The public/stakeholder should not only be able to express their opinions but the result of the consultation should also be taken into account when preparing the environmental report and when the decision is made.

3. The environmental report should identify and evaluate not only the likely significant effects on the environment of implementing the plan and programme but also identify, describe and evaluate reasonable alternatives taking into account the objectives and geographical scope of the plan or programme.

4. In principal all significant environmental effect should be monitored. That includes positive, adverse, foreseen and unforeseen ones. One purpose of monitoring is to enable the planning authority to undertake appropriate remedial action if monitoring reveals adverse effects on the environment that have not be considered in the environment assessment.

339 Consultation with authorities is also needed as well as with other countries when the plan or programme is likely to have significant environmental effect in an other country.
Five important stages in the EU SEA process are

1. **Screening**
Scoping is the essential first stage when it is determined if an assessment is needed and should be done or not.

2. **Scoping**
In the scoping stage the likely extent (geographic, temporal and thematic) and level of detail for the assessment and the information to be included in the SEA and the environment report is determined. Scoping involves: 1) Setting the environmental context and establishing the relevant baseline information, 2) Identifying environmental problems and protection objectives, 3) Proposing SEA objectives and indicators, 4) Identifying reasonable plan alternatives, 5) Consultation.

3. **Assessing and analysing**
During the assessing stage one predicts and evaluates effects and identifies mitigation measures. There are many tools available and it is important to choose the most suitable tool for each kind of effect that should by analysed.

4. **Environmental report**
The SEA directive requires that an environmental report is prepared as part of the SEA of a plan or programme. Annex I of the directive specifies the information that has to be included in the report. See also point 3 above.

5. **Monitoring**
The SEA directive requires that the significant environmental effects of a plan or program identified in the SEA process is monitored (see point 4 above).

7.2.3 **Health Impact Assessment**
Health impact assessment (HIA) has been defined as a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population. It aims to identify what potential changes in health determinants might result from a new policy, programme or project and to inform the decision-makers and effected populations about the health impacts.

The World Health Organization (WHO) has for many years promoted HIA as a method to be used in the political decision-making process. The European Centre for Health Policy (ECHP), was set up in 1999 to promote HIA in sectors outside the health sector. The stages and techniques in HIA process are the same or similar to the ones that are used in the EIA and SEA process.
7.3 Sustainability Impact Assessment (SIA) - Methodology

In order to assist with the development of European negotiating positions related to the post-Doha agenda, the European Commission undertook to support further work on sustainability impact assessment (SIA) methodology and to undertake a series of sectoral impact studies of trade liberalisation scenarios. The work on the methodology was carried out by C. Kirkpatrick and N. Lee from the University of Manchester, who had also been working on previous SIA studies for the Commission. It was intended that this methodology development should take into account earlier comments by the European Commission, civil society and other stakeholders and be situated in the current academic debate. It was also required that the development of the SIA methodology, should involve interactions with stakeholders and experts and development of a network of experts. A summary of this SIA methodology is attempted here.

7.3.1 The distinction between preliminary and final SIA

The requirement that the SIA methodology should cover several phases of the negotiation process results in three SIAs within the methodology:

1. A preliminary global SIA
2. A set of sectoral assessments of individual measures
3. A final global SIA (a comprehensive SIA of all agreements).

The preliminary global SIA considers all sectoral measures that are proposed, and gives an overview of potential impacts on sustainability, including impacts arising from inter-sectoral linkages. The preliminary global SIA guides the selection of sectoral assessments. The final global SIA considers sectoral and inter-sectoral impacts, giving an assessment of the totality.

Although practically difficult, "the scheduling of the SIA process for each trade measure should ideally correlate with the scheduling of its negotiation". Some suggestions are made how to work around the problems, but this part of the methodology is not set out in detail.

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341 Ibid.
342 Ibid., pp. 9-10.
343 Ibid., p. 11
7.3.2 The stages of the method for full SIAs
The method involves four stages:
1. Screening and scoping update
2. A detailed assessment of proposed measures
3. An assessment of alternative mitigation and enhancing measure
4. Monitoring and post-evaluation proposals

7.3.2.1 Screening and Scoping
The purpose of the screening and scoping update is to create the terms of references for the SIA. The screening and scoping is done by a simplified causal chain analysis (CCA), see section 7.3.3.2. for a description of this method. In the screening and scoping processes the following aspects should be specified for a preliminary global SIA:

- The components of trade measures that should be assessed in detail
- The scenario/negotiation outcome for trade measures/components
- The time scale for impacts
- The countries or country groupings (where impacts occur)
- The significance criteria for impacts
- The cumulative impacts that should be assessed
- Methods, data sources, sustainability indicators, consultations

The screening and scoping update should also specify the mitigation and enhancing measures that will later be assessed. The range of measures that are relevant include:

- Trade related measures that possibly could be part of a WTO agreement
- Related agreements
- Agreements about the relationship between trade and other international agreements
- Technical cooperation and capacity building (in developing countries) initiatives
- National policies that may hinder the ability of trade measures to promote sustainability

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344 Ibid.
345 Ibid., pp. 11-12.
7.3.2.2 THE DETAILED ASSESSMENT

The purpose of the detailed assessment is to analyse impacts of specific components of trade measures as well as of trade measures on sustainability (including long term impacts) and to look at variations of impacts within country groupings. Detailed assessments are to be undertaken for both sectoral and global assessments. The detailed assessment is done through CCA and by the use of sustainability indicators. The methods and data sets used are case specific; requirements of assessment needs, appropriate assessment methods, and quality data. A decision tree analysis guides the choice of methods and data sets.\textsuperscript{347}

7.3.2.3 ASSESSMENT OF ALTERNATIVE MITIGATION AND ENHANCING MEASURES

The purpose of the assessment of alternative mitigation and enhancing measures is to come up with a set of the most cost-effective, feasible and effective measures to mitigate negative sustainability impacts (or enhance positive ones) of trade measures. How then are these measures identified? Apart from the scoping stage described above, the CCA developed in the detailed sectoral assessments is also used. By looking at this causal chain, it is possible to suggest where mitigation and enhancing measures could be introduced. Then the following criteria are used to assess the impact of these very measures on sustainability: their economic, social and environmental consequences (as expressed by the sustainability indicators); cost-effectiveness; the existing political, institutional and financial capacity to implement them. Since these measures are meant to change the outcome of trade measures on sustainability, they give rise to a modified scenario for the detailed assessment. \textsuperscript{348}

7.3.2.4 MONITORING AND POST EVALUATION PROPOSALS

Monitoring and post evaluation proposals should provide for: monitoring implementation of the agreed measures; monitoring and ex post evaluation of sustainability impacts; comparing the impacts predicted with actual impacts; recommending additional mitigation and enhancing measures, improvements in SIA methodology and use; and recommendations relating to implementation problems. The monitoring and post-evaluation proposals should be focused on particular impacts, should be independent and transparent, be published at regular intervals and engage stakeholders. Proposals should be made for the sector specific SIAs and then, building on these, one for the global SIA. \textsuperscript{349}

\textsuperscript{347} Ibid. p. 13.
\textsuperscript{348} Ibid., p. 16.
\textsuperscript{349} Ibid., p. 17-18.
7.3.3 Tools for use in the SIA - the types and some examples

Several different tools are proposed for use in the SIA. These include checklists, assessment methods, data sources and consultation arrangements.

7.3.3.1 CHECKLISTS

Checklists are an aid to get going and to define the scope of the assessment. Some examples of checklists are given below.

One checklist is which trade measures are to be the subject of the SIA. The negotiation agenda of the WTO Doha Ministerial Declaration Work Programme provides a base checklist to start from. However, to do the actual assessment of the sectoral impacts, more detailed checklists are needed which include specific components of trade measures. The initial checklist which is provided in the Kirkpatrick and Lee methodology, i.e. the negotiation agenda, is shown below:

- implementation-related issues and concerns
- agriculture
- services
- market access for non-agricultural products
- trade-related aspects of intellectual property rights
- relationship between trade and investment
- interaction between trade and competition policy
- transparency in government procurement
- trade facilitation
- WTO rules
- trade and environment

Another important checklist is sustainability indicators. This list includes indicators which taken together: are limited in total number but cover the goals of sustainable development; provide a balanced coverage of economic/social/ ecological factors; cover equity concerns; focus on the main concerns of decision-makers and stakeholders.

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350 Ibid. p. 19-29.
351 Ibid., p. 19.
352 Both within and between generations. As the second tier indicators are formulated these concern "income distribution; gender; other disadvantaged age-related groups (young, old); indigenous peoples, ethnic minorities" (Kirkpatrick and Lee 2002:24).
There are different categories of indicators. **Target indicators** are of the final impacts of trade measures on the goals of sustainable development. **Process indicators** are "used to assess the changes in, or impact on(...)sustainable development characteristics ".

For both target and process indicators there are **core** and **second-tier indicators**, of which the latter are case-specific. The core indicators provided by the Kirkpatrick and Lee methodology are: real income, fixed capital formation and employment as economic core indicators; poverty, health and education and equity as social core indicators; biodiversity, environmental quality and natural resource stocks as environmental core indicators; consistency with principles of sustainable development and institutional capacities to implement sustainable development strategies, as core process indicators. The actual measure to be used depend on the availability and quality of data, and some sources of data are provided as a guide. Significance criteria for the indicators is another checklist, where it is specified how to assess the significance of a change in an indicator.

### 7.3.3.2 ASSESSMENT METHODS

A central assessment method is that of the causal chain analysis (CCA). The CCA distinguishes significant from non-significant cause-effect links in a causal chain. Significance criteria are set out (consistent with the significance criteria for assessing changes in the sustainability indicators) and by using these criteria, it is possible to limit a larger set of conceivable causal connections to a smaller set. The CCA is used together with other methods that are needed to perform parts of the CCA. The causal chain in this particular methodology is that of the effects of trade measures on the goals of sustainability.

Kirkpatrick and Lee raise the question of whether the CCA method they propose can be used to analyse not only tariff reductions but also other types of changes, such as changes in rules. They suggest that this should be done, but that the "pattern" of the causal chain is likely to differ, as well as the use of the other assessment methods that fill the CCA (e.g. use of quantitative or qualitative data, use of formal modelling).

In a later application of the SIA methodology, the CCA is set in the following simplified context of other factors (also causally linked) quoted below:

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353 These characteristics are in turn "key procedures, processes and practices which are needed to progress towards the long-term goals of sustainable development" (Kirkpatrick and Lee 2002: 23).
355 Ibid., p. 28
356 Ibid., pp. 31-32. See also these pages for some concrete substantive examples of casual connections between a trade measure and economic, social, and environmental impacts captured by the sustainability indicators.
357 Ibid., p. 32.
Figure 2: The use of causal chain assessment in the SIA process
From C. George and C. Kirkpatrick (2004) p. 446

7.3.3.3 DATA
The use of data will differ depending on availability and the assessment method used. Some kinds of data are hard to combine, which may constrain the possibility to combine assessment methods in the SIA. Some different kinds of data are: historical time-series quantitative data (modelling), qualitative data often involving participation (case studies), cross-sectoral or time-series quantitative data (statistical estimation methods to test for significance of relationships/causal links).  

7.3.3.4 CONSULTATION ARRANGEMENTS
Consultation arrangements are meant to collect both expert and lay (public participation) opinions. They can take place at different stages of the assessment process. One suggestion is to collect opinions at the screening and scoping update stage to "facilitate an open and transparent process" in the selection of sectors.  

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360 Ibid., p. 43.
7.4 SIA Case Studies

A number of studies have been made using more or less fully or in alteration the Kirkpatrick and Lee method that was summarised in 7.3. This section presents parts of two such case studies by describing the trade measures analysed, the main methodological specifications (as the Kirkpatrick and Lee method leaves many details open), and their main findings. Both case studies are concerned with WTO negotiations and the latter with liberalisation scenarios that are conceivable under the Doha agenda. For the latter case study, it has also been the intention to present country cases and sectors which are relevant to the Chinese trade situation.

7.4.1 SIA of WTO negotiations in the major food crops sector

The study presented here is Sustainability Impact Assessment of WTO Negotiations in the Major Food Crops Sector.

Commissioned by the EU Commission, Stockholm Environment Institute (SEI) conducted a SIA at the sectoral level using the methodology described above. This SIA considers liberalisation in the wheat/wheat flour and edible oil crops sectors for three liberalisation scenarios and for the EU, the US, Australia, Argentina, Indonesia, Malaysia, Egypt, Senegal, and India.

7.4.1.1 TRADE MEASURES ANALYSED

The SIA concerns the possible changes in tariff, minimum market access and domestic support and export subsidies. There are three scenarios for how these trade measures may change, apart from the baseline scenario (which assumes the full implementation of the URAA). The changes to trade measures look as follows, quoted below, in the scenarios:

<table>
<thead>
<tr>
<th></th>
<th>Baseline UR</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tariff</td>
<td>-36%</td>
<td>-10%</td>
<td>-30%</td>
<td>-50%</td>
</tr>
<tr>
<td>Minimum (market) access</td>
<td>5%</td>
<td>+2.5%</td>
<td>+5%</td>
<td>+7.5%</td>
</tr>
<tr>
<td>Domestic support (AMS)</td>
<td>-20%</td>
<td>-10%</td>
<td>-20%</td>
<td>-30%</td>
</tr>
<tr>
<td>Exp. Subsidies</td>
<td>-21% volume</td>
<td>-10%</td>
<td>-20%</td>
<td>-30%</td>
</tr>
</tbody>
</table>

+/-% changes are related to the final UR agreement


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362 Ibid.
363 Ibid., p. 10.
7.4.1.2 MAIN METHODOLOGICAL SPECIFICATIONS

One methodological addition is a conceptual framework to organize information. The conceptual framework is not a replacement for the CCA, but the larger picture of imaginable causal connections. Apart from this, the study is based on expert interpretation and available data and modelling results. Below is the conceptual framework that is put forth and used in the assessment:

![Conceptual Framework](image)

*Figure 3: Conceptual Framework for SIA of Trade Negotiations in the Agricultural Sector*

Another methodological addition in that each case study departs from a description of sustainability conditions in order to direct the assessment.

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364 Ibid., p. 8
365 Ibid., p. 8
366 Ibid., p. 8
7.4.1.3 MAIN FINDINGS

This SIA provides in total 24 sets of sustainability outcomes - yielded by three scenarios each for eight country cases. The results are presented in matrix format in the SIA and are quoted below, for the three groups net food importing developing countries, net food exporting developing countries and net food exporting developed countries respectively. 0, 1 and 2 here stand for non-significant, lesser and greater significant impact respectively, and + and - refer to desirability of impacts. +/- means that the desirability may change over time. A, B, and C are for economic, social, and environmental impacts respectively. The impacts considered are very close to the core indicators suggested in the Kirkpatrick and Lee method.

Table 13: Impacts of Trade-Related Agriculture Measures in the WTO

<table>
<thead>
<tr>
<th>Impact on</th>
<th>Significant Impacts</th>
<th>Baseline Scenario</th>
<th>Intermediate Scenario</th>
<th>Liberalisation Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>Senegal</td>
<td>0/-1</td>
<td>0/-1</td>
<td>0</td>
<td>-1</td>
</tr>
<tr>
<td>Egypt</td>
<td>0/-1</td>
<td>0/-1</td>
<td>0</td>
<td>-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact on</th>
<th>Significant Impacts</th>
<th>Baseline Scenario</th>
<th>Intermediate Scenario</th>
<th>Liberalisation Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Econ</td>
<td>Soc</td>
<td>Env</td>
<td>Econ</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+1</td>
</tr>
<tr>
<td>India</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>±1</td>
</tr>
<tr>
<td>Argentina</td>
<td>+1</td>
<td>0</td>
<td>0</td>
<td>+1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact on</th>
<th>Significant Impacts</th>
<th>Baseline Scenario</th>
<th>Intermediate Scenario</th>
<th>Liberalisation Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Econ</td>
<td>Soc</td>
<td>Env</td>
<td>Econ</td>
</tr>
<tr>
<td>Australia</td>
<td>0/+1</td>
<td>0</td>
<td>0/-1</td>
<td>+1</td>
</tr>
<tr>
<td>USA</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+1</td>
</tr>
<tr>
<td>EU</td>
<td>-1</td>
<td>0</td>
<td>-1</td>
<td>±1</td>
</tr>
</tbody>
</table>

From SEI (2002), pp. 149-150

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367 Ibid., p. 63
368 More exactly, they are here: changes in level of average real income; net fixed capital formation; employment (economic); changes in level of equity and poverty, health and education, gender inequality (social); changes in air, water and land quality, biological diversity, air resource stocks (environmental).
369 Ibid., pp. 149-150.
One methodological "finding" from the study is the sector specific indicators listed the table below.

**Table 14: Suggested Indicators for Different Impact Categories**

<table>
<thead>
<tr>
<th>Impact Category</th>
<th>Suggested indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economic</strong></td>
<td></td>
</tr>
<tr>
<td>Economic performance</td>
<td>Agricultural GDP as % of total GDP</td>
</tr>
<tr>
<td>Budgetary pressures</td>
<td>Budgetary expenditure as % of GDP</td>
</tr>
<tr>
<td>Productivity</td>
<td>Agricultural GDP/employee</td>
</tr>
<tr>
<td>Aggregate income effects</td>
<td>Employment and income levels in the sector</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td></td>
</tr>
<tr>
<td>Food security</td>
<td>Average daily per capita calorie supply (kilocalories)</td>
</tr>
<tr>
<td>Poverty</td>
<td>Share of farmers below poverty line</td>
</tr>
<tr>
<td>Gender</td>
<td>Women’s engagement in the sector as a % of total female employment</td>
</tr>
<tr>
<td>Population migration</td>
<td>Urbanisation rates</td>
</tr>
<tr>
<td>Social conflict</td>
<td>No. of protests and petitions (agricultural related)</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td></td>
</tr>
<tr>
<td>Soil quality</td>
<td>Average annual fertilizer use in kg/ha</td>
</tr>
<tr>
<td>Deforestation</td>
<td>Forest cover as % of total area and % changes</td>
</tr>
<tr>
<td>Marginal land appr / idling</td>
<td>Agricultural and forest land conversion rates % change</td>
</tr>
<tr>
<td>Rural landscape change</td>
<td>Different landscape types in ha and % changes</td>
</tr>
<tr>
<td>Depletion of water resources</td>
<td>Annual water withdrawals as % of water resources</td>
</tr>
<tr>
<td>Water quality</td>
<td>Access to safe drinking water % of population</td>
</tr>
</tbody>
</table>

From SEI (2002) p. 156. \(^{370}\)

\(^{370}\) Ibid., p. 156
7.4.2 SIA of Proposed WTO Negotiations, Market Access - Textiles

The study that is partly presented here is “Sustainability Impact Assessment of Proposed WTO Negotiations, Market Access with Particular Reference to Pharmaceuticals, Non-Ferrous Metals and Textiles and Clothing”.  

7.4.2.1 TRADE MEASURES ANALYSED
This SIA considers as the liberalisation scenario a 50% tariff reduction (all countries and products). It does not consider possible changes to non-tariff barriers. It analyses potential impacts in 2010 from full implementation of such a tariff reduction. The base scenario is full implementation of the existing WTO Agreement on Textiles and Clothing, entailing removal of quotas in the period 2002-2005. Trade measures analysed are thus both tariff reductions and quota removals.  

7.4.2.2 MAIN METHODOLOGICAL SPECIFICATIONS
The CCA used starts with the trade measure change (possibly quantified) and then moves to the changes in the production system and then moves to sustainability impacts (environmental, economic, social). It considers four country groups: the EU, non-EU developing countries, developing country producers and exporters, and least developed countries. The sectors analysed are chapters 55 (manmade staple fibres) and 62 (articles of apparel and clothing, not knitted or crocheted) in the HS (Harmonised system).  

7.4.3 MAIN FINDINGS
The initial environmental, economic and social conditions or problems are briefly described. The main environmental problems related to textiles and clothing industry are solvents and pesticide use in the processing of wool and cotton and the use of dyes and bleaches (solvents are also used in some wet processes for synthetics) which can cause downstream wastewater problems. Social problems common in the industry are child labour, poor working conditions, discrimination against female workers, and minimum wage and health and safety issues. The textile industry is more capital and skill intensive than the textile industry, although compared to other manufacturing sectors, both are less intensive than the average. The clothing industry often employs low skilled female workers.  

373 Ibid.  
374 Ibid., pp. 50-51
Impacts are given for the base scenario and, much more in detail, for the liberalisation scenario. The impacts for the second group of countries, which includes China and India, in the base scenario, can be summarized as follows:

**Economic impacts**
India: India is quota constrained, a removal of quotas will increase exports and hence production. Greater effects in HS55 than in HS62 due to the fact that China will also compete.

   China: China is quota constrained, a removal of quotas will increase market shares in the EU and the US, hence increase production (especially HS62). Some textile production may move to China and the clothing industry there.

**Social impacts**
Employment increases in previously quota constrained countries, and employment decreases in previously quota protected countries.

**Environmental impacts**
Limited since there is a change in sourcing of production, not competitiveness.\(^{375}\)

The impacts of the further liberalisation scenario, particularly for developing countries, are found in Appendix 2.

**Economic impacts**
India: India has low competitiveness compared to other developing countries, and long-run competitiveness may be at risk.

   China: State owned textile firms in China may be forced to close down.\(^{376}\)

An interesting finding of the impact assessment of the further liberalisation scenario is that the social impacts of the corporate ambition to increase productivity, and hence reduce employment, will be most negative in those countries that have the least capacity to implement mitigating measures, i.e., in those countries where already today there are weak regulations and many social problems associated with the sector. It was also found that (for developed countries which are more competitive in terms of labour productivity than labour cost) increased productivity may increase the wages of skilled labour, whereas unskilled labour is most likely to lose their employment. Environmental impacts will depend on whether production increases or decreases, and on the level of environmental regulatory enforcement. It is likely that where environmental regulatory enforcement is weak, corporate strategies to compete will be based on lowering of standards, and hence environmental impacts will be aggravated.\(^{377}\)

\(^{375}\) Ibid., pp. 57-58
\(^{376}\) Ibid., p. 63
\(^{377}\) Ibid., p. 58
7.5 Strengths and weaknesses of the method and alternatives

This section considers comments on the Kirkpatrick and Lee method summarised in 7.3, the EC trade methodology upgrade, the US and Canadian government approaches, and the approaches of the North American Commission for Environmental Cooperation (CEC) and the United Nations Environment Programme (UNEP). It also considers the potential use of vulnerability analysis to improve the SIA trade method.

7.5.1 Comments on the methodology and its application

The architects of the methodology themselves point out some problems with it. One of these problems is that in "...many areas, the SIA can only identify impacts which may occur at a significant level, rather than making firm predictions". 378 This makes monitoring all the more important, in conjunction with a policy-making process which can take the results of the monitoring into account. They point out that this is difficult to create for an international negotiation process. 379 One can add here, that a similar problem, although less severe, is inherent in this type of ex-ante methodology - uncertainty arises from the fact that assessment is made before the impacts occur, and consequently takes on the character of predictions.

N. Lee and C. Kirkpatrick 380 point out that sometimes modelling results and case study results, arrived at by different methods, are contradictory.

Others have noted the shortage of reliable data and the inability to take into account informal economies in SIA methodology and application. 381

Some remarks on the SIA methodology are included in the SIA conducted by SEI in 2002. 382

- Information requirements cannot be met within existing information provision systems.
- Aggregation (local to national/international level) in the SIA methodology hides important spatial variations.

378 C. George and C. Kirkpatrick (2004), p. 467
379 Ibid., p. 467
381 CLAES, FARN, WWF and IDEA: Comments on the proposed methodology "EC sustainability impact assessment of the trade aspects of the EU-MERCOSUR association agreement - draft inception report".
• Economic modelling results should not be the sole kind of analysis and is most useful for comparative purposes.
• SIA results in matrix form need some text explaining it.
• Significance of impacts as measured by indicators is a qualitative description - it should not be expressed numerically.
• "What might be needed most are local and regional case studies that represent certain type conditions in different parts of the world".

An interesting complement to the methodological study by Kirkpatrick and Lee is that of WWF suggesting priorities in the trade negotiation and some consequent assessment needs. WWF recommends that "The social and environmental effects of domestic support measures need to be assessed and the negotiations directed to ensure positive outcomes from subsidy reform". 383

WWF also notes that the "...lack and limits of studies on modelling assessment suggest that further research is needed to better incorporate environmental valuation, environmental and natural resource accounting and aggregated environmental performance indicators in these models and estimate interactions between economic policy changes and environmental and social impacts". 384 How far has research progressed in this area over the last five years? Will such research be able to model these complex systems, or will such attempts be misleading?

The EC aims to publish a handbook on SIA trade methodology. The handbook is as yet in draft form, and provides both an overview of studies undertaken so far and suggestions for how to work with the methodology. The Draft handbook is available at http://trade-info.cec.eu.int/doclib/html/122363.htm and included in Annex 1 to this material.

7.5.2 Alternative methodologies
7.5.2.1 US GOVERNMENT

In 1999 the President of the USA issued an executive order on the environmental review of trade agreements. 385 The main differences between this and the Kirkpatrick and Lee methodology is that the former is restricted to environmental and economic impacts whe-

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383 WWF 1999a: Directing WTO Negotiations Towards Sustainable Agriculture and Rural Development. A WWF Discussion paper, p. 3.
reas the latter also assesses social impacts; that the former is only exceptionally con-
cerned with global impacts of trade agreements (i.e. the focus is on environmental im-
pacts in the US); that the former requires public participation at several stages of the as-
sessment process; that the former also includes assessment of the impacts on environ-
mental laws and regulations. Similarities are that both consider enhancement and mitiga-
tion measures; that both start with the economic effects of trade agreements to then look
at environmental impacts; and that both propose the use of different sets of methods de-
pending on the trade agreement that should be analysed. 386

7.5.2.2 CEC/NAFTA
Yet another approach is that of the CEC 387. This methodology is devoted do a specific
trade agreement - the North American Free Trade Agreement (NAFTA). It is similar to
the US approach as it only focus on the economic and environmental effects. It uses a
somewhat broader causal framework than these other approaches, by looking at the ef-
facts of changes in trade and investment not just on the economy (and the environmental
effects) but more specifically on: production, management and technology; physical in-
frastucture; social organization (of organizations that work for the environment) and
government policy. The approach is issue or sector specific and furthermore restricts its
assessment of impacts to the geographic region of NAFTA countries 388.

7.5.2.3 CANADIAN GOVERNMENT
The Canadian government approach is similar to the Kirkpatrick and Lee methodology in
that it: is devised to be applied to a number of different trade measures within WTO ne-
gotiations and also other trade negotiations; works through economic effects to significant
environmental effects; looks at the impacts due to the interplay between the set of trade
measures adopted; includes a series of assessments (initial, draft, final); and includes
enhancement and mitigation. The main differences are that the Canadian government
approach does not consider social effects and that the Canadian government approach has
more detailed requirements for public participation than the Kirkpatrick and Lee method-
ology has. 389

386 Guidelines for Implementation of Executive Order 13141: 
Retrieved 2005-08-25 from http://frwebgate5.access.gpo.gov/cgi- 
bini/waisgate.cgi?WAISdocID=960686411142+0+0+0&WAISaction=retrieve
latytical Framework (Phase II) and Issue Studies. Environmental Trade Series. Montréal, Canada. Retrieved
388 Ibid.
389 Department for Foreign Affairs and International Trade (2001): Framework for Conducting an Envi-
ac/documents/FinalFramework-e.pdf
UNEP proposes and uses a methodology to assess the impacts of trade liberalization that is different from the one Kirkpatrick and Lee mainly by its more narrow scope on a specific country and sometimes on a specific issue. Such assessments have been made on the fisheries sector in Argentina, the cotton sector in China, the banana sector in Ecuador, the export corp sector in Nigeria, the fisheries sector in Senegal and the forestry sector in Argentina.  

Like the Kirkpatrick and Lee methodology, it involves several stages. UNEP itself succinctly sets out the stages for an application to the cotton sector in China, as quoted below:

*First*, the possible impacts of trade liberalization on cotton production in China after joining the WTO will be studied. Specifically, a suitably adapted version of our existing JAPA model (Jiangsu Agricultural Policy Analysis) will be used to make a baseline projection on the situation in 2002, which will provide a comparative basis; then a scenario analysis on the impact of agricultural imports increase will be made with the JAPA model.

*Second*, the model scenario analysis results of agricultural imports increase will then be used to assess the social, economic and environmental impacts of trade liberalization. For this, the relationship between the level of cotton production and the use of inputs such as chemical fertilizers and pesticides under existing methods of production will be estimated.

*Third*, an integrated assessment is applied in the study. For this purpose it is necessary to make an economic valuation of the social and environmental impacts.

*Fourth*, a cost-benefit analysis is conducted to assess the social, economic and environmental impacts of trade liberalization.

*Fifth*, based on the above cost-benefit analysis and scopes of implementation, a specific policy package will be recommended.  

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7.5.2.5 VULNERABILITY ASSESSMENT - A COMPLEMENT

A vulnerability assessment (VA) can complement the SIA methodology by assessing how generally identified impacts, risks or hazards understood at a macro level, such as the regional or national levels, may affect specific groups in different ways. Such an assessment captures differential impacts on different groups in society, and is also able to deal with impacts at different scales, from the household to the regional scale. 392

A major commonality of the SIA methodology and VA is the concern with causal chains. Vulnerability analysis is a part of risk analysis, which builds on elaborate causal chains. 393 It could be possible to conceive of the change in trade measure as a hazard, and trace the potential risk, and in so doing, the vulnerabilities which are part of the many factors that determine the risk.

Vulnerability can be defined as the degree to which an exposure unit is susceptible to harm due to exposure to a perturbation or stress, and the ability (or lack thereof) of the exposure unit, for example a social group, to cope, recover, or adapt. 394 Vulnerability results from a combination of processes that shape the degrees of exposure to a hazard, sensitivity to its stress and impacts, and resilience in the face of those effects. Vulnerability is a characteristic of all people, systems, and regions confronting environmental, social or economic stresses and, although the level of vulnerability varies widely. It is generally higher among poorer people.

The SEI study on the major foods crops sector identified significant social impacts on net food exporting developing countries, demonstrating the value of vulnerability assessment (see further below):

Social impact results were somewhat more ambiguous for net exporting developing countries. In Indonesia this result is due to clear conflicts between social groups associated with the palm oil sector. An ambiguous result is thus due to some social groups gaining while others, particularly forest dwelling indigenous groups, incur negative impacts. In all three cases it is also suggested that vulnerable groups

392 In the field of impact assessment there is an increased awareness of the need to go beyond a consideration of the impacts of particular interventions and changes to also examine the mechanisms that facilitate or constrain a system’s ability to cope, adapt or recover from various stresses. Vulnerability assessments aim to not only identify which systems are more at risk of being affected by stresses but also to understand why impacts are differentiated. This differentiation may be due to social factors (such as gender, ethnicity, education), economic factors (such as livelihoods, diversity of income sources, debt, access to credit), political factors (level of participation in decision making, institutional responsiveness), and environmental factors (such as quality of natural resource base, level biodiversity).
394 Kasperson et. al. 2000
especially small-scale farmers and the rural poor in general may be negatively affected by liberalisation. These negative impacts may be more severe in the liberalisation scenario due to problems in adjusting to more significant economic changes. Specific causal links were more difficult to establish in the Argentina and Indian cases. India in particular demonstrates a great deal of diversity between regions, although the potential for negative gender impacts is clear.  

The implication of this is the need to further identify, quantify and understand the nature of the impacts on these different social groups in order to identify negotiating positions and/or mitigation measures.

A VA may addresses the following questions:

- Who and what are the exposure units? (e.g., specific sectors, social groups such as women, geographic regions)
- Where are the vulnerable?
- What hazards and stresses are they exposed to? (e.g., economic risks, natural hazards)
- What are the specific reasons for their vulnerability? (e.g. dependence on particular resources or income generating activities)
- How resilient are the exposure units to current stresses? (e.g., institutional capacity, absorption capacity of ecosystems)
- What would be the consequences of exposure to stresses? (e.g., loss of assets, loss of livelihoods, unemployment, loss of life, decline in social capital)
- What has been the impact of historical episodes or comparable events?
- What indicators capture current and future vulnerability under the proposed scenarios?
- What potential responses can be pursued to reduce vulnerability? (e.g., operational, strategic, policy/regulatory)

SEI (2002), pp. 149-150.
Further conclusions from the above SEI study concern the issue of linkages between analyses conducted at different scales (see further below):

Future SIAs need to bridge the gap between macro-level policy analysis at the national and international levels that is taking place in mainstream economic modelling exercises, and micro-level sustainability analysis at the local levels that is taking place in anthropological and ecological research and project impact studies. Specific national and sub-national information is needed. Baseline sustainability conditions vary spatially between and within regions, and impacts of agricultural practices also vary spatially. With detailed models of land areas, production and natural resource conditions, and social conditions it would be possible to predict environmental and social impacts in a more ambitious way.

An immediate problem here is the gap between the need for information and the availability or capabilities to deliver such information. For the foreseeable future, this will not be resolved even with rather well resourced studies. This has implications for the methodology as well as immediate policy implications for the negotiations in so far as generic policies implemented that are not fitted to local conditions will have many different and unintended side effects. In any case, the diversity on economic, social and environmental conditions not only between countries but also within countries calls into questioning the usefulness of broad analyses. What might be needed most are local and regional case studies that represent type conditions in different parts of the world. 396

When undertaking VAs, as with other assessments, it is important to identify the appropriate tools according to the purpose of the assessment and scale of analysis. In Appendix 3 a more detailed description and evaluation of VA and various tools is provided, outlining the use of: vulnerability indicators and mapping; the livelihood sensitivity approach; scenarios; syndromes and integrated vulnerability mode; and agent based models. 397

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7.6 Concluding Remarks

The SIA trade methodology developed by Kirkpatrick and Lee provides a rich framework to systematise and analyse the impacts of trade measures on economic, environmental and social concerns. The suggestion of a set of sustainability indicators also allows comparison of future results of such assessments.

Compared to the other SIA trade methodologies discussed here, only the UNEP one has the same broad thematic scope - economic, social and environmental.

The application of the SIA methodology as developed by C. Kirkpatrick and N. Lee for the Commission has now produced assessments of the possible impacts of trade liberalisation on economic, social, and environmental conditions for many countries that export and/or import on the international market. Greater attention in the future to local conditions may further improve the specificity of the results.

UNEP states that the aim of their assessments is to "maximize the net gains of trade and trade liberalization, by enabling countries to implement integrated policies which minimize associated environmental damages". The degree to which enhancement and mitigation policies can achieve this is partly dependent on the quality of the information the assessment can provide.

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7.7 For more information

Listed below are a number of websites where further information can be found on the trade assessment approaches mentioned in this module:

**EC Commission**
- Sustainability Impact Assessment of Proposed WTO Multilateral Trade Negotiations http://www.sia-trade.org/wto/

**North American Commission for Environmental Co-operation**

**Canadian Government**

**UNEP, UNECE and WHO**
- www.europa.eu.int/comm/environment/eia/
- www.who.int/hia/en/

**International Association for Impact Assessment (IAIA)**
- www.iaia.org/eialist.html
8 Environmental Impacts of China’s Accession to the WTO

8.1 Introduction

China’s accession to the WTO has been the most important recent development in trade policy—for China and for the WTO as a whole. The impact on China’s economy has been profound. While it is not possible to precisely measure the contribution of WTO accession to the continued growth and transformation of China’s economy, this event has come to symbolize the determination of China’s leadership to pursue its economic course into the future.

Because of the numerous commitments undertaken in the accession process, the consequences of WTO accession have been felt throughout China’s economy. They have probably been stronger and more widespread than those experienced by any country following the conclusion of trade negotiations, including the impact of the Uruguay Round. Moreover, the impacts have been fairly predictable whereas trade agreements typically involve a degree of ambiguity that renders the prediction of economic outcomes much more difficult in practice than is suggested by trade theory.

The environmental impacts of China’s WTO accession have also been profound. They have been particularly pronounced in six sectors: agriculture, forestry, marine aquaculture, automobiles, energy and textiles. These are among the most important sectors in China’s economy and are also significant in environmental terms. In view of their importance, the Task Force on WTO and Environment (TFWE) of the China Council for International Cooperation on Environment and Development has undertaken environmental impact assessments for each of these sectors.

These studies represent the most comprehensive assessment of the environmental consequences of trade liberalization policies undertaken by any country to date.

The environmental impacts of China’s WTO accession fall into the three major categories that were first identified by the Organization for Economic Cooperation and Development (OECD): scale effects, composition effects and technology effects.

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399 This information presented in this module is the result of a project undertaken by the Task Force on WTO and Environment of China Council for International Cooperation on Environment and Development (CCICED), supported by Switzerland’s Ministry of Economy.

400 The Doha Ministerial Declaration states in its Preamble: “We strongly reaffirm our commitment to the objective of sustainable development, as stated in the Preamble to the Marrakesh Agreement. We are convinced that the aims of upholding and safeguarding an open and non-discriminatory multilateral trading system, and acting for the protection of the environment and the promotion of sustainable development can and must be mutually supportive. We take note of the efforts by Members to conduct national environmental assessments of trade policies on a voluntary basis.”
**Scale effects** are the result of growth processes in the economy. They are particularly noticeable in the industrial sectors that can expand production rapidly as long as the necessary inputs are available: natural resources, skilled labour and know-how. This expansion must be accompanied by measured, but determined, policies to ensure environmental quality. Moreover rapidly expanding industries are also involved in large amounts of new investment, a process that creates the possibility of ensuring less environmentally harmful production processes. In most instances, however, this outcome can be assured only through properly crafted public policies.

**Composition effects** can be observed when liberalization leads to the expansion of some economic activities while others contract. These phenomena can be observed within agriculture and, to some extent, in forestry. The result is structural economic change through which the composition of an economy is transformed. The environmental challenges of expansion are largely comparable to the challenges of growth. It is the challenges of contraction that represent the most important difficulty in addressing environmental issues, since branches of economic activity that are contracting are often characterized by: low rates of economic returns for those who remain in the activity; low rates of investment; limited innovation; and slow rates of recruitment of new employees who may also bring new ideas and skills. Yet the environmental problems of contracting economic activities are real, in particular when insufficient measures had been adopted in the past to ensure environmental quality.

**Technology effects** are largely attributable to the impulses for innovation associated with a more open economy. This may occur through the importation of new technologies from outside the country, in particular through investment, or it may be the result of domestic responses to increased competition owing to liberalization. In all instances it is important to ensure that as technological innovation occurs it also takes into account the environmental dimension. In general, newer technologies should always be less environmentally harmful than older ones, although this is not invariably the case.

It is clear that WTO accession has brought significant new challenges for environmental management in China. But it also brings opportunities that need to be grasped through appropriate policy responses.
8.2 Impacts by Sector

8.2.1 Agriculture

Changes in agricultural production are largely attributable to WTO accession since the Uruguay Round Agreement on Agriculture has not produced significant change. Changes in agriculture are very sensitive socially and environmentally and, consequently, of overriding concern from the perspective of sustainable development.

Since WTO accession, China’s agriculture trade has continued to grow. In the first half of 2004, the country exported US$10.62 billion of farm produce, an increase of 10.7 per cent over the same period last year. However, its imports of agricultural products soared unexpectedly by 62.5 per cent than the same time in 2003. This is the first time ever that China’s agriculture trade has had a deficit US$ 3.73 billion. In particular in wheat trade, China was still a net exporter of wheat in the first half of last year, but its imports exceeded its exports by the end of June.

Compared to other countries, China has a shortage of farmland and water for its agriculture production. China, with 22 per cent of the world’s population, has only seven per cent of world farmland and one quarter of world average water resources per capita. In international markets, obviously China’s comparative advantage is in labour and its disadvantages are in land, water and other natural resources. Hence, after accession to the WTO, China’s land- and water-intensive agriculture products, such as wheat, corn and rice, will shrink gradually; and labour-intensive products, like horticulture products, temperate climate fruits, vegetables and livestock products, will expand. Consequently, non-point source pollution by chemical application for wheat, corn and rice will shift to point source pollution by chemicals used for horticulture, fruits, vegetables, poultry and others. Also after joining the WTO, considering more and more workers will move to manufacturing and service sectors and that there will be increasingly strict international environmental requirement, the total amount of chemicals used will decrease compared with the baseline scenario. Figure 4 shows the amount of chemical used and grain production in recent years.

Figure 4: Chemical use and grain production, 1980–2002
After joining the WTO, another profound impact is the environmental pressure on farmland. More grains could be imported from other countries while implementing the Grain for Green program.

The biggest environmental challenge facing policy-makers with respect to changes, that are anticipated in agricultural practices and production, concerns the need to internalize environmental costs. This is a task that most countries find daunting, since farmers, like all producers of commodities, are essentially price-takers and consequently have limited ability to recover from the market additional costs they may incur for environmental protection, in particular if competitors do not face the same costs. Moreover, agriculture is an activity that occurs in the environment and depends on the environment for all of its most important inputs. Traditionally, farmers have not been asked to make payments for these inputs, even when their use caused significant environmental degradation, for example downstream or through impacts on biodiversity. The introduction of payments for environmental services is resisted by farmers everywhere and is often only possible when issues of scarcity arise.

It is important to recognize that not all measures designed to internalize environmental costs result in increased production costs. For example the elimination of subsidies for pesticides and fertilizers will reduce over-use, which is often wide-spread and damages the environment. Elimination of such subsidies can result in improved crops, better environmental conditions and reduced costs. Policy-makers need to focus on opportunities for measures that internalize environmental costs and increase economic efficiency, even though such measures are frequently resisted because they involve changes in established practices, the need to learn new techniques and may be perceived as hiding additional risks that farmers are unwilling to accept.

The introduction of measures for cost internalization that increase production costs can only be achieved over a longer period of time with a consistent policy approach and with appropriate measures to support the necessary changes and to cushion the potential economic impact without negating the environmental benefits. This has generally been the approach favoured by developed countries, where producers have received payments that are increasingly tied to the respect of certain environmental conditions. The shift in public policy from taxing agriculture to supporting it represents an initial appropriate response to the changes in agriculture that have been triggered by WTO accession.

This policy shift must be accomplished in a manner that is consistent with WTO rules. The “Green Box” under the Agreement on Agriculture provides a significant degree of flexibility in fashioning rural policies that involve a focus on environment and sustainable development by providing support to farmers’ incomes, rural communities and the environment.

WTO accession will bring an increase in agricultural trade between China and the rest of the world. China is likely to favour the import of resource-intensive products, such as
grains, and the export of labour-intensive products such as vegetables, fruit and poultry. There is already evidence of this process but it creates tensions with established policy priorities, particularly with the longstanding objective of achieving food self-sufficiency. The risks of dependence on international markets are evident and China will move cautiously in this area to ensure stable supplies, to provide buffer stocks and to guarantee a level of domestic production that meets its needs for food security. As a result, China is likely to explore all the options provided by the WTO Agreement on Agriculture and will take a proactive stance on the relevant issues in the ongoing Doha Round negotiations.

There are opportunities for the export of “green food,” products that meet international standards for reduced inputs and improved environmental stewardship. The markets for these products currently offer prices that often more than offset any additional cost, in particular when these costs are based on higher inputs of labour, where China enjoys a comparative advantage. The problem is that these markets are particularly difficult to access since few agreed international standards exist. The result is a complex and costly system of accreditation that generally requires a producer-by-producer approach.

The concern for standards that may have the effect of excluding Chinese products from important markets goes well beyond the area of “green food” and organic standards. Both sanitary and phytosanitary standards and technical standards have been of concern to Chinese agricultural producers in recent years. Many of these standards require substantive changes to products and to the ways in which they are produced. They are often difficult to meet by exporters, and questions have been raised concerning their necessity and appropriateness. It is frequently difficult for producers to obtain information about such standards in a timely manner so that rejections that may occur at the border of the importing country can have severe consequences for them. Rejections were typically based on findings of high amounts of pesticide or veterinary drug residue. In addition, accreditation and verification have proven problematic, leaving producers with a difficult choice between expensive foreign inspection and acceptance of their inability to export to certain markets.

8.2.2 Forestry

China’s changed policies on the replanting of forests and timber extraction, combined with the opening to trade associated with WTO accession, have caused a dramatic shift in the patterns of timber production, trade and use. China is now one of the biggest importers of logs and timber and an exporter of wood products such as furniture. Unless it takes effective measures, China may face a challenge in securing reliable timber supply as well as the reputational risks associated with promoting markets in unsustainably produced or illegally harvested timber.
High domestic economic growth, newly implemented massive forest conservation programs since 1998 and WTO entry together have prompted drastic growth in forest products imports by China (Fig. 5).

Figure 5: Chinese timber import forecast up to year 2010.

Increased imports of timber have helped China alleviate environmental pressures on forests. Meanwhile, WTO entry helps China to upgrade equipment and technology in the forest industry and raise wood utilization efficiency. It will also bring increased investments, both public fiscal investment and foreign investment. Increased investment will lead to improved forest management and a better scope for the ecological functions of China’s forests.

The overall impact of China’s WTO accession on the forest industry will be positive, particularly in combination with vigorous measures for forest protection. Possible negative impacts may be anticipated from increased emissions from the wood processing industry, unless these are effectively controlled, and the risk of alien invasive species introduced by increased trade and growing tourism. These could have a major ecological impact.

Increased forest trade in timber products associated with China’s WTO Membership will have global implications as well. The increase in Chinese timber import volume has been dramatic. This has led to concerns about the environmental impacts of China’s growing timber import. China’s timber import has been mostly from countries or regions that do not practice systematic forest stewardship, such as Indonesia, Myanmar, Cambodia, Papua New Guinea, the Solomon Islands, the Congo basin or the Russian Far East.

Exporting timber can generate negative environmental impacts in these countries whose forests are not being well managed. Rapid deforestation has taken place in some of these countries, especially Indonesia, Malaysia and Myanmar.
Not all countries that have increased timber exports to China have, however, experienced a significant reduction in forest resources. Countries such as Russia, Canada, Germany and Cuba have seen little change in their forest resources, while countries such as the United States and New Zealand have actually had an increase. The key is forest management. If a country is pursuing good forestry practice domestically, exporting timber may actually reinforce sustainable forest management and encourage investment in forestry.

There is also the problem of illegal trade in relation to China’s timber imports. Illegal timber logging and trade are destructive behaviours that not only damage forests, but also bring serious negative social and economic impacts. The illegal timber trade can result in loss of jobs and the impoverishment of forest-dependent communities.

There is no doubt that China will continue to import timber and other wood products, most likely from its existing major timber trading partners. China may face accusations of exerting excessive pressure on global forest resources, and the reputational risks associated with using unsustainably produced or illegally harvested timber.

Meanwhile, advanced western developed countries are major exporters of processed wood products, and importers of labour-intensive products such as furniture from China. They have the capacity to assume a greater role in addressing the environmental consequences of the global forest products trade. China and western developed countries should join hands to promote sustainable forest management and to avoid ecological damage in timber supply countries.

The combined changes in domestic forestry policies and timber trade resulting from WTO accession will require close monitoring of forests and forestry policies to ensure that the overall outcomes are desirable. This review should include not only domestic policies and conditions but also import and export policies and forests in other countries that are liable to be impacted.

China levies no tariffs on unprocessed timber, but imposes rising (escalating) tariffs on furniture and other finished goods produced from wood. The impacts of such escalating tariffs, which are used primarily by developed countries, are well known. They shift processing from the country where timber is extracted to the consuming country. In the case of China, the shift is primarily one of processing since China’s comparative advantage in the processing stage of the product chain is so pronounced that it can overcome escalating tariffs that may exist in major developed countries.

If China reduces escalating tariffs, it will help improve the ability of timber producing countries to sustainably manage their resources. There is of course no certainty that such a change will enable the producing country to undertake more processing, nor that additional revenue generated by such processing will in fact support better forest management. While most countries from which China obtains timber have labour costs that are comparable to those of China, few are able to achieve the same efficiency gains as China. Moreover, additional revenues will only be made available for sustainable timber production if appropriate policies are in place in those countries to ensure that result. Conse-
quently these are issues that cannot be addressed unilaterally—by China or by producing countries—but require the development of a shared approach to the issue of sustainable forest management.

At present, there is no institutional structure that can accommodate China’s evolving forest management needs in relation to timber trade. As China’s relation-ships with major forest producer countries develop, it will need to identify appropriate institutional venues to address these matters.

China faces similar challenges in the export trade in wood products. This trade is almost entirely composed of processed wood and manufactured products, since China has largely banned the export of domestic timber. The partners in this phase of the product chain are mostly different countries than those that produce raw materials, and the issues and institutions are liable to be different.

There is an opportunity for China to actively cooperate with western developed countries that are the major importers of furniture and processed timber products. The major issues that require consideration concern third party independent certification of timber imports. The primary concern is to ensure that the entire forest product chain is managed in a sustainable manner, reaching from the production of lumber through transport, processing, manufacture, sale, use and disposal. Consequently the two sides of this activity—the relationship with timber producing countries on the one hand and with countries that consume wood products on the other—are in fact closely related. China will not be able to ensure that its products are produced with sustainably managed timber without developing appropriate relationships with producer countries; and it will not be able to recover any additional costs associated with sustainable management of the wood products chain without maintaining the required relationships with consuming countries.

8.2.3 Aquaculture

WTO accession has brought a dramatic expansion in aquaculture exports, which are currently about as large as net agriculture imports. These exports are threatened by product quality issues, in particular as a result of “red tide” that appears to be caused by land-based pollution.

The expansion of aquaculture along China’s coast appears to have caught many unaware. The remarkable volume of exports is largely attributable to the general shift towards more labour-intensive products, and the fact that this counterbalances the imports of other foodsstuffs should give the Chinese authorities added confidence with regard to food security issues. Yet it is vital to ensure that product quality is maintained, and this is in large measure a matter of protection of the marine environment, the primary production re-source.
Major environmental problems of expansion of marine aquaculture include nutrient pollution, chemical pollution (from veterinary products, disinfectants and antiseptics), substrate eutrophication and red tide.

Estimates of the discharge of nitrogen and phosphate shows that the total discharge of these two chemicals is likely to keep rising. However, the discharge of N and P may drop steadily with regulatory and technological efforts. The decrease in average level is largely attributed to the improvement of technology, which results in higher feed efficiency and cuts down on solid wastes.

Overall, economic and environmental benefits that China gets from the development of the marine aquaculture sector will outweigh its adverse impacts on the environment, in particular if appropriate policies are put into place.

Regulations and standards for products and production process are gaining importance in regulating international trade of aquatic products. The key factor in expanding China’s aquatic exports lies in building up a healthy and ecological farming mode and providing clean, sanitary and safe products. In this sense, the requirements imposed by major importers concerning product quality, safety and sanitary conditions against China’s aquatic exports create powerful incentives to adopt needed policies that will result in better products and a better marine environment.

The control of coastal waters is a notoriously difficult task, largely because of jurisdictional complexities in combination with challenging environmental dynamics. Land-based pollution is the principal cause of degraded marine environments that impact aquaculture, and aquaculture itself can contribute to local pollution events. The benefits of controlling land-based pollution are numerous, since this also always improves environmental conditions at the source of the pollution. The difficulties that are typically encountered when reducing land-based pollution are related to the fact that the requirements of the marine environment may dictate more aggressive pollution control measures than those implied by efforts to protect the local environment, for example river quality. Pollutants are typically carried away by rivers but they tend to accumulate in coastal waters and wetlands, the very environment in which much aquaculture is practiced. Protection of the marine environment will contribute to making the aquaculture sector more competitive internationally and preserving existing markets.

Meanwhile, the traditional support policies should be changed. Implementing integrated economic policies will promote marine aquaculture development and environmental protection. There is a need to support an optimal breeding structure and a rational development mode, in order to best use all kinds of resources through cyclical reuse of wastes generated within the rearing system. This will minimize waste discharge and achieve satisfactory breeding effects and economic profits, while attaining environmental benefits.

Aquaculture producers frequently have insufficient information concerning market requirements in other countries. This also requires an effective network so as to provide
information concerning import requirements and trends of assessment of China’s major trading partners, and to keep enterprises informed about relevant developments in the aquaculture sector. Enterprises need technical support concerning new technical requirements that may form barriers to trade and in the formulation of preventive countermeasures so as to avoid blindness and losses in trading.

There exists an urgent need for cooperation in the development of relevant international standards for aquaculture products and for the quality of marine waters that support aquaculture. This is an area in which China could take an active leadership role.

### 8.2.4 Automobiles

The impact of WTO accession on China’s automobile market is dramatic and lasting. Reduced prices for automobiles produce a very large consumer surplus, which contributes to increased demand for other goods. From an economic perspective, benefits in this sector as the result of WTO accession are much greater than the costs. Despite the implementation of more stringent emission standards, the explosive increase in the number of cars enhances risks of greatly increased vehicle emission.

With the growth of the economy and the increase of per capita GDP, consumer purchasing power for automobiles is on the rise. After China’s entry into the WTO, reduced tariffs and duties on automobiles and increased foreign direct investment caused the retail prices of cars to drop substantially, further enhancing purchasing power. The production and sale of automobiles in China will rocket for at least a decade to come.

WTO accession also creates powerful incentives to improve production efficiency and to initiate desirable structural changes in the automobile sector, leading to an increase in quality.

The falling price produces a huge consumer surplus. In 2003, the average price cut of cars was as 9.06 per cent. If the average price for cars was 150,000 yuan, the price cut would be 13,600 each. The total gain by consumers then was 27 billion. By 2005, further price cuts are expected to take place and the consumer surplus could be as high as over 50 billion yuan.

The WTO scenario analysis shows that CO and NOx, the major sources of pollution from automobiles in cities, will increase along with the number of cars. However, emissions of CO are reduced owing to the application of Euro I to all new cars in 2001 and Euro II in 2004. Nevertheless, this environmentally desirable impact was substantially offset by the increase in car numbers (Fig.6). In year 2004, the difference in emissions with and without WTO accession is halved as the number of cars sold is 160 per cent higher.

The existence of a consumer surplus, as the result of trade liberalization and foreign direct investment after WTO accession, creates a unique opportunity to protect the environment. It permits China’s authorities to reduce emission levels and to increase fuel
efficiency standards quickly, thus reducing several key impacts of automobiles on the environment. Consumers will benefit from improved product quality that is associated with most of these measures while not perceiving any increase in costs that may be occasioned by these measures because it is shielded by the overall decrease in prices.

This is, however, a transitional phenomenon. Once automobile prices stabilize at a certain level, government measures that result in costs—particularly environmental measures—will be perceived as price increases and are liable to be resisted, even when they produce secondary benefits such as improved performance or higher quality automobiles.

Figure 6: Increase of car numbers (BAU and WTO Scenario)

Motor vehicles registered before WTO accession can cause twice or even up to 10 times the pollution of newer cars. Early phase-out of old vehicles can increase the environmental capacity for more cars without increasing total emissions. The resistance to this policy may be minimal and the environmental benefits can be substantial. For those vehicles that have been phased out, no permission should be given for re-sale and re-use. They should be sent to recycling facilities. Disincentives should be provided to curb the use of luxurious cars with large engines, which require more oil and land.

From a longer-term perspective, the Chinese automobile industry faces a number of major challenges, including land vulnerability (in particular arable land); oil supply; traffic congestion; air pollution; and global environmental concerns. These are liable to be magnified by the rapid growth in the automobile market, and will be even more severe if measures are not taken now while conditions are propitious.

There are a number of challenges China is now facing to reduce future risks. The most obvious is the need to develop the system of mass transit to provide people with viable alternatives to the excessive use of automobiles. While this is an issue that is influenced by numerous considerations, many of which have little bearing on the automobile market and its environmental consequences, it is also the case that the existence of a vi-
able system of public transport is a necessary condition for controlling the manifold impacts associated with automobile use, including the environmental impacts.

Another challenge for China is to participate actively in the search for future automobile technologies. No matter what happens to the supply of fossil fuels and their impact on the environment, the automobile represents a technology that will not disappear unless it is replaced by something that is manifestly superior in key respects, including the degree of independence and individual choice offered by the automobile. At the same time it is clear that the automobile as it currently exists needs to be not only improved but also replaced in key respects that reduce its unacceptable impacts. The search for the most promising technology to accomplish this goal is now on—and China must determine what its position is with respect to this development.

Finally it will be necessary to ensure that the financing of the numerous measures that are required to address the impacts of rapid growth of the automobile market is undertaken in a manner that ensures that the polluters—in this instance the users of automobiles—pay. A range of options exist that focus on taxing automobile use or taxing the sources of pollution associated with automobile use. In particular, a levy on luxurious cars with large engines can be imposed to raise financial resources and to reduce the demand for oil and land.

8.2.5 Energy

Economic growth associated with trade liberalization has caused rapidly increasing energy demand. If adequate and appropriate policies and countermeasures are not put in place, there will be greater pressure on energy supply and environment, which will surely lead to China’s increased dependence on imported energy and the consequent responsibilities and concerns. Accession to the WTO itself could be a key factor for higher energy demand because of the possibility of more energy-intensive industry moving to China, which could also be more pressure on environment.

The scenario study shows that energy demand in China in 2020 could range from 2.29 billion tce to 3.85 billion tce depending on technological progress and energy-intensive sectoral development, etc. Such a huge energy demand will exert serious pressure on energy supply. That means even for the lowest energy demand scenario, China would need to import 230 million tons of oil, and 15.4 billion m³ of natural gas; for the high energy demand scenario, China needs to import more energy (Fig. 7 and 8).
With the income increase in rural households, the energy demand in rural areas will also increase quickly.

Given substantially increased energy production, the environmental impacts could be profound. SO₂ emission will keep increasing before 2010 with the rapid increase of coal use in China. However, China has adopted strong policy to control SO₂, assuming more and more desulfurization technologies will be used and therefore SO₂ emissions will diverge from fossil fuel use. Because of lack of policy to control NOₓ, its emissions will rise substantially. The same trend will apply for total suspended particulates (TSP) emissions.
China’s energy utilities must be prepared to operate in an increasingly international market. Although many of these utilities are not themselves exposed to international markets, the scope for arbitrage between energy resources will increase as the energy supply system is increasingly integrated, so that even producers who are entirely domestic in orientation are likely to find that prices for all forms of energy in the Chinese market will be significantly influenced by changes in international prices for key energy sources, including oil, coal and gas.

The impacts of the energy system on the environment and sustainable development are well documented. Even as China’s energy markets are increasingly integrated into international markets it has no choice but to establish the foundations of a clean energy system, covering all aspects of energy supply with particular attention to the efficiency of rural energy supply. A wide range of laws, regulations and standards needs to be developed to drive the target of a clean energy system and to make China’s energy supply system competitive internationally.

Coal will continue to play a critical role in China’s energy system. Consequently, China has a particularly pressing need for clean coal technologies. This generally involves participation in international markets for clean coal technology, a process that would be significantly enhanced if China invests its own resources in this sector and cooperates internationally to diffuse new technologies as widely as possible when they become available.

There will be a significant possibility for China to become a manufacturing centre of energy-intensive and resource-intensive products in the world because of low production costs. This trend should be controlled to prevent China from becoming a provider of raw materials and causing damage to the environment. External costs should be included in production costs to help prevent possible environmental and economic damage.

8.2.6 Textiles

Growth in textiles is driven by WTO accession and the anticipated end of the WTO textile agreement in January 2005 in accordance with the results of the Uruguay Round. It is expected that many of the additional raw materials needed by the industry will be imported.

China’s WTO accession has brought unprecedented opportunities for the development of the textile industry. The growth of the sector will be even more rapid after 2005 when the quota restriction is completely phased out (Fig.9). Taking the cotton textile sector as an example, there will be an increase in total output. As output increases, so will wastewater discharge the main source of pollution in the textile industry (Fig.10). By using 2001, the year China joined the WTO, as the baseline, the forecast shows that the total amount of wastewater discharged from the cotton textile sector will grow by up to 60 per cent by 2005 and by up to 90 per cent by 2010, if the current proportion of discharge remains
unchanged. Without WTO, the total amount of wastewater discharged from the cotton textile sector would have increased by 36.05 per cent by 2005, and by 27.38 per cent by 2010.

Figure 9 Gross Output Value of the Textile Industry after WTO Accession (hundred million Yuan)

Figure 10 Wastewater discharge of the Chinese cotton textile industry after China's WTO entry (10 thousand tons)
Without a dramatic improvement of technology, increased production will inevitably lead to increased consumption of various resources, such as energy, water, cotton, additives and dyes, etc. It is predicted that consumption of energy and water would more than double by 2010.

WTO accession will bring foreign investment and advanced technology into China at an accelerating rate. It will raise the technological level of the industry, increase production efficiency, use fewer resources and reduce pollution. Many policies have some positive environmental impacts; including increased cotton import; tightened review and approval for the establishment of new facilities; technology advancement; reinforced environmental enforcement; promotion of cleaner production; and eco-labelling, etc.

Despite potential positive environmental impacts from the prospective technology effect and composition effect, the production scale of this industry may over-ride the benefits of the above positive impacts.

There will be a notable increase in the number of small enterprises in the cotton textile sector after China’s WTO accession due to a low threshold for entry into this sector. If no adequate policies are in place and if no measures are taken, serious environmental problems will arise.

At the same time, a contraction of cotton production is anticipated, since this represents the kind of extensive agricultural activity that does not work to China’s comparative advantage, let alone correspond to the continuing concern about food security.

The most important environmental issue in relation to textile manufacturing is wastewater from processing and dyeing. The resulting wastewater is often difficult to treat, requiring a significant investment in facilities and expert operations. The study also assesses China’s wastewater treatment capacity in the industry, which indicates that capacity in the sector needs to be doubled in order to meet the wastewater treatment needs of a growing production. Policies must be adopted to ensure that all wastewater from textile production is treated. For larger producers this will entail the operation of wastewater treatment facilities on site, for pre-treatment or for full secondary treatment. Where necessary, small and medium enterprises will need to be linked to shared wastewater treatment facilities.
The approval procedures of the new textile enterprises need to be strengthened in particular by implementing rules regarding environmental impact assessment and three simultaneities (pollution control facilities should be designed, installed and put into operation simultaneously as designing, constructing and operating the main part of the project) must be strictly followed in order to increase the environmental threshold for new enterprises to enter the sector.

China is expected to be the leading producer and exporter of textiles in the world. This position entails opportunities to shape the international debate on the environmental impacts of textile production; it also entails responsibilities that fall upon the country with the largest production. China must promote technological innovation including energy efficiency, particularly in small and medium enterprises.

The textile sector is particularly sensitive to changes in product standards. WTO notification procedures do not provide adequate or timely information. China must develop its own information system on foreign standards and prepare to participate actively in the development of international standards.

**8.3 Conclusions**

After China’s WTO accession, most of the sectors considered by the TFWE have already experienced and are likely to further experience rapid growth: textiles, automobiles, energy, labour intensive agriculture and aquaculture. This growth is attributable to numerous factors, including economic growth, the development of export opportunities and foreign investment in China. Some sectors, in particular the production of resource-intensive agricultural crops and forestry, are expected to contract or at least to witness high levels of imports.

Growing and contracting sectors will experience totally different environmental consequences and will therefore need to be treated differently by the government, monitoring their development and formulating environmental policies and regulations accordingly.
8.4 Recommendations

**Agriculture:**

- Take advantage of increased trade opportunities provided by WTO accession, favour the import of resource-intensive products such as grains, which equals the import of indirect environmental benefits; encourage the export of labour-intensive products, such as vegetables, fruits and poultry and provide support for farmers to switch from resource-intensive agriculture such as wheat growing to labour-intensive agriculture such as animal husbandry and horticulture.

- Adopt measures that internalize environmental costs resulting in increased production costs. For example, eliminate subsidies for pesticides and fertilizers in order to provide incentives to avoid over-use of these chemicals, and introduce payments for environmental services. A first step in this direction would be the establishment of a joint group by relevant departments to review existing agricultural subsidies, to explore possible charges for water, ecological compensation fees, and develop appropriate policies to promote sustainable agriculture.

- Ensure the shift of public policy from taxing agriculture to supporting it is consistent with WTO rules. “Green Box” measures allow Members to provide support to farmers’ incomes, rural development and the environment. China will need to increase support to its agriculture infrastructure, rural development and agriculture-related environmental protection.

- Address the market access difficulty of Chinese agriculture exports by establishing an information mechanism to provide timely information with respect to foreign environmental requirements and test procedures of agricultural products. China needs to strengthen its own standards whenever possible, and reinforce its own inspection and quarantine practices. It should work with its trading partners to strengthen international cooperation and information exchange; participate in international standards setting and invite the consultation of foreign countries in China’s standards setting; and seek the creation of systems of equivalency and mutual recognition with important export markets.
Forestry:

- Review China’s existing forest policy. This review should include not only domestic policies and conditions, but also import and export policies and forests in other countries that are liable to be impacted.
- China should consider reducing escalating tariffs on furniture and other finished goods produced from wood so as to improve the ability of timber producing countries to sustainably manage their resources.
- Establish a semi-official international coordinating group to provide advice on illegal logging and undocumented exports. This will also create a structure that can support necessary information exchange.
- Actively cooperate with western developed countries that are the major importers of furniture and processed timber products, promoting third party independent certification of timber imports and ensure that the entire forest product chain is managed in a sustainable manner, from the production of lumber through transport, processing, manufacture, sale, use and disposal.

Aquaculture:

- Strengthen protection of the marine environment so as to contribute to making the aquaculture sector more competitive internationally and to preserve existing markets.
- Formulate and implement integrated economic policies that promote marine aquaculture development and environmental protection. Efforts should be made to support an optimal breeding structure and a rational development mode, in order to best use all kinds of resources through cyclical reuse of wastes generated within the rearing system so as to minimize waste discharge and to achieve satisfactory breeding effects and economic profits, and at the same time, to attain the best ecological benefits.
- Establish an effective network so as to provide information concerning import requirements and trends of assessment of China’s major trading partners, and to keep enterprises informed about relevant developments in the aquaculture sector, and to provide technical support with respect to new technical requirements that may form barriers to trade.
- Actively participate in the development of relevant international standards for aquaculture products and for the quality of marine waters that support aquaculture. This is an area in which China could take an active leadership role.
Automobiles:

- Grasp the opportunity of the temporary consumer surplus: collect environmental resources tax and fuel taxes from car consumers, while providing subsidies to manufacturers who adopt advanced technologies and to the consumers who engage in early replacement of outdated automobiles.
- Accelerate the introduction of more stringent emission standards.
- Speed up the phase-out of old vehicles with no permission for re-sale and re-use.
- Develop a viable system of public transport so as to provide alternatives to the excessive use of automobiles.
- Vigorously develop future automobile technologies.

Energy

- Establish a response system for the coming large energy demand and import; develop a long-term energy development strategy; and establish a system of energy supply and energy security.
- Energy conservation is essential for China to reduce the demand and to release the pressure for energy supply. Use of large amounts of fossil fuel will cause serious environmental problems. A full range of policies and measures should be developed to abate pollution.
- Technology is the key issue for clean energy and a lower energy demand future. Research and development must be emphasized. International collaboration for technology transfer and diffusion should be encouraged. Clean coal technology development should be pursued by China in cooperation with a few other interested countries.
- External costs should be included in production costs, especially for energy and resource intensive products to avoid possible environmental and economic damage.
Textiles:

- Policies must be adopted to ensure that all wastewater from textile production is treated. Where necessary, small and medium enterprises must be linked to shared wastewater treatment facilities.

- Efforts should be made to strengthen the approval procedures of the new textile enterprises, in particular the rules regarding environmental impact assessment and three simultaneities (pollution control facilities should be designed, installed and put into operation simultaneously as designing, constructing and operating the main part of the project) must be strictly followed in order to increase the environmental threshold for new enterprises to enter into this sector.

- China is expected to be the leading producer and exporter of textiles in the world. It must promote technological innovation including energy efficiency, in particular in small and medium enterprises.

- The textile sector is particularly sensitive to changes in product standards. WTO notification procedures do not provide adequate or timely information. China must develop its own information system on foreign standards and prepare to participate actively in the development of international standards.

8.4.1 Overall recommendations:

1. Develop an agricultural policy that integrates environment and sustainable development within the WTO rules

Sustainable agriculture and rural development are key issues for China. Since the economic reforms of the late 1970s, agriculture has achieved remarkable progress under China’s food self-sufficiency policy. China’s WTO accession has brought about significant changes that are socially and environmentally sensitive as well as significant to sustainable development. Many agricultural environmental problems including low efficiencies of water utilization; over-use of pesticides and fertilisers; serious water pollution through agriculture runoff; land degradation; soil erosion; the spread of invasive alien species; and loss of biodiversity are serious issues which demand solutions. Many of them are related to China’s food self-sufficiency policy, which provides low tariffs and subsidies for agricultural chemicals including fertilizers and pesticides. Environmental deterioration in rural areas not only affects the environment and human health in the country, it also affects agricultural exports. Efforts should be made to develop an agriculture policy that integrates environmental and sustainability considerations. WTO accession offers an opportunity for China to gradually shift its policy focus from food self-sufficiency to food and environmental security.
• Take advantage of increased trade opportunities provided by WTO accession, favour the import of resource-intensive products such as grains, which equals the import of indirect environmental benefits; and encourage the export of labour-intensive products, such as vegetables, fruits and poultry. Efforts should also be made to promote organic and green food production and trade development for niche markets abroad; and to provide support for farmers to switch from resource-intensive agriculture such as wheat growing to labour-intensive agriculture such as animal husbandry and horticulture.

• While making efforts to lessen the tax burden on farmers and to increase their incomes, adopt measures to internalize the environmental costs of agriculture production, including eliminating subsidies for pesticides and fertilizers which lead to the over-use of such substances and damage to the environment; and improve the collection of fees for water usage. A first step in this direction would be the establishment of a joint group by relevant departments including the State Development and Reform Commission, the Ministry of Agriculture, the Ministry of Finance, the State Environmental Protection Administration and others to review existing agricultural subsidies, to explore possible charges for water and develop appropriate policies to promote sustainable agriculture. This shift will increase costs to farmers, many of whom are already poor. It must therefore be accompanied by measures to support rural incomes, rather than the subsidization of inputs.

• China will need to increase support to its agriculture infrastructure, rural development and agriculture-related environmental protection. As a WTO Member, the government of China should ensure that measures taken to provide support to farmers’ incomes, rural communities and agriculture-related environmental protection are fully consistent with the provisions of the “Green Box.” To aid this effort, there is a need to study “Green Box” measures permitted by the WTO rules and adapt them to China’s reality in order to promote sustainable agriculture development.

• Provide necessary support to gain greater access to international markets. Many Chinese exports—such as poultry, fisheries products, tea and vegetables—possess numerous competitive advantages but increasingly encounter more stringent environmental and health standards in developed country markets. China needs to help Chinese exporters cope with the difficulties they face, through mechanisms that provide timely information with respect to foreign environmental requirements and testing procedures. It also needs to strengthen its own standards whenever possible, and reinforce its own inspection and quarantine practices to assure foreign customers that China’s food exports are safe. China
should work with its trading partners to strengthen international cooperation and information exchange; participate in international standards setting and invite the consultation of foreign countries in China’s standards setting; and, where appropriate, press for the development of mutual recognition processes whereby Chinese standards are accepted in other countries.

2. Addressing sectoral environmental challenges of WTO accession in order to maximize environmental benefits and minimize environmental risks of WTO Membership

Globalized resource allocation under the WTO will benefit some sectors of the Chinese economy, due to their differences in resource endowment and comparative advantages in the global economy. Other sectors will clearly suffer. The growth sectors will be those where China enjoys a comparative advantage such as labour-intensive agriculture, and the relatively new sectors of automobile, textiles, marine aquaculture and energy, whereas contracting or stagnating sectors will be those that China has a comparative disadvantage such as resource-intensive forestry and agriculture where land limitations are acute.

Contracting and expanding sectors will experience totally different environmental consequences and will therefore need to be treated differently by the government. This requires that the government develop environmental policies and regulations accordingly.

- In the growing sectors, the government will need to introduce more stringent environmental regulations to improve environmental quality or to improve international competitiveness. For example, the price of automobiles in China is due to drop dramatically as the terms of China’s accession require the significant reduction of duties on car imports. This provides a unique opportunity for China to implement higher emissions and fuel efficiency standards without raising automobile prices. However, this is only a transitional phenomenon. Once automobile prices stabilize at a certain level, government environmental measures that result in higher vehicle costs will be seen as price increases and are liable to be resisted. In the textile sector, more stringent environmental measures should be applied to wastewater treatment in newer facilities.

- In the contracting sectors, measures will be required to ensure these sectoral adjustments will not cause unacceptable environmental harm. The forestry sector will require close monitoring of forests and forestry policies to make the necessary adjustments whenever needed. This review should include domestic policies and conditions, as well as import and export policies and forests in
other countries liable to be impacted by dramatically increasing Chinese imports of their products.

- Adopt measures to ensure producers in export-oriented sectors have timely and reliable information on environmental requirements of the importing markets and provide technical support with respect to new technical requirements that may form barriers to trade.

3. Actively seek access to global resources while effectively managing China’s ecological footprint associated with such resource importing

Trade under WTO rules involves both (commodities such as grain, timber, crude oil, gas, minerals, etc) and processed goods such as furniture, plastics, electronics, appliances, textile, toys, etc. China’s WTO accession facilitates trade, leading to increased importing of the commodities China lacks. Such importing is instrumental to the continued growth of the Chinese economy in the new century. China will continue to actively seek and secure access to such resources on a global scale.

These increased imports will lead to an increased domestic supply of major raw materials—food and energy—fuelling the expansion of the domestic manufacturing industry. An increase in manufacturing processes may result in higher levels of air, water and noise pollution. As well, many of these imported resources are re-exported as processed goods, this may not only result in increased anti-dumping by other countries, but also create an inward shift of pollution due to lax domestic environmental regulations.

- Closely monitor the ecological footprint and environmental impacts of China’s import of commodities.
- Pursue improved demand management, e.g., establishing strategic reserves for some crucial resources such as oil and food.
- Raise environmental standards for the manufacturing of commodities that are highly polluting domestically to avoid the shifting of pollution toward China, particularly those commodities that are re-exported.
- Pursue dialogue, cooperation and green-procurement where possible (such as green forest certification) to reduce potential environmental impacts of Chinese importing on supplier countries and build the international image of China as a responsible consumer; including participation in global environmental regimes, and contribution to the Doha negotiations.
4. Promote sustainable development through trade

WTO accession means further integration of China into the world economy, and global re-allocation of productivity elements such as capital, labour, land, resources and the environment. Participating in this global re-allocation process will prompt industrial restructuring in China. In the world economy and international trade, China has a comparative advantage in labour but a disadvantage in natural resources. It should make full use of its advantage, trading its labour for natural resources. This will reduce environmental pressures China is now experiencing in its industrialization process. Efforts should be made to practice sustainable resource management (including human resources and natural resources) sustainable consumption and sustainable trade so as to promote sustainable development in China.

- Formulate Green Trade Action Plan; promote the import of resource-intensive and energy-intensive products and adopt it as one of the major import policies; promote the export of labour-intensive products, services and technology-intensive products and adopt it as one of the major export policies.

- Conduct environmental impact assessments of current import and export policies including impacts outside China; through trade development make green trade as a necessary means to promote sustainable development, accelerate the process of shifting from China’s traditional industrial structure of high consumption of natural resources and heavy pollution to a national economy that is based on human resources, energy and resource efficiency and environmentally friendly production and consumption.

- Amend the Foreign Trade Law to reflect the concept of sustainable development and ensure the implementation of a green trade policy.

- Actively participate in the Doha Round negotiations; and develop a position that reflects China’s green trade interest in the trade and environment negotiations.
Abbreviations

AB Appellate Body
ABS Access and Benefit Sharing
APEC Asia Pacific Economic Cooperation
AQIS Australian Quarantine and Inspection Service

BOTs Build-Operate-Transfer contracts

CBD Convention on Biological Diversity
CCA Causal Chain Analysis
CCICED China Council for International Cooperation on Environment and Development

CEC North American Commission for Environmental Co-operation
COP Conference of the Parties
CPC Central Product Classification
CSC Committee on Specific Commitments
CTE Committee on Trade and Environment
CTESS Special Session of Trade and Environment Committee

DDA Doha Development Agenda
DSB Dispute Settlement Body
DSM Dispute Settlement Mechanism
DSU Dispute Settlement Understanding

EIA Environmental Impact Assessment
ECC Environmental Control Costs
– measures the total costs of compliance with environmental regulation.
ECHP European Centre for Health Policy
EGS Environmental Goods and Services
EIA Environmental Impact Assessment
EKC The Environment Kuznets Curve
EMS Environmental Management System
EPA Environmental Protection Agency
EPER The European Pollutants Emissions Register
EPP Environmentally Preferable Products
EST Environmentally Sound Technology
EU European Union
EVSL Early Voluntary Sectoral Liberalisation
<table>
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<tr>
<th>Acronym</th>
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<tr>
<td>FAO</td>
<td>Food and Agriculture Organisation</td>
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<td>FDA</td>
<td>Food and Drug Administration</td>
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<td>FOEI</td>
<td>Friends of the Earth International</td>
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<td>GATS</td>
<td>General Agreement on Trade in Services</td>
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<td>GATT</td>
<td>General Agreement on Tariffs and Trade</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GMO</td>
<td>Genetically Modified Organisms</td>
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<td>ITTPGRA</td>
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<td>Like-minded Megadiverse Countries</td>
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Capacity Building on WTO and Environmental Protection

This training material has been produced as part of a capacity building project between the State Environmental Protection Administration (SEPA) of the People Republic of China and the Swedish Environmental Protection Agency (EPA). In the subject area of the WTO, Trade and the Environment.

The training package is aimed at giving course participants a comprehensive introduction to the subject of the relationship between trade and the environment.