Trade measures – a legitimate tool for environmental protection?

A comprehensive analysis and the case of India

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List of abbreviations

AB	Appellate Body
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
CERs	Certified Emission Reductions
CFCs	Chlorofluorocarbons
CITES	Convention on International Trade in Endangered Species
COP	Conference of Parties
CTE	Committee on Trade and Environment
CTESS	CTE Special Session
CVD	Counter-veiling Duty
DSB	Dispute Settlement Body
DSM	Dispute Settlement Mechanism
DSU	Dispute Settlement Understanding
EC	European Commission
EFTA	European Free Trade Association
EPA	Environmental Protection Approach
ERUs	Emission Reduction Units
ESA	Endangered Species Act
EU	European Union
FAO	Food and Agricultural Organization
FDI	Foreign Direct Investment
FTA	Free Trade Area
GATS	General Agreement on Trade in Services

GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GHE	Greenhouse Gas Emissions
GMO	Genetically Modified Organisms
HO	Heckscher-Ohlin
IET	International Emissions Trading
IMF	International Monetary Fund
IPPC	Intergovernmental Panel on Climate Change
IPR	Intellectual Property Rights
ISO	International Organization for Standardization
ITO	International Trade Organization
LDC	Less Developed Country
LMG	Like-Minded Group
MEA	Multilateral Environmental Agreement
MFN	Most Favored Nation
NAMA	Non-agricultural Market Access
NAFTA	North American Free Trade Agreement
NGO	Non-Governmental Organization
NTB	Non-Tariff Trade Barrier
ODS	Ozone-depleting Substances
OECD	Organization for Economic Cooperation and Development
POP	Persistent Organic Pollutants
PP	Precautionary Principle
PPM	Process and Production Method
PPP	Polluter Pays Principle
PTA	Preferential Trading Arrangement
R&D	Research & Development
RTA	Regional Trade Agreement

SPS	Sanitary and Phytosanitary
STOs	Special Trade Obligations
SMEs	Small and Medium Enterprises
TBT	Technical Barriers to Trade
TED	Turtle Excluder Device
TRIPS	Trade-related Aspects of Intellectual Property Rights
UN	United Nations
UNCED	UN Conference on Environment and Development
UNCTAD	UN Conference on Trade and Development
UNEP	UN Environment Program
UNDP	UN Development Program
UNFCC	UN Framework Convention on Climate Change
US	The United States of America
VER	Voluntary Export Restraint
WTO	World Trade Organization

Introduction

In the past decades the WTO has been in the focus of increased protests: On the one hand, developing countries voice their concern that protectionist lobbyists in developed countries use the WTO forum to pursue their agendas by means of demanding environmental and labor standards. And on the other hand, environmentalists call for the "greening" of world trade, asking for drastic measures to combat all types of environmental pollution – from local to global problems.

Some NGOs and environmentalists claim that the linkage between trade and the environment is obvious because they claim free trade damages the environment and hence, "sustainable development is not only beneficial to world trade, it has got to be a basic principle of world trade[1]". Academics supporting this view hold that although the WTO's objective should be trade liberalization and condemnation of protectionism, it nevertheless ought to help governments deal with the side effects of trade because without good environmental policies, free trade may not produce the best possible outcome[2].

However, those opposed to these suggestions argue that environmental protection is an important objective but that it should be achieved with other means and not by using trade measures. The objective of environmental protection should not interfere with the aim of the WTO, which is welfare through trade liberalization. Using trade measures for policy issues that are not directly

[1] Remarks by U.S. Trade Representative Charlene Barshefsky at the Institute of International Economics, 15th April 1998, available in LEXIS, News, Federal News Service
[2] Charnovitz, S. (1998), The WTO and the Environment, p.98

relevant to the tasks of the WTO could be ineffective, unnecessary and opening gates to protectionist ambitions[3].

This thesis aims at disentangling the interwoven and emotionally heated issues relating to trade and the environment within the WTO framework and thereby working out a legitimacy test for trade measures in three separate environmental pollution cases: domestic, cross-border and global pollution. Domestic environmental damage has no spillover effects to other countries, it is entirely local within the territory of one state; cross-border pollution harms countries outside the territory of the state that is responsible for the harm, such as acid rain or a polluted river that affect a neighboring country; and finally global environmental damage harms all states, the most prominent example of which is climate change.

In chapter 1, the legal framework for using trade measures under the WTO is set out and applied to the three cases of environmental pollution. The reasoning of the WTO dispute panel rulings is interpreted and it is assessed whether its reasoning is an appropriate test of legitimacy for trade measures for environmental purposes.

Chapter 2 focuses on domestic environmental pollution, which is the most disputed and controversial area of the discussion. Trade measures used to tackle domestic pollution in another jurisdiction have caused the greatest opposition from developing countries who fear hidden protectionism under these measures. The legitimacy test begins by analyzing the economic reasons and economic justifications for the use of trade measures. In a second step, the question is raised whether the trade measures employed are effective for the aims of

[3] Bhagwati (2005), p.3

environmental protection that they allegedly pursue. Thirdly, it is analyzed whether trade measures are necessary – that is the case if no alternatives are available that would be less trade distortive or less likely to cause harm. The same three-step test of legitimacy is applied to cross-border pollution cases in chapter 3 and global environmental pollution in chapter 4. Global pollution focuses in particular on climate change for reasons of actuality and public awareness of the issue. The particularity of global pollution and in particular of climate change is the fact that it is very difficult to reach international agreements – the questions of equitable burden sharing, historical responsibilities and present obligations are highly disputed. Then two Multilateral Environmental Agreements are presented. The Montreal Protocol, which uses trade sanctions against non-members, is compared to the Kyoto Protocol that does not have an enforcement mechanism but provides for a set of alternatives.

Chapter 5 provides the political economic framework of the discussion, including the arguments on the danger of using trade measures due to the potential of discrimination, protectionism and domination of the powerful players, also called “eco-imperialism”. This chapter gives a general overview on the typical perceptions of developing as opposed to developed countries and the political economy of those developed countries that seemingly favor trade measures for environmental purposes even in cases when they are not economically sound.

The findings are then applied to India’s position on these issues in chapter 6. India is a particularly interesting case because of its rapid growth in the past decades, which came along with increasing domestic pollution. Its export industry is heavily affected by environmental requirements of its export markets the Government of India has taken a strong position against any linkage of trade and environmental provisions outside an MEA. It is an active participant in WTO

negotiations on the matter and assumes a leadership role for some parts of the developing world. Hence, its positions on the matter are laid out.

Applying the legitimacy test on the three cases of pollution leads to the result that trade measures should be refrained from except for the case of a cross-border pollution where detectable physical harm spills over to another country. In all other cases, it has been found that the legitimacy for trade measures is not given and better alternatives exist.

1. The GATT/WTO framework

This chapter lays out the general foundations for the analysis and discussion of trade and environment within the WTO, including the historical, legal, economic and political economic framework of the discussion. However, the special focus of this introductory chapter is the legal context, i.e. regulations and dispute resolutions of the WTO regarding trade and environment. The reason for this legal emphasis in the first chapter is that WTO law is a very effective regulatory power and WTO dispute settlement rulings are mostly accepted as authoritative by all member states. Hence, the bulk of the debate on linking trade measures with environmental provisions has centered on WTO case rulings and an understanding of the current laws and regulations is crucial to the debate. Further, the interpretation of WTO case rulings shows that the WTO dispute settlement body has employed its own legitimacy test on the use of trade measures, which will be assessed and extended for the purpose of providing an economic analysis of the issues at stake.

1.1. General Historical Introduction to GATT/WTO

After World War II the Allied war leaders had a new world order in mind, in which economic ties would be so strong between all nations that the previously experienced economic crises of the 1920s and 1930s would not reoccur. At the Bretton Woods Conference in 1944 they decided to set up an International Bank for Reconstruction and Development (The World Bank) and the International Monetary Fund (IMF). Further, the U.S. and its allies prepared a draft for an International Trade Organization (ITO), which would have been empowered to

prevent trade wars by giving authoritative rulings on disputes and creating multilateral agreements on trade measures. But the U.S. Congress did not approve the 1948 ITO charter that the US administration proposed[4], and hence the ITO was not created. By way of compromise an interim measure was adopted at the Havana Conference in 1947 committing the members to basic principles of international trade, the General Agreement on Tariffs and Trade (GATT), which contrary to earlier plans had to deal with all international trade disputes despite the lack of any enforcement mechanisms, codified rules and efficient administration[5]. In the following decades the GATT successfully lowered trade barriers by reducing tariffs in periodic negotiation rounds. It also prevented an increase in tariffs by its principle of "binding" tariffs[6], by the prohibition of non-tariff trade measures like export subsidies[7] and import quotas, which are forbidden unless there is a case of "market disruption"[8].

The 8th negotiation round of the GATT, the Uruguay Round (1986-1994), resulted in further trade liberalizations of the agriculture and textile industry, as well as administrative reforms which included the creation of the World Trade Organization (WTO) as part of the 1994 "Marrakesh Declaration". The WTO Agreement provides a "common institutional framework for the conduct of trade relations among its members"[9], establishing an international organization with efficient administration and dispute settlement process, as well as enforcement measures. It incorporates the GATT, which deals with trade in goods, but also other trade regimes such as GATS, the General Agreement on Trade in Services, as well as TRIPS, the Trade Related Aspects on Intellectual Property

[4] Rao, P.K. (2000), *The World Trade Organization and the Environment,* p. 15
[5] Cole, M. (2000), *Trade Liberalisation, Economic Growth and the Environment,* p.8
[6] When a tariff is bound, it may not be increased in the future unless it is compensated by a reduction of other tariffs
[7] Except for subsidies on agricultural exports, Cole (2000), p.9
[8] It is not clearly defined what constitutes a „market disruption" in this context, see Krugman, P., Obstfeld, M. (2006), p.298
[9] Article II of the WTO Agreement, in Rao, P.K. (2000), p.75

Rights. Further, negotiation frameworks to direct the WTO, such as a WTO Council and a ministerial conference were established[10].

The most impressive aspect of the WTO, however, is its dispute settlement procedure. It is evoked when one party accuses another WTO member of violating WTO obligations, and the responding country denies the charge. In contrast to the inefficient and ineffective tribunals at the time of the GATT system[11], the WTO dispute settlement procedure is efficient, normally reaching a decision in less than a year. It is also effective because when it finds that a measure is illegal under WTO rules, it calls on the country to change its policies – if it refuses to do so, the WTO can grant the victim country the right to retaliate with trade measures. In the great majority of disputes the parties accept WTO rulings and change their policies, which is a sign of the international acceptance of the WTO.

The WTO states its objectives in the preamble of the treaty. It aims at raising living standards world wide, and ensuring the growth of real income, production and trade through non-discriminatory trade liberalization and reduction of all kinds of trade barriers[12]. It is generally seen as a very successful organization in the continuous removal of trade barriers, which has also benefited the developing world[13] that perceives the WTO as probably the only international organization that can effectively provide a safeguard to weaker countries by way of reducing protectionism.

[10] Esty, D. (1994), p.247
[11] Krugman, P., Obstfeld, M. (2006), p. 302
[12] Stremmel, D. (2007), p.21
[13] Cole (2000), p.19

1.2 The Doha Round

While the initial attempt to launch the next round of multilateral trade negotiations collapsed in Seattle in November 1999, the current negotiation round was finally launched in Doha, Qatar, in 2001, with the "Doha Declaration". The start of this negotiation round has been particularly difficult: The Ministerial Conference in Cancun in 2003 also collapsed, mainly due to dissent on agricultural subsidies and the "Singapore Issues"[14]. In Cancun, the "Group of 20", which was led by Brazil, India and South Africa, dismissed the US and EU agricultural market liberalization offers. The EU on the other hand insisted on linking further agricultural liberalization to concessions on NAMA (non-agricultural market access)[15] by other WTO members, particularly Brazil and India. The US has been negotiating for the introduction of labor and environmental standards to further trade liberalization agreements. Developing countries resisted these attempts and claimed instead that agreements reached in the Uruguay Round, in particular on liberalization of textiles and agriculture, have still not been implemented.

Some commentators have argued that Doha Round negotiations seem particularly difficult because for the first time in the history of trade negotiations, developing countries play a large role. That is in part due to greater numbers because more developing countries have entered the WTO[16] and a better coordination of their position, such as the effective coalition of the Group of 20.

[14] The Singapore Issues consist of negotiation on an investment agreement, competition policy, transparency and trade facilitation, mostly asked for by the EU and Japan, see Bhagwati, J. (2005), p.2
[15] NAMA includes issues such as liberalization in manufactures and services
[16] Oatley, T. (2005), p. 66

However, there have already been some successes in the current Doha round like an agreement to make adjustments to TRIPS, thereby providing an easier access to low-cost pharmaceuticals for developing countries[17]. The Doha Round has launched negotiations on liberalization of trade in environmental goods and services[18], which provides an important counterpart to the negotiations on trade restrictions in response to environmental pollution.

1.3 The linkage of trade measures and environmental provisions

The demand for a linkage of trade measures to the enforcement of environmental provisions is voiced more and more frequently in the public. Two aspects of globalization could be responsible for that: intensified global competition has led to increasing demands for protection of the domestic market by labor unions and industry facing import competition. Hence demanding higher, international environmental standards could ease some of the burden and ensure that countries with strict environmental regulation are not "disadvantaged". And secondly, the recent environmental catastrophes have raised public awareness of global pollution and climate change[19], calling for immediate action by all countries. Neither of these reasons legitimizes the use of *trade measures* in this respect, but nevertheless this issue was carried into the GATT/WTO, starting in the Uruguay Round of negotiations. In some arguments, the justification for linkage of the two issues does not have an economic foundation, but is based on the alleged track record of effectiveness of trade measures in other areas such

[17] Bhagwati, J. (2005), p. 1
[18] Droege, S. (2007), p.10
[19] In 2007, even the Noble Prize for Peace was awarded to the Intergovernmental Panel on Climate Change, IPCC, and Al Gore Jr for their achievements in raising awareness for climate change

as human rights or arms control[20]. For those arguing economically, the issues of trade and environment should be linked because uncontrolled trade could eventually lead to "irreversible environmental degradation and hence economic impediments to sustainability of trade"[21]. Hence they have argued that it ought to be part of the duties of the WTO to negotiate on environmental protection. Moreover, there are about 200 international agreements on environmental protection outside the GATT/WTO system, called Multilateral Environmental Agreements, MEAs. Like any international agreement, membership to these MEAs is voluntary and some members of MEAs are not WTO members and equally, not all WTO members have signed onto MEAs. Consequently, this has led to some controversy in the WTO about those approximately 20 MEAs that use trade measures as enforcement tool[22].

As a response to the growing demand for linkage, the Uruguay Round settled the reconstitution of a Committee on Trade and the Environment (CTE)[23] to examine the interactions between trade and environmental measures, trade measures used for environmental purposes and effects of trade liberalization on the environment[24]. The CTE has not yet recommended any modification to WTO regulations, but holds that current WTO laws provide enough scope for the protection of the environment[25], explicitly referring to the Sanitary and Phytosanitary Measures (SPS) Agreement — which deals with food safety and animal and plant health — and the Technical Barriers to Trade (TBT) Agreement

[20] This is a frequently used argument and will be explored further in chapters 2-4. Suffice to note now that the actual effectiveness of these measures varies from case to case – well-known recent examples: trade measures did not lead to cooperation of Iraq under Saddam Hussein, and currently seem uneffective on the Islamic Republic of Iran. But some argue that trade measures were indeed effective on South Africa during the Apartheid regime, though that is not undisputed, see chapter 2

[21] Rao, P.K. (2000), p.31

[22] See chapter 4

[23] The CTE includes all WTO members, and is set to meet at least twice a year. It was reconstituted because the group was originally set up in the 1970s but had stopped meeting. Clapp, Dauvergne (2005), p.145

[24] WTO Trade and Environment Ministerial Decision, 14/04/1994, GATT Doc MTN.TNC/MIN (94)/1/Rev.1, (1994) 33 I.L.M. 1267.

[25] http://www.wto.org/english/tratop_e/envir_e/envir_req_e.htm#comittee

— which deals with product standards and labeling[26]. The CTE has also pointed out that further trade liberalization is essential for advancing policies on sustainable development and environmental protection[27]. It has reported that trade measures are often not ideal as a means to combat cross-border or global environmental problems because they are neither the most appropriate nor the most effective instrument[28]. Discussions in the CTE have shown that the preferred governmental approach to cross-border or global pollution problems is cooperative multilateral action under an MEA[29].

The CTE acknowledged that the WTO competence for policy coordination is limited to trade and to trade-related aspects of environmental policies, and it has no intention of widening its scope to become an environmental agency[30] – it suggested that comprehensive solutions to all challenges regarding the global environment should be left to other intergovernmental organizations, mainly the United Nations.

Moreover, under the current Doha Round, the CTE Special Sessions (CTESS) and the CTE Regular were set up[31], which discuss the compatibility between MEAs and the WTO Agreements, the effect of eco-labeling on market access and the relationship between environmental protection and trade rules on intellectual property and services[32]. The last point directly relates to TRIPS and its relation to environmental protection due to issues of intellectual property and access to new environmentally friendly technology.

[26] Both agreements will be dealt with in more detail under subchapter 1.4.1
[27] Bhattacharyya, B. (1998) p.8
[28] Cole (2000), p.18
[29] Bhattacharyya, B. (1998) p.5
[30] Bhattacharyya, B. (1998) p.4
[31] The World Trade Organization (2004), *Trade and Environment*, p. 11-16
[32] Clapp, Dauvergne (2005), p. 145

The CTE negotiations have been slow and characterized by the contrary positions of developing and developed countries[33]. So far, the CTE has emphasized the need not to unduly restrict exports of developing countries, mentioning explicitly the OECD Trade Policy Studies 2005 and the UNCTAD Trade and Environment Review 2006[34]. However, the CTE states that eco-labeling can be an effective measure to promote environmentally friendly policies, and demands transparency in preparation of labels and providing opportunities for other countries to participate. Negotiations continue and none of the issues are yet resolved.

To analyze the legitimacy of arguments in this debate, there must be clarity on what constitutes "environmental pollution" and "trade measures". For the purposes of this thesis, it will be distinguished between domestic, cross-border and global environmental pollution. This separation of pollution cases, which was first made in the 1992 GATT Report on Trade and the Environment[35], is vital for the economic analysis of the legitimacy of trade measures.

Domestic pollution is damage caused within the territory of a state, leading to consequences that are also incurred within the same territory. Examples are local soil pollution, domestic water pollution and local air pollution without consequences on other countries.

Cross-border pollution is detectable, physical damage spilling over from one country to another country that is not involved in the polluting actions or processes. It can be either caused by importing a polluting product, i.e. an

[33] See chapter 5
[34] Clapp, Dauvergne (2005), p. 145. These two studies reveal the effects of eco-labling on market access, see chapter 2
[35] Although that report only distinguished between domestic and cross-border pollution, see Bhagwati (2000), p.245

environmentally "dirty" product, or by some manufacturing process in one country, which causes damage in another country. In the second case, only the production process is polluting and not the product itself, such as pollution of trans-border water sources or acid rain, which comes down on the territory of another country[36].

Global physical pollution is more difficult to define – one clear example is the ozone layer depletion and climate change. Typically, scientific evidence on global pollution is disputed and international agreement on causalities and consequences rare. For the purposes of this thesis, global pollution is detectable, physical harm that affects the planet as a whole – the focus of the debate on global pollution will be climate change.

For all three types of pollution, psychological or emotional damage is not considered in this thesis. Hence, any harm that is not physically detectable on the country is not considered a negative externality and will not count as pollution: the extinction of endangered species leaves no detectable physical pollution but is a matter of ethics[37], similar to the knowledge of bad working conditions of workers in the developing world. Psychological damage is outside the scope of this thesis because its negative externalities, i.e. the economic aspect of their impact on a country, are nearly impossible to measure. The damage is very subjective, and including these emotional externalities would open a Pandora's box[38].

However, measures relating to the preservation of endangered species are mentioned in the context of WTO rulings. Unfortunately, the WTO has not been

[36] For example, UK causes air pollution which comes down on the forests of Norway's west coast
[37] Stremmel, D. (2006), p. 130
[38] Langhammer (2000), p.258

consistent in its assessment of endangered species, occasionally counting wild life to the domestic environment, then in another case defining it as a cross-border damage. The rulings will be used as guidelines to domestic and cross-border pollution despite the fact that the WTO definition in these particular cases is not agreed with.

Depending on the type of pollution, at least three trade measures can be used: direct trade interventions, supporting trade provisions, and trade inducements[39]. The first category is the most straightforward: it tackles the pollution directly for example by prohibiting the import of a polluting product[40]. Supporting trade provisions are trade measures used to enforce another substantive measure, such as an MEA that allows trade restrictions on specified polluting products, even against non-signatories – albeit its compatibility with the WTO remains unclear[41]. A more common and WTO compatible example for this supporting trade provision is the import restriction of products that in their use do not comply with domestic environmental regulation, such import bans on cars that do not comply with domestic emission standard. The third category of trade measures, trade inducements, is the most controversial because it may be employed decoupled from the polluting product, as an inducement to join an agreement or as punishment for non-cooperative states. In that it is similar to other inducements such as financial, diplomatic or military means. Trade inducements could be sanctions, which impose trade restrictions on a range of unrelated products[42], or trade incentives, e.g. offering development aid or market access.

[39] Subramanian (1992), p.137
[40] Such as France's import ban against construction material from Canada that contained asbestos, see EC Asbestos case (2001)
[41] Such as the Montreal Protocol, see chapter 4
[42] Such as the Pelly Amendment in the dispute on Dolphin and Tuna, or various UN sanctions measures, e.g. against Iraq under Saddam Hussein

These differentiations are important, in particular for the analysis of economic justification for trade measures. The following subchapter gives a general overview on the economic foundations of environmental pollution. A detailed analysis applied to the different types of pollution will follow in chapters 2-4.

1.4 Economic foundations for linking trade to environment

Trade liberalization generally increases exports and imports, thereby fostering economic growth and consumption – both can lead to an increase in pollution on a per capita basis. This is not per se a problem, but if the pollution is uncontrolled and non-renewable resources are used up, this can lead to negative externalities[43].

In a functioning market, each player has to bear the costs that arise out of its economic activities, and no costs that arise out of activities of third parties. If this condition is not given, then negative external effects exist which diminish efficiency[44]. Due to the fact that the environment or certain natural resources are not usually priced in a functioning market, firms and individuals use the resources or pollute the environment without being charged for it. This leads to inefficient use of resources. An example for a common negative external effect is toxic emission that harms other market players or third parties who are not part of the production process, but who are diminished in their utility function. In this case, the private marginal costs of a firm that produces with external effects are smaller than the social marginal costs that the society has to bear, which also includes the external effects of the private firms and individuals. This leads to a lower market price on polluting products than what would be efficient and hence there

[43] Rao, P.K. (2000), p. 32
[44] Stremmel, D. (2006), p. 135

is more production of a certain polluting good than the Top-Level-Optimum demanded by the society. This is an indication for market failure that can justify state intervention[45] – though the first best option are environmental regulations, and not necessarily trade measures.

Environmental regulations must be designed so they remove the reason for market failure, for example by inducing producers to internalize environmental pollution costs or the interests of society into their economic activities, thereby reducing external effects[46]. This is possible through taxation of the producer in the amount of the difference between his private marginal costs and the society's marginal costs. The problem with this environmental taxation is that measuring and pricing the exact level of negative externalities is very difficult. Other regulations set a maximum level of pollution for all players – but this is also not economically efficient because all market players are affected by the regulation equally. Yet the cost structures of the various producers can differ and these differences are relevant because efficiency requires that damage should be prevented where it is cheapest[47] - which is not possible when one regulation affects all producers equally. Alternatively, tradable emission permits are a potentially efficient measure. The government could issue them to players in the market, but the downside is that it is complicated to administer[48].

Hence there is an economic foundation for state intervention in case of negative external effects – the best measures are internal policies that address the reasons for market failure directly. However, not all governments take action against negative external effects in their territory. In the course of this thesis it will be analyzed if another country has economic reasons to interfere with the

[45] Krugman, P., Obstfeld, M. (2006), p. 284ff
[46] See Fritsch, M., Wein, T. and Ewers, H. (2005), pp. 111-146
[47] Stremmel, D. (2006), p. 144
[48] See the EU Emissions Trading Scheme 2005, or Emissions Trading under the Kyoto Protocol (1997)

domestic regulations of a state that allows production with negative external effects, and whether this interference should be by means of trade measures. The distinguishing question between the different types of pollution is whether there is a spillover of negative external effects on another country. In domestic pollution, the negative external effects remain in the same territory, and there is no physical negative external effect on the country that wants to use trade measures against it. By contrast, in case of cross-border pollution, the negative external effects directly cause harm on the country that wants to use trade measures as a remedy. In global pollution cases, negative external effects harm all nations and the difficulty lies in measuring the liabilities and cost of consequences on individual countries because all countries are more or less victims and polluters at the same time. The challenge is to measure the most efficient internalization of the costs globally and to distribute it "fairly" on all countries, albeit an international agreement on the burden sharing currently seems unlikely.

1.5 Environmental protection in the WTO framework

Even the preamble to the WTO Agreement refers to the relationship between trade and environment: Together with listing the economic aims of prosperity and growth for all members through trade liberalization, it is stated that the objective is the "optimal use of the world's resources…seeking both to protect and preserve the environment"[49]. However, the environmental provisions in the WTO Agreement as well as the rulings of the WTO dispute settlement process have given rise to much protest on the side of environmentalists, civil society activists and governments of both developed and developing countries. It is to this date

[49] Rao, P.K. (2000), p. 84

not exactly clear how far environmental protection is possible within the WTO Agreement – this sub-chapter will shed some light on the matter and differentiate the results for the three types of pollution.

1.5.1 Environmental Provisions in WTO Agreements

One of the main pillars of the WTO regulatory system is the **principle of non-discrimination**, which is twofold: the WTO principle of most-favored nation (MFN)[50] treatment requires that all advantages such as tariff reductions granted to a product from one WTO member must be granted to "like" products of all WTO members. Secondly, the principle of national treatment[51] holds that WTO members must treat "like products" from foreign producers like their domestically produced products[52], for example what concerns internal taxes and regulations. Hence member countries have to impose the same environmental and health and safety regulations on domestic and foreign products alike. However, there is some confusion about the scope of the meaning of **"likeness" under WTO provisions** because there is no clear definition of "like products" in the GATT/WTO Agreements. The important question in the context of this thesis is whether environmentally harmful products are considered "like" environmentally friendly products.

Currently, the Border Tax criterion based on the Border Tax Adjustments report as well as the US-Petroleum case 1987 hold that substantially identical end-uses are a strong indicator of "likeness"[53], leading to the conclusion that pollution in the production process is not enough for a distinction between products if it is not detectable in the end product. This is supported by the case of US –

[50] GATT Article I
[51] GATT Article III, *National treatment on internal taxation and regulation*
[52] Kelly (2003), *The WTO, the Environment and Health and Safety Standards,* p.133
[53] Bernasconi, N. (2006), p. 48

Tuna/Dolphin I (1991), even though the ruling was never adopted due to the appeal of the US. Here, it was decided that the end product of Mexican tuna and US tuna was alike despite different process and production methods (PPMs). Furthermore, the case EC- Asbestos 2001 held that when products are physically different and some entail the risk of causing harm then they are not "like" products: asbestos fibers were found to be unlike other fibers[54] because the product itself can be damaging irrespective of its production process. So, the WTO principle of non-discrimination and "likeness" is determined on a case-by-case analysis[55]. Overall, the general guideline is that a polluting production method that does not affect the end product is not a valid basis for differentiation[56], as opposed to products that are themselves damaging.

Exemption from the non-discrimination rules and the general provisions of GATT are laid out in **GATT Article XX**. Its chapeau (introductory clause) holds that there should be no discrimination between countries where the same conditions prevail, and no disguised restriction on international trade. But Article XX sets out that measures are compatible with GATT/WTO rules if they are:

"b)…necessary to protect human, animal or plant life or health", and

"g)…relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption"[57].

Most importantly, the WTO dispute panel held that **"necessary"** in XX (b) means that there is no alternative measure available to achieve the end of

[54] Bernasconi, N. (2006), p.65
[55] Bernasconi, N. (2006), p. 9, and Judgment of WTO case „Japan – Alcoholic Beverages" (1987), Panel report, paragraph 5.5f
[56] Bernasconi, N. (2006), p. 30
[57] Bernasconi, N. (2006), p. 77

animal, human or plant health that would be more compatible with GATT provisions[58].

What concerns Article XX (g) it is clear that all restrictions must hold generally for both foreign and domestic producers[59] so that one country's trading is not unfairly impaired. It must be convincing that the object of the country imposing the measure is indeed the "preservation of exhaustible natural resources" and not merely protectionism. The goal of preserving ones natural resources should not be born on the shoulders of foreign producers alone. For example, Thailand argued that its trade restrictions on imported cigarettes were "necessary" under Article XX (b)[60]. The US complained that the import restrictions were unjustified and the GATT dispute settlement panel held in 1990 that reducing cigarette consumption was indeed permissible under Article XX (b). But the discrimination against imported cigarettes was not held to be "necessary" because domestic production and sales of cigarettes remained unrestricted[61]. However, in the EC Asbestos case the Appellate Body upheld a health-based French ban on construction materials containing asbestos[62] as in this case, regulations on domestic producers were equally strict.

In the Tokyo Round (1973-1979) the Standards Code was agreed upon, also called the GATT's **Agreement on Technical Barriers to Trade (TBT)**. It is meant to regulate the use of standards and prevent them, as far as possible, from being used as non-tariff trade barriers. Harmonized standards, internationally agreed, are desired in the Code but countries are allowed to

[58] Ruling on Dolphin-Tuna case, Macmillan,(2001), *WTO and the Environment,* p.76
[59] Neumayer,(2000) *Trade and the Environment: A Critical Assessment and Some Suggestions for Reconciliation,* Journal of Environment & Development, Vol.9, No.2, June 2000, p.138-159, Sage Publications – here p.154
[60] Thailand – Cigarettes (1990), in Bernasconi, N. (2006), p. 92
[61] Gatt (1992), „Trade and the Environment", p.26
[62] Bernasconi, N. (2006), p. 81

impose stricter standards than other countries if they wish to protect "human, animal or plant life or health…(and) the environment"[63], hence mentioning the environment explicitly for the first time in the history of GATT regulations, but under the condition that the measures taken do not lead to unnecessary obstacles to trade[64].

The Uruguay Round (1986-94) extended the scope of the TBT to include product characteristics and their related PPMs (process and production methods) as well[65]. However, consistent with the discussion of "like products" above, the PPMs decided on in the Uruguay Round are limited to those that are product-related, i.e. that have an effect on the characteristics of the product itself[66], leaving a trace in the end product.

Furthermore, the WTO members created the Uruguay Round's **Agreement on Sanitary and Phytosanitary Measures (SPS)**. It has a smaller scope than the TBT; it deals with health risks coming from pests, contaminants and other disease-causing agents. It promotes international standards but allows countries to set their own higher standards of safety if there is scientifically evidenced reason for this. Also, measures have to be no more trade-restrictive than necessary for health and safety purposes[67].

These two agreements that promote harmonization of national standards have had many critics. In developed nations civil activists feared that international harmonized standards would curb down the normally higher levels of health and

[63] Cited in Cole (2000), p.13
[64] Kelly (2003), p.133
[65] Rao, P.K. (2000), p. 82
[66] United Nations Conference on Trade and Development, *Trends in the field of trade and environment in the framework of international cooperation,* Distr.GENERAL, TD/B/40(1)/6, 1993, p.24
[67] see EU case on hormone beef against the US, where it was held that there is not enough evidence for the risk to health, and the trade measures were held to be not necessary

safety standards in industrialized countries. In developing countries the fear prevailed that their standards will have to rise to a level too costly for them to adhere to[68]. These arguments will be analyzed in depth under chapter 2. Moreover, these agreements have also been criticized for the provision on scientific justification for the measure. WTO panels normally consist of trade experts and they might lack the expertise to judge on the scientific evidence provided. These critics, especially the EU, ask for the precautionary principle so that a country may take preventive action despite scientific ambiguity or lack of evidence[69].

The environmental provisions contained in the Agreements have been set out above, but they can only be interpreted when WTO case rulings are taken into account. The rulings on the WTO cases have at times clarified, and at other times confused the provisions set out above.

1.5.2 The WTO dispute settlement process

If a WTO member claims that another member country's environmental regulation is in breach of GATT/WTO provisions, it can challenge that in the dispute resolution process. The Understanding on Procedures Governing the Settlement of Disputes (DSU) establishes a Dispute Settlement Body (DSB) within the WTO framework. First there are consultations between the conflicting parties, but if they fail, a panel of trade experts from countries not involved in the conflict rules on the case. The DSB makes binding decisions for the dispute parties, i.e. it rules with authority over WTO member states. However, if a country is not satisfied with the ruling, it can appeal to the Appellate Body (AB), whose decisions must be accepted by the DSB unless its members decide by

[68] Kelly (2003), p.133
[69] Kelly (2003), p.134

consensus not to do so.[70] The only way of overruling AB decisions is the WTO General Council, composed of the representatives of all WTO members[71]. Countries are obliged to comply with the ruling – if they chose not to, they must compensate the other party or the complaining victim country will be given the right to impose trade penalties as a retaliation measure.

The effectiveness of the WTO dispute settlement process, and the authority it enjoys among all WTO members, is a clear enhancement of WTO power. Not all critics see this in a positive light as a stronghold against unfair protectionist measures. Quite contrary, some environmentalists argue that this increase in power has lead to an erosion of national sovereignty and has made it possible for the WTO to prohibit national environmental policies[72].

Further it is criticized that WTO dispute resolution proceedings are not open to the public, and do not consider civil society positions. The parties to the dispute are always governments who need to justify their trade measures. The only means of submission to the court by non-governments such as businesses, NGOs and civil society groups is the "amicus brief". That is a written document, submitted by an amicus curiae ("a friend of the court"), with the permission of the DSB (dispute settlement body). An amicus curiae is not a party to the dispute, but wishes to contribute facts or statements out of interest in the outcome of the ruling. The matter is highly disputed, especially since the Appellate Body in the Shrimp Turtle case held that panels always have the right to view amicus briefs[73]. Concerns have been raised about this, mainly from the developing

[70] Macmillan (2001), p.16
[71] WTO Agreement, Art.IV.2
[72] Krugman et al (2006), p. 303, this criticism was a response to the first application of the new WTO dispute settlement procedure, the US Reformulated Gasoline case of 1996. The dispute was between the US and Venezuela on new US air pollution standards which discriminated against imported gasoline, and hence were held illegal under WTO law. The US had to change its policies, to the dismay of civil rights activists in the US.
[73] Neumayer (2000), p.152

world. They see themselves at a disadvantage with their limited resources if amicus curiae are taken into account and they will need to be responded upon. The matter is under negotiation in the current Doha round. The US suggested a more open and transparent process with formalized rules on amicus briefs, but this was met with resistance by developing countries. The current state of play is that tribunals accept amicus briefs but generally have only considered those amicus briefs that were part of a WTO member's submission to the panel. For example the US had attached three briefs from non-governmental organizations to its submission in US-Shrimp/Turtle cases[74].

1.5.3 Environmental protection in the WTO dispute settlement

To date, there have only been six large dispute cases containing environmental provisions in front of the GATT/WTO[75], albeit some of them have had two or three rulings because of appeal. However, these six cases have provided for heated debate among governments and civil activists and shall be set out in this section.

Even though it is controversial whether the WTO should at all have a responsibility towards protecting the environment as part of the trading system or not, it is important to set out clearly the current possibilities and obstacles of effectively protecting the environment under the WTO. The outcomes of the WTO case rulings in combination with the environmental provisions in the WTO Agreements is applied to the three types of environmental pollution separately.

[74] Bernasconi, N. (2006), p. 323
[75] Overview: US-Tuna/Dolphin (claim by Mexico), US Gasoline/Clean Air Act (claim by Venezuela), EU hormone beef (claim by US), US-Shrimp/Turtle (claim by India, Malaysia, Pakistan, Philippines and Thailand), France/EC Asbestos (claim by Canada), EU genetically modified foods (claim by US, Canada, Argentina), see Clapp, Dauvergne (2005), pp.138-140

Disputes on **domestic environmental pollution** have been the most contested cases in front of the DSB of the WTO because they trigger the aspects of "extraterritoriality" and "unilateral measures", which will be referred to in more detail under chapter 5. The WTO case rulings are structured so that the test of legitimacy and the conditions applied by the DSB are clearly set out.

Despite the fact that common sense indicates that the killing of dolphins when fishing for Tuna, and the killing of Turtles when fishing for Shrimps ought to be the same category of "damage", the WTO case rulings have not treated these cases as similar. The DSB held dolphins to be part of the domestic environment, and accordingly the first case in the US-Shrimp/Turtle panel implied that turtles are part of the domestic environment. But on appeal, the AB held in 1998[76] that turtles are cross-border natural resource because they potentially migrate through US waters. Both cases and their rulings are set out below, albeit elements of their rulings are structured so that guidelines for domestic and cross-border pollution respectively can be derived from them. Hence their rulings are interpreted according to the category that the DSB had chosen or implied in each case, irrespective of the fact that this thesis does not consider the killing of dolphins and turtles to be environmental "pollution" in the form of negative externalities.

The core of the GATT/WTO dispute rulings, as well as the SPS and the TBT Agreements is that every country can set its regulations and standards to protect its own environment, life, health and the conservation of its exhaustible

[76] Report of the Appellate Body in *US-Import Prohibitions of Certain Shrimp and Shrimp Products (Shrimp-Turtle),* WT/DS58/ab/R, adopted 6th November 1998

resources[77]. But this principle must be applied on a **Most Favored Nation** (MFN) basis[78], must not be arbitrarily or unjustifiably **discriminating**[79], and not be "more restrictive than **necessary**"[80]. Hence the first condition in the legitimacy test of the DSB on trade measures is **non-discrimination** against foreign producers or products.

This is exemplified by the US - Reformulated Gasoline (1996) case in which Venezuela and Brazil complained about the US Clean Air Act 1990. It regulated the sale of reformulated gasoline where there was severe air pollution in the US, but imposed different reformulation standards on domestic and foreign oil refineries, generally setting less strict standards for domestic gasoline than for imported gasoline[81]. This was seen as a **discrimination** against foreign refiners and forbidden, though regulations affecting domestic and foreign producers equally would have been possible.[82] For the same reasons, the trade measure in the Thai cigarettes case was held "not necessary" (Article XX (b)) to achieve its objective of human health, because it did not go alongside restriction on domestic production.

Moreover, "a country can do anything to imports or exports that it does to its own products, and it can do anything it considers necessary to its own production processes"[83], but not to other countries' production and process methods (PPMs). This issue of PPMs has been frequently dealt with under domestic pollution cases because often measures were taken against a **non-product related PPM**, which is a PPM that leaves no trace in the end product – hence

[77] SPS Agreement Arts.2, 5 and TBT Agreement Preamble, GATT Article XX (b) and (g)
[78] SPS Art. 2.3, TBT Art.2.1
[79] SPS Art.2.3; TBT Preamble
[80] SPS Art.2.2; TBT Art.2.2 – i.e. another measures should not be available that would ensure the same protection and would be „significantly less restrictive to trade" – SPS Agreement, Footnote 3
[81] Krugman, P., Obstfeld, M. (2006), p. 304
[82] e.g. Canada's salmon and herring regulations, 1987. in Neumayer (2000), p.145
[83] Srinivasan (1993) *Environment, Economic Development and International Trade,*p.22 cites GATT (1992) p.23

the product is not damaging but its PPM is polluting. In most PPM cases there was no detectable spillover of pollution resulting from the PPM. This is exemplified in the rulings on the cases **US- Tuna/Dolphin I and II**[84]**.** The US decided to restrict the import of tuna that were caught by a fishing procedure, which resulted in excessive incidental killing of dolphins because schools of tuna have a habit of swimming together with dolphins. US fishing vessels were required not to use this method and the US put up import embargoes against Mexico, Venezuela, Ecuador, Panama and Vanuatu because their vessels still used this fishing method[85]. The panel ruled that non-product related PPM-based measures are prohibited generally. This was based on GATT Article I most favored nation principle, Article III on national treatment and Article XI on elimination of quantitative restrictions[86].

But there has been a contradictory development in WTO rulings on this: the **US-Shrimp/Turtle** cases held that measures against non-product related PPMs are not per se excluded from the scope of exceptions of Article XX. And the last case on appeal, the **US Shrimp Turtle 21.5,** declared for the first time that measures against non-product related PPMs are permissible[87]. It remains the only case like that till now and was part of a ruling that considered turtles as cross-border resources, although it did not put any territorial limit to its ruling on PPMs. Hence, further clarification is expected of the DSB on this, but so far one can conclude that measures against non-product related PPMs are not prohibited per se, though the application is more likely under cross-border pollution cases.

[84] Highly disputed cases such as Tuna/Dolphin and Shrimp/Turtle have several cases because one party to the dispute appealed against the decision and hence there was a 2nd or 3rd ruling. For example Shrimp Turtle 21.5 is an additional third ruling to the US-Shrimp/Turtle cases I and II.
[85] Phillips, D. (1993), *Dolphins and GATT,* in *The Case Against „Free Trade": GATT, NAFTA, and the Globalization of Corporate Power,* 1993 Earth Island Press, pp.134
[86] Bernasconi, N. (2006), p. 207
[87] Bernasconi, N. (2006), p. 211

This leads to the next aspect of the test of legitimacy of trade measures applied by the DSB: the issue of **extraterritoriality.** The definition of extraterritoriality is "beyond the geographic limits of a particular jurisdiction"[88], which is the core issue of trade measures used against domestic pollution outside one's own territory. The **US-Tuna/Dolphin I** explicitly rejected the idea that Article XX could apply to natural resources outside the jurisdiction[89] of the party taking the measure. On appeal, the ruling softened, and the AB did not restrict the application of Article XX to the territory of any country. But it still held that the measures taken by the US were illegal[90] because if Article XX was to permit members to force others to change their policies, "the balance of rights and obligations among contracting parties, in particular the right of access to markets, would be seriously impaired"[91]. Hence it did not put a territorial limit on natural resources, but it held that no country shall be allowed interfere with the jurisdiction of another country: every WTO member shall construe its own conservation policies[92].

The WTO rules on **extraterritorial effect** and unilateral measures[93] are therefore not straightforward. What seems evident from the wording of the rulings is that the DSB addressed developing countries' fear of more powerful countries interfering with their policies, also called "eco-imperialism". Even when no territorial limit was set to natural resources, the autonomy of individual countries was still upheld by the DSB and trade measures to target domestic

[88] Black's Law Dictionary (2004)
[89] Neumayer (2000), p.147
[90] GATT (1994) US-Tuna/Dolphin I, Panel report, paragraphs 5.27-5.32
[91] Macmillan (2001), p.75
[92] GATT (1994) US – Tuna/Dolphin I, Panel report, paragraph 5.32
[93] The question whether „unilateral" measures are legal corresponds to the extraterritoriality issue in the DSB rulings. From a legal perspective, unilateralism is very important, but for the purposes of this thesis, the legality of unilateral measures is not discussed in detail because it is not relevant for the economic analysis, as opposed to extraterritoriality. The question of unilaterality will be addressed also under chapter 5, when dangers of trade measures are discussed.

environmental pollution were ruled out. This is why NGOs (Non-governmental organizations) and civil activists are particularly disappointed with the WTO and have accused it of having a "trade bias" and of jeopardizing public health and sustainability for the objectives of international trade.[94]

The next condition applied by the DSB in WTO case rulings is the **necessity requirement.** The US Dolphin/Tuna panel held that the US trade measures were not necessary because they had not exhaustively investigated available alternatives such as an international cooperation agreement or even a differently drafted import restriction[95]. Generally, the necessity requirement demands that there be no alternative measure that could be more consistent with GATT/WTO laws. The least trade distorting measure must be found, and alternatives must be exhaustively investigated, but at the same time domestic costs and difficulties of implementation of those alternative measures must be taken into account[96].

In conclusion on domestic pollution cases, it can be said that under current rulings extraterritorial measures[97] are not per se excluded anymore, but the DSB of the WTO has applied strict conditions. These included non-discrimination, respect for another country's autonomy over its own territory, and a broad application of the necessity requirement which asks countries to seek negotiation, investigate alternatives and take into account the special circumstances in individual countries.

In case of **cross-border pollution**, there is by far less controversy and less dispute settlement in front of the WTO. In most cases, an agreement is reached

[94] This is evident from NGOs such as Friends of the Earth, 1999, *WTO scorecard –WTO and free trade vs. environment and public health:4:0,* at http://www.foe.org/international/trade/wto/wto.htm
[95] GATT (1994), US – Tuna/Dolphin I, Panel report, paragraph 5.28
[96] Part of the ruling on EC-Asbestos, see Bernasconi, N. (2006), p. 150
[97] as well as unilateral measures and non-product related PPM-based measures

between countries without evoking the WTO dispute settlement. Albeit this does not hold true for cases such as US-Shrimp/Turtle where the categorization of the case is already a matter of dispute and the claimants did not agree with the "cross-border natural resource" definition of the AB.

First of all, the principle of **non-discrimination** that was part of the discussion under domestic pollution applies equally to cross-border pollution. It is a principle on all trade measures within the WTO. Interestingly, the scope of this principle was widened under the US-Shrimp/Turtle II case: the US measures were held acceptable under the territoriality issue, but they were held to be **unjustifiably and arbitrarily discriminating**: the US held negotiations with some countries but not with others, and the measures applied were too rigid leaving no flexibility for the claimants to implement their own turtle protection schemes. The last argument similarly to the necessity requirement can be interpreted as a safeguard for developing countries against the domination of stronger WTO members.

In the US-Shrimp/Turtle case 1998, the dispute was about a US import ban on shrimps from countries that the US had not certified as fishing with harvesting methods that saved sea turtles from being killed, using Turtle Excluder Devices (TEDs). Sea turtles have been recognized as an endangered species in the Convention on International Trade in Endangered Species (CITES), and TEDs were made compulsory in the US in 1990[98]. India, Malaysia, Pakistan, Philippines and Thailand complained to the DSB, and the first panel concluded that the US measure was inconsistent with GATT rules because it was discriminating arbitrarily and unjustifiably, and "implied a **unilateral imposition**

[98] Liebig (1999), *The WTO and the Trade-Environment Conflict,* p.83

of US environmental legislation on other countries"[99]. Under the US regulation, foreign producers were forced to adopt the same shrimp fishing methods as the US (TEDs) and no alternatives to TEDs were accepted. The panel held that the US did not consider the different conditions of the foreign shrimp producers and did not take full account of their national conservation programs; secondly the US had negotiated with various countries in Latin America and the Caribbean and had offered technology transfer to help them employ TEDs as well as a three year phase-in but did not make the same offers or negotiations with the claimants –this constituted an unjustifiable discrimination[100].

After the AB decision, the US did not remove the import prohibition but attempted to bring it into compliance with the ruling. Malaysia complained about this in 2000, holding that the US was not complying with the Dispute Settlement Understanding (DSU)[101]. The panel called to decide on this case, **US – Shrimp/Turtle 21.5 (2001),** held that the US had acted consistently with the former panel ruling because it had engaged in negotiations with the complaining countries, had tried to reach an international agreement, and had revised its guidelines of the import ban to make it more flexible. Even though no international agreement was actually reached, US were held to have complied with the US – Shrimp/Turtle I ruling by engaging in ongoing and good faith negotiation efforts[102]. It also held the flexibility introduced by the US to be sufficient because the law was changed so that not exactly the same technique was expected but a program comparable in effectiveness. Malaysia complained about the unilateral aspect of this issue but the Appellate Body held that unilateral measures could to some degree fall under Article XX[103]. Hence when the DSB is convinced that the measures taken are not discriminatory and

[99] Liebig (1999), p.84
[100] GATT (1998), US – Shrimp/Turtle I, AB report, paragraphs 172-176
[101] Bernasconi, N. (2006), p. 127
[102] US – Shrimp Turtle 21.5 (2001), paragraph 133
[103] Bernasconi, N. (2006), p. 128

provide for some flexibility and negotiation efforts, it seems willing to allow trade measures for environmental purposes – even in this case, where the issue at hand was a non-product related PPM and the cross-border damage is highly disputed.

Much clearer than this are cases of **product-related PPMs,** which are normally the core of cross-border pollution dispute cases. If the damage is due to a "dirty" product, i.e. a product that is itself polluting, then the country may clearly impose trade measures in response[104] – this is provided for under GATT Article XX, and most importantly under the SPS and TBT Agreements which aim to prevent the import of polluting products. The damage is either detectable in the end product, like pesticides, or not detectable but affecting the quality of the product like non-compliance with food safety measures and sanitary standards. Hence legislation against the import of polluting products is consistent with WTO rules, as long as it is applied on a Most Favored Nation (MFN) basis[105], is **not arbitrarily or unjustifiably discriminating**[106], and is not "more restrictive than **necessary**"[107], which also includes the need for some scientific evidence for the claim. An example of a successful case in this respect is EC-Asbestos 2001[108], whereas in the case of EU hormone beef, it was held against the EU that there was not sufficient scientific evidence on the harm caused by hormone beef and therefore the trade measures were held unnecessary.

What concerns **non-product related PPMs**, i.e. those leaving no trace in the end product, the discussion under domestic pollution applies equally here. The conclusion arrived at is that non-product related PPMs can be consistent with

[104] See also the discussion on „likeness" above
[105] SPS Art. 2.3, TBT Art.2.1
[106] SPS Art.2.3; TBT Preamble
[107] SPS Art.2.2; TBT Art.2.2 – i.e. another measures should not be available that would ensure the same protection and would be „significantly less restrictive to trade" – SPS Agreement, Footnote 3
[108] EC-Asbestos 2001 and Bernasconi, N. (2006), p.65 and p. 204

WTO law – even if that is somewhat unclear under domestic pollution, it seems to be settled for cross-border pollution due to the categorization of Shrimp/Turtle as such.

But there has been not one case of physical, detectable cross-border pollution due to PPMs in front of the WTO yet, i.e. no case that would fall under the definition of cross-border pollution in this thesis such as acid rain. To solve this question, one needs to look outside GATT/WTO law: Transnational pollution can involve a violation of a norm in customary international law, as was held in the Trail Smelter arbitration (1937-1941) between the U.S. and Canada, where the tribunal held that one country may not allow its territory to be used to cause harm to the territory of another state[109]. In this case, a smelter in Canada, near the US border, emitted sulphur dioxide fumes affecting the territory of the US. The case did not clarify how serious the pollution must be in order to give rise to a claim under customary international law. Considering the lack of WTO dispute settlement cases on this issue, one must assume that direct negotiations are reverted to or international agreements, such as the Basel protocol on the movement of hazardous wastes, or the International Convention on Civil Liability for Oil Pollution 1969, regulating liabilities for shipping accidents resulting in oil pollution[110].

Hence, in conclusion the conditions applied to cross-border pollution are similar to those of domestic pollution in that there should be no discrimination, the measures must be necessary and hinder trade as little as possible, and alternatives must be explored. Further, measures must be flexible for other countries' conditions, negotiations must be held, and the measures should be

[109] Baughen, S. (2007), p. 323
[110] Baughen, S. (2007), p. 329

limited to specific products and be subject to revision[111]. Hence unilateral and extraterritorial trade measures can be legitimate[112] if they comply with these conditions of necessity and safeguard against the dominance of powerful countries. Moreover, in cases of cross-border pollution due to dirty products, the safeguards under SPS and TBT Agreements provide for the possibility of trade measures. And finally, it seems internationally recognized that polluting a neighboring country with a particular production process like acid rain is illegal, though disputes of this kind are rare and countries seem to be willing to revert to international agreements or bilateral negotiations rather than WTO disputes.

The difficulty in assessing the legal framework for **global environmental pollution** is the lack of any WTO trade dispute on this matter. No WTO panel has ever ruled explicitly on the case of global pollution – it is only possible to draw conclusions from WTO rulings on domestic and cross-border pollution cases.

Despite the fact that Shrimp/Turtle was said to be a cross-border case in the panel ruling, its principles could potentially hold for global pollution cases too. The WTO panel held living species to fall under "exhaustible natural resources", and one could infer that this could be extended to global natural resources, although it is unclear how the WTO dispute panels would draw the lines.

However, the most appropriate means to tackle global environmental problems is by international cooperation. **Multilateral Environmental Agreements (MEAs)** can amount to an effective measure, particularly if they have their own enforcement mechanism such as the **Montreal Protocol[113]**, but their use of trade measures against non-members or "free-riders" is disputed. There has not

[111] Langhammer (2000), *On the Nexus between Trade and Environment and on Greening the WTO,* p.259
[112] US- Shrimp/Turtle I, AB report, paragraph 121 (1998)
[113] See chapter 4 for details

yet been a conflict of that kind at the WTO dispute settlement panel, but critics suggest that MEA enforcement on non-members would be unlawful under the WTO[114]. The relationship of MEA provisions and WTO rules is currently negotiated on in the CTE of the Doha Round as mentioned above.

Hence we can infer that the DSB of the WTO has applied certain similar conditions on all environmental dispute cases, as set out above. The conditions included non-discrimination, necessity and finally variety of conditions that all aimed at providing safeguards to developing countries or small economies against protectionist measures of stronger WTO members.

Albeit these conditions have been fairly successful in preventing some cases of environmental measures being used for protectionist purposes, this thesis contests the presumptions of the WTO legitimacy test. The case rulings seem to imply that trade measures may be used, if there is no better alternative (necessity) and if the dangers of protectionism and imposition of one country's preferences on another country can be avoided (by negotiations, flexible provisions taking into account another country's conditions etc). But the first step in a test of legitimacy should be the question whether there is any economic justification for state intervention, and specifically for the use of trade measures. Secondly, it should be asked if the trade measures proposed in each pollution case can be effective, i.e. whether they are suitable to achieve the aims of environmental protection. Only then, in step 3, the question that the WTO dispute panels raised should come up: is the trade measure necessary and is there a better alternative? This legitimacy test is applied to domestic pollution cases in chapter 2, followed by cross-border pollution cases in chapter 3 and

[114] e.g. Bhagwati (2000), *On Thinking Clearly about the Linkage between Trade and the Environment,* p.246-248, other authors see below, further debate on MEAs under chapter 4. A detailed discussion of legality of MEAs is outside the scope of this thesis.

finally global pollution cases in chapter 4. The last and at the same time largest aspect of the WTO dispute settlement panels, the conditions against arbitrary use of powers against weaker WTO members, is analyzed in chapter 5. It is the consequence of the legitimacy test because if trade measures are not economically sound, not effective to reach the aim of environmental protection, and not necessary because better alternatives exist – then it is obvious that the trade measures are not used for the purpose of “saving the planet” or reducing pollution. Hence, the arguments regarding protectionism, power imbalance and the dangers of allowing trade measures fall under political economy aspects in chapter 5.

2. Trade measures in response to domestic pollution

As defined in chapter 1, domestic environmental damage is constituted by detectable, physical pollution within the same territory where the polluting production process or consumption of the product takes place.

Some environmentalists argue that no environmental pollution can be completely domestic because the world is a holistic biosphere and damage in one part ultimately leads to consequences for the whole world. These arguments are left aside in the following analysis because the consequences claimed here are too far either in terms of time or in terms of causality to be scientifically proven.

In the case of domestic pollution, the main difficulty lies in the fact that the country taking trade measures against pollution abroad is not directly affected by that pollution. Hence, the motivation of that country for this interference in another state's jurisdiction is particularly mistrusted.

Bhagwati[115] draws a distinction between egotistical and altruistic objectives of the country that is concerned with the environmental problem of another country. The country acting out of egotistic motivation objects to the pollution or damage because it is put at a competitive disadvantage, e.g. because its own environmental safeguards make the production process more expensive. The altruistically motivated country wants to reduce or eliminate the damage for ethical reasons and argues that cessation of imports will help this cause.

The following analysis will shed a light on the economic foundations of the arguments of both groups. The legitimacy of trade measures is assessed by

[115] Bhagwati (2000), p.245

analyzing if there is an economically sound reason for intervention, secondly if trade measures are effective to prevent the environmental pollution at stake and thirdly if trade measures are necessary and whether less trade distorting alternatives exist.

2.1 Economic reasons for trade measures

As laid out in chapter 1, pollution economically amounts to negative "externalities" that are created when property rights are not fully defined, and therefore the price does not reflect the effective social costs of the product[116]. Externalities are a sign of market failure and lead to inefficiencies, so that state intervention can be at times advisable to internalize these social costs. However, this analysis is left to the case of cross-border pollution because in domestic pollution cases the country that wants to employ trade measures is not affected by these externalities. It wants to take trade measures against *other countries'* domestic pollution and hence other countries' negative externalities. Without physical harm caused by negative external effects, there is no case of market failure[117], and hence no economic reason for state intervention.

However, it is undisputed that irrespective of other countries' policies and market failures, the internalization of negative external effects in one's own market leads to efficiency gains[118]. Though this should be a guideline for domestic economic policy and not lead to enforcing the removal of market failures in *other* countries. In accordance with this, it has been shown[119] that world welfare is best served when all countries internalize external effects, and if all countries diminish

[116] Liebig (1999), p.87
[117] Stremmel, D. (2006), p. 154 ff
[118] Pethig, R. (2003), p.306. For the general economic theory this see e.g. Krugman, Obstfeld (2006), chapter 8
[119] Brown, Deardroff, Stern (1996), pp. 227ff

national market failure by setting environmental standards that reflect the real social costs in their countries. However, that does not imply that the same environmental standards must be applied in all countries – environmental pollution costs are different in each country, and also dependent on different priorities and different living conditions in those countries[120]. Hence, the appropriate tools for internalization can vary between countries. Despite these considerations, in most domestic pollution cases presented in chapter 1, the country taking the trade measure aimed at inducing other countries to apply *the same standards* as it has set in its own market.

Proponents of harmonized international standards often argue that their environmental policies could disadvantage them in global competition (labeled "egoistic" motivation by Bhagwati[121]), and lead to a "race to the bottom" and "pollution-havens". The economic basis for these arguments is analyzed under chapter 2.1.2.

In contrast to this, some "altruistic"[122] environmentalists call for the protection of the environment abroad, despite the fact that it leaves no harm on their own country. They claim that trade measures are a legitimate tool against other country's domestic pollution because trade itself is harmful to the environment. The next subchapter analyzes the economic basis for that claim.

2.1.1 Is (free) trade itself harmful to the environment?

[120] This will be set out in more detail under the race to the bottom argument in chapter 2.1.2
[121] Bhagwati (2000), p.248
[122] Bhagwati (2000), p. 252

In the opinion of many non-governmental organizations such as Greenpeace or Friends of the Earth, the liberalization of trade is a cause of increased environmental pollution. Therefore governments should minimize these effects by imposing strict environmental regulation – on their own as well as on foreign countries. They claim that this is only possible at the expense of a restriction in trade because from many environmentalists' point of view, stringent regulation is necessarily in conflict with trade considering the fierce international competition[123].

It could be argued that without internalization of negative external effects, free trade could indeed lead to an increase of these negative externalities in all countries because of the growth of the economy and the increase of production and consumption. Also, there is the possibility that a country without environmental regulations could specialize in the production of goods that cause much environmental harm when produced. Trade will increase its production and therefore raise the level of pollution in that country[124]. Also, it is argued that environmental damage will result directly from free trade through an increase in transportation as OECD (Organization of Economic Cooperation and Development) studies have shown[125].

But there are also economic theories that lead to a different conclusion. For example the Environmental Kuznets Curve (EKC) holds that as economic development proceeds from low-income levels, there is a strong per capita increase in pollution, resource use and waste generation, but then at higher levels of development, environmental degradation will decrease as resources become available for investment in better technologies. Income generation

[123] Neumayer (2000), *Trade and the Environment: A Critical Assessment and Some Suggestions for Reconciliation* p.144
[124] Dean, (2002), *Does trade liberalization harm the environment? A new test,*p.820
[125] Neumayer (2000), p.140

becomes an engine for environmentally sustainable development[126]. This is based on the theories of scale, composition and technique effect:

Trade liberalization leads to greater economic activity, thereby "raising the demand for inputs such as raw materials, transportation services, and energy"[127]. Pollution and increased resource depletion will result from this ("scale effect"). Then, a reduction of trade barriers changes the relative prices between products from different sectors. Countries will specialize in sectors where they have a comparative advantage, so that countries with lax environmental regulations are likely to focus on polluting or resource-dependant sectors. This leads to further degradation of the environment ("composition effect"). One may analyze this effect in a more diverse way by saying that the effect depends on which sector is the most advantageous and is therefore expanded – and its relative pollution-intensity. The labor-intensive sector (since labor is generally cheaper in developing countries) tends to be less environmentally damaging than the capital-intensive sector. Hence the simple factor endowment hypothesis holds that with increased trade, polluting capital-intensive production processes will relocate to the relatively capital-abundant developed countries[128]. This theory is supported by vast number of empirical studies, as opposed to the pollution haven hypothesis, which suggests that low-income developing countries will have more pollution with trade[129]. However, it must be conceded that the factor endowment theory could also hold that countries with abundance in natural resources might have to bear an increase in resource extraction[130], whether they are developing or developed countries.

[126] Macmillan, F. (2001), *WTO and the Environment,* p.1-2
[127] Frederiksson (1999),*Trade, Global Policy and the Environment,* p.1
[128] Krugman, P., Obstfeld, M. (2006), p.119
[129] Antweiler, Copeland, Taylor (2001), *Is free trade good fort he environment?*, American Economic Review, 91(4), p.877
[130] Frederiksson (1999), p.2

The "technique" effect describes changes in production methods that follow trade liberalization. Free trade leads to increased income levels, which in turn leads to a higher demand for environmental quality. If this results in more stringent environmental regulation, the pollution level will decrease[131]. Also, modern technologies as well as consumers' demand for "clean" goods will lead to more environmentally friendly production.

Turning to empirical evidence, Dean[132] has shown by the example of Chinese water pollution, how free trade may increase environmental damage through the terms of trade if that country has a comparative advantage in pollution-intensive goods, but will mitigate it through income growth – the result in China seemed to be beneficial to the environment. Hence "trade liberalization indirectly mitigates environmental damage"[133]. Antweiler, Copeland, and Taylor (2001) reached the same conclusion despite the finding that trade liberalization increases the production of "dirty goods" in low-income countries. The weight of this effect was found to be small. It is shown that trade raises national income, which will impact on pollution through scale and technique effects. Freer trade is therefore good for environment[134]:

In this study, the scale, technique and composition effect was examined using sulfur dioxide concentrations. The result was that trade liberalization leads to only small changes in sulfur dioxide concentrations when it alters the composition, and therefore the pollution intensity, of national output. Adding estimates of scale and technique effects, it was found that when trade liberalization leads to an increase of GDP per person of 1%, pollution concentrations fall by about 1%. The estimations in this model result in an initial

[131] Langhammer (2000), p.260
[132] Dean, J. (2002), *Does trade liberalization harm the environment? A new test,* Canadian Journal of Economics, Vol.35, No.4, November 2002
[133] Dean (2002), p.823
[134] Antweiler, Copeland, Taylor (2001), p.877

increase in pollution concentrations by a maximum of 0.5% through a 1% increase in the scale of economic activity, but in a second step the technique effect which develops due to an increase in income leads to a reduction of concentrations by around 1.5%. So the conclusion from this study is that trade-induced composition effects are not driven by differences in environmental pollution regulations, and hence free trade cannot be linked to an increase in environmental pollution[135].

This is supported by a study on Indonesia that is a country with clear comparative advantage in pollution-intensive industries[136] due to its high export dependence on petroleum[137]. In this case, the economic structure of the country is the main reason for pollution and not governmental regulations[138]. Lee and Roland-Hurst (1997) introduced the concept of embodied effluent trade (EET), which holds that traded commodities embody an "environmental service" that is the amount of pollution caused domestically when goods are produced for export[139]. They examined implications of trade and tax policies on the environmental pollution using a general equilibrium model including industrial pollution data. They concluded that a combination of trade liberalization and a cost-effective tax policy could raise welfare and reduce environmental pollution[140]. The findings were supported by later empirical studies on Indonesia[141]. Hence these findings support both arguments: free trade does not

[135] Results were fairly specific in this study by Antweiler, Copeland, Taylor (2001): the model differentiated between pollution consequences of income growth that was due to trade liberalization and technological progress (less pollution) on the one hand, and income gains due to capital accumulation (which raises pollution – because it favors production of pollution-intensive goods), p.879 f

[136] Lee, Roland-Hurst (1997), *Trade and the Environment*, p.518, this comparative advantage is demonstrated by the fact that Indonsian exports contain higher levels of pollution in their production process than its imports, and that disparity continued for over three decades

[137] Beghin (2002), p. 9

[138] Beghin (2002), p.10 and Lee, Roland-Holst (1997), p. 528

[139] Lee and Roland-Holst (1997), p.523

[140] Lee, Roland-Hurst (1997), *Trade and the Environment*, p.518

[141] Beghin (2002), p.22, also using a general equilibrium model

necessarily harm the environment, and secondly welfare could be increased if all countries would internalize their external effects.

Furthermore, market liberals claim that free trade can even benefit the environment because it enhances efficiencies and growth, which reduces the wasteful use of resources, and provides firms and governments with the necessary funds to adopt to environmentally sound technologies[142].

The OECD affirms this with reference to the growing market for environmental goods, services and technologies[143]. These include environmentally friendly products used for pollution abatement, as well as environmentally sound technologies that are employed for environmentally friendly production processes, as well as products that have been produced with environmentally friendly PPM. The Doha Round is currently negotiating trade liberalizations in these sectors, and also what products exactly should fall under this definition[144] because that is not entirely clear yet.

Moreover, liberalization in the agricultural sector could benefit the environment[145]: the EU Common Agricultural Policy resulted in excessive use of fertilizers and pesticides which harm consumers[146] whilst crop rotation and diversification, which are natural alternatives, have been decreased – it has been shown that there is a correlation of price and the use of fertilizers and pesticides[147]. At the same time, the large subsidies and trade barriers in agriculture in the US, EU and Japan have arguably added to the use slash and

[142] Clapp, Dauvergne (2005), p. 127. However, environmentalists argue against this that what may be true in theory has not materialized in practice: developing countries show a wasteful use of resources despite their funds and potential efficiencies, they argue
[143] Cole (2000), p.26
[144] The World Bank (2008), p.73
[145] Langhammer (2000), p.259
[146] Clapp, Dauvergne (2005), p.132
[147] GATT (1992), p.36

burn methods in rainforests in developing countries. And negative effects of export restrictions against certain raw materials like ivory are that downstream processing activities are thereby subsidized and a wasteful use of raw materials induced[148].

Hence the 1992 Gatt Report holds that trade liberalization in agricultural production would have a large environmental benefit. Even if the use of fertilizers in low-income countries would increase, the decrease of environmental degradation of current high-income agricultural producers would be overwhelming. Moreover, empirical evidence from developing countries such as Argentina, Brazil, China and Thailand have shown that it can be expected that developing countries will increase their outputs as a result of more efficient use of land rather than large extensions of farm land[149] - hence trade liberalization in agriculture is unlikely to lead to a large increase of pollution in developing countries.

Furthermore, the generally beneficial effects of free trade should be borne in mind as well: free trade has helped some developing countries, now transition countries, raise their income and increase their economic growth, thereby increasing the overall welfare in their country[150]. And according to basic trade theory, free trade is always more efficient than any trade measures like tariffs or subsidies because of the distorting economic incentives of trade measures. Efficiency gains can be expected from the larger market, due to economies of scale and more competition. However, large economies can potentially benefit from tariffs if they can influence the world price through their trade measure and

[148] Langhammer (2000), p.259
[149] GATT (1992), p. 37
[150] Neumayer (2000), p.140

thereby receive a terms of trade gain[151]. Still, it is likely that these effects are outweighed by political inefficiencies, referred to in chapter 5.

Therefore, it does not make sense to restrict free trade for the good of the environment. The studies have proven the opposite to be true, and from the point of environmental concern, free trade should be promoted and its furtherance not hindered.

2.1.2 Race to the bottom and "eco-dumping"

The arguments brought up under "race to the bottom" theories ask what the effects of trade are if some countries allow the environment of their territory to be polluted to a greater degree than other countries.

According to the Heckscher-Ohlin theorem (H-O), differences in factor prices between trading countries would eventually disappear[152] in a functioning market without trade barriers. Following this theory, different environmental standards amount to comparative advantages and disadvantages similar to different factor prices, which would be harmonized by the market in the long run. With trade, income could grow in developing countries with low standards, leading to a higher priority on environmental standards due to a change in the utility function, and this would eventually lead to the same standards as in developed countries[153]. By contrast, a harmonization of standards by state intervention

[151] Krugman, Obstfeld (2006), chapter 8
[152] Krugman, Obstfeld (2006), p.120. However, factor prices between countries have not equaled out completely in reality, due to other important considerations that are not included in this model, such as transport costs, differences in endowment and technological differences
[153] Anderson, K. (1998), p.240

would result in inefficiencies because of an artificial reduction of competition intensity between countries[154].

Hence this theoretical foundation leads to the conclusion that as long as there is no cross-border market failure, the harmonization of standards should be left up to the market, and not be imposed by political intervention[155]. Leaving the harmonization of environmental standards up to the market would also be beneficial because the inefficiencies of public administration, and the difficulty to measure the most efficient level of environmental standards, as well as distortions due to politically motivated decisions would be avoided[156].

By contrast, contesters of this theory may hold against it that the Heckscher-Ohlin perfectly functioning market does not exist in reality, and that trade barriers of all kinds, including mere transportation costs, hinder harmonization of standards. In fact, empirical tests on the Heckscher-Ohlin model show little evidence for the harmonization of factor prices in reality[157]. Moreover, market harmonization might not lead to *equal* standards because two countries are likely to have different preferences due to cultural or religious differences or due to a different capacity of the environment to absorb pollutions[158].

Irrespective of these arguments, environmentalists in developed countries argue that the harmonization of standards should not be left to the market, because the harmonization would lead to higher standards in developing countries and lower standards in developed countries. They ask for trade measures in order to retain

[154] Luckenbach (2002), p.123
[155] Stremmel, D. (2006), p.157
[156] See Krugman, Obstfeld (2006) for more detail on dangers and inefficiencies of state intervention, p. 290, and chapter 5 of this thesis
[157] Krugman, Obstfeld (2006), p.116, quoting the Bowen, Leamer, Sveikauskas (1987) test on the Heckscher-Ohlin theorem. For example: wages are factor prices, but they have not been harmonized between trading countries.
[158] Stremmel, D. (2006), p. 156

their higher standards at home, even if that is at the expense of developing countries[159]. Continuing this line of argument, they claim that further trade liberalization will make it impossible for developed countries to retain their level of environmental protection. Lax environmental regulations abroad might attract pollution intensive industries to move away from developed countries and therefore lead to loss of welfare in countries with higher standards[160]. Developing countries with lower environmental standards could become so-called "pollution havens" with severe environmental degradation. Free trade then makes it possible to export these goods into countries with stricter environmental regulations. According to this theory, countries with higher environmental standards have a comparative disadvantage and thus might lower their standards in competition with the pollution havens[161] - a "race to the bottom" with respect to environmental standards would be the result.

There is no empirical evidence for these claims, nor is there a sound theoretical basis. Looking at state regulations, a government that acts rationally in the economic sense would lower its standards only so far as the marginal revenue due to acquisition of capital is higher than the marginal costs endured due to the utility loss of lower environmental standards. When the utility loss is higher than the gains due to acquisition of capital and corporations, then a rational government would not lower standards[162]. Hence, developing country governments are more likely to use other measures to attract foreign direct investment – measures with smaller utility loss such as tax breaks, land grants and the like[163].

[159] This argument is used frequently with respect to labor standards and wages, see Brown (2004), International Trade and Core Labor standards, OECD labor market and social policy paper no. 43, Paris, 2004
[160] Dean (2002), p. 820
[161] Neumayer (2000), p.142
[162] Stremmel (2006), p.158
[163] Bhagwati (2000), p.249

Moreover, the race to the bottom can only be relevant when the "pollution haven" is a large country – because a small economy cannot affect large industrialized economies' standards[164]. This explains some of the fear in industrialized countries of China's and India's growing economies and their relatively lower standards.

Hence there is no evidence for the claim that governments have an interest in lowering environmental regulations to attract foreign industries[165]. And furthermore, there is no empirical evidence to support the hypothesis that corporations move away due to lower environmental standards in other countries[166]. Bhagwati and Srinivasan (1996) hold that differences in environmental standards are not significant enough to induce capital to move away to low-standard countries[167]. They assert that there are more dominant factors in the decision on location, such as infrastructure, market access and tax levels. The recent German experience with Nokia shows that subsidies and labor costs can be added to this list.

Further, it is more cost-effective for multinational firms to use the same technology and therefore the same standards in all countries, rather than using different production technologies in different countries[168]. It makes more economic sense for firms to sell their lower-standard technology to local firms in lower-standard countries instead of making a direct foreign investment with outdated technology[169].

[164] Brown (2004), p.19ff
[165] Cole, (2000), *Trade Liberalization, Economic Growth and the Environment,* p.32
[166] Neumayer (2000), p.143
[167] Bhagwati and Srinivasan (1996), p. 175
[168] Neumayer (2000), p.144
[169] Bhagwati and Srinivasan (1996), p. 174

Multinationals are also reluctant to make use of low environmental standards in other locations because they expect that in the short future, environmental regulation might become more stringent in the host country as well. They also fear future liability for accidents, or losses due to image problems: consumers' demand for environmentally "cleaner" production is more and more influential.

These consumers demands have led to incentives at firms to even raise their environmental standards, as opposed to move to countries where they can lower them. Lyon and Maxwell[170] have demonstrated the 1990s development of the "voluntary approach" to pollution abatement: Firms commit themselves to higher environmental standards than those required by law. They do so either by way of unilateral commitments, such as business-led corporate environmental programs, or through public voluntary schemes, or due to negotiated agreements between the government and industry. The firms that participated in this "green movement" stated that their considerations are expected future environmental regulations, future legal liability and the releasing of information on their environmental record to the public. A prominent example is PUMA AG, which has set high environmental standards on its production processes in developing countries – the PUMA "code of conduct" includes social standards like worker's rights, too. It is empirically shown that multinational corporations on average have better environmental standards and cleaner technology than domestic corporations[171].

Apart from improving their technology and efficiency, there are also financial advantages for firms to take part in this "voluntary approach": businesses that have signed onto the International Organization for Standardization (ISO 14000)

[170] Lyon, T. and Maxwell, J.(2002), *„Voluntary" Approaches to Environmental Regulation* , in Franzini, M.and Nicita, A., *Economic Institutions and Environmental Policy,* Ashgate, pp 76 - 110
[171] Stremmel, D. (2006), p. 135

seem to have competitive advantages like lower liability insurance and less regulatory oversight[172] than their competitors.

Hence, there is no empirical and no theoretical basis for holding that either governments are likely to lower their environmental standards to attract foreign direct investment, nor for the claim that corporations will move to other countries due to lower standards, and hence the "race to the bottom" and "pollution havens" claims must be dismissed.

Nevertheless, there is another aspect to this debate: even if corporations do not move away, it is claimed that trade measures should be used to countervail the alleged "eco-dumping" of countries with "unfair" low environmental standards[173].

First of all, "eco-dumping" is not the correct term because the price of the product is not below its price in the domestic market. When there is no local price discrimination, it cannot be called "dumping"[174].

However, the argument is that the pollution is not internalized into the product that is produced with low environmental standards, and this allegedly amounts to "unjustified" comparative advantages[175]. So according to proponents of this theory, developing countries' standards must be raised so that it is "competitively possible" for the industry in developed countries to internalize the negative effects of their production by complying with environmental regulations[176].

[172] Lyon and Maxwell (2002), p.109
[173] Also known as the „Boren proposal", US Senator Boren's proposed Pollution Deterrence Act of 1991
[174] Stremmel (2006), p.149
[175] Perroni and Wigle (1994), p. 552
[176] Wallach, L.(1993), *Hidden Dangers of GATT and NAFTA,* pp.28, in *The Case Against "Free Trade": GATT, NAFTA, and the Globalization of Corporate Power,* Earth Island Press

These arguments are flawed for several reasons: external effects of pollution are difficult to measure, and most importantly they differ between countries. Even if all types of negative external effects were internalized, this would not lead to same environmental standards in different countries. The cost of environmental pollution abatement varies across countries, and different societies may have different utility functions due to their different preferences. A good example is that Mexico might value clean water higher than clear air. In Mexico, money spent on pollution abatement for water could yield greater health gains for Mexicans who drink the water of that lake, than the same money spent on air pollution abatement[177]. This might be the other way around for the US. Differences in preferences do not only occur between different types of pollution, but also between the priority of environmental protection compared with other social aims such as poverty reduction and development. As mentioned before, preferences for higher environmental standards typically rise with income growth, and high demand elasticity[178] because the marginal utility of income is higher in poor countries than in rich countries, and vice versa for environmental standards. Moreover, environmental preferences might differ due to different traditions, cultures, and different pollution assimilation capacities of the environment, as well as different endowment with environmental resources[179].

Hence, differences in environmental standards between countries are legitimate just like other differences between countries that constitute comparative advantages, such as differences in wages, education levels, capital costs, infrastructure[180], tax levels, natural resources and geography, and the availability of technological resources (and accordingly availability of pollution abatement

[177] Bhagwati, Srinivasan (1996), p.168
[178] Klodt, T. (2000), p.12f
[179] Subramanian (1992), p. 141
[180] Bhagwati and Srinivasan (1996), p.169

technologies[181]). Intensified international competition will put pressure on governments to reduce any costs – environmental standards are only a small factor of it[182]. Hence, there is no justification for asking for a harmonization of all differences nor for imposing trade measures on countries for their "unfair advantage" in having lower environmental standards[183] - as long as there is no spillover of external effects[184].

Besides, Bhagwati claims that there is no evidence that low environmental standards have been set because of trade-competitiveness considerations. This is supported by the empirical findings of Tobey (1990) that suggest that low environmental standards do not lead to a change of trade patterns. He analyses the chemical industry that has the highest proportional pollution abatement costs of all industries, at 3% per cent of total costs[185]. He uses a cross-section Heckscher-Ohlin-Vanek model[186] to set out that strict environmental regulations have not measurably affected trade patterns and have not caused trade patters to deviate from the predictions of the Heckscher-Ohlin-Vanek model[187].

Hence, it has been shown that there is no economic foundation for claiming that a "race to the bottom" or "eco-dumping" must be avoided by imposing trade measures. This is supported by the 1999 and the 2004 study on Trade and the Environment by the WTO, which concluded that trade is not the root cause of environmental degradation. Instead of trade measures, domestic regulations

[181] Srinivasan, T. (1993), *Environment, Economic Development and International Trade: Some Issues,* Center Paper No.477, Yale University Economic Growth Center, p.19
[182] Bhagwati and Srinivasan (1996), p. 171
[183] Bhagwati (1998), *A Stream of Windows,* pp.237
[184] See chapter 3, cross-border pollution
[185] Tobey (1990), p.193
[186] Tobey (1990), p. 194. Heckscher-Ohlin-Vanek model of international trade is a multi-factor, multi-commodity extension of the Heckscher-Ohlin model
[187] Tobey (1990), p.208

should ensure the internalization of environmental impacts by producers and consumers[188].

However, despite the fact that no economic reason for trade measures or any other kind of interference with another countries conservation policies could be found, the legitimacy test is continued to provide for the altruistic motivation which seeks to protect the environment abroad even when no economic justification exists. In that case, trade measures are demanded as a second-best enforcement tool comparable to cases of human rights violations in another country. For that argument to be valid, the second step of the legitimacy test must be evoked:

2.2 Are trade measures effective in domestic pollution cases?

When trade measures are considered as second-best enforcement instruments to affect change in domestic environmental pollution, then that can only be legitimate if it is effective.

According to Bhagwati this is impossible because it is trying to do two things with the same instrument. If the WTO is used for both the furtherance of free trade and the enforcement of environmental standards then both aims must be compromised and fail[189]. Trade liberalization will be slowed down and social agendas will get compromised too because trade lobbies will fight for competitiveness considerations.

[188] This is also seen as necessary by Cole (2000), *Trade Liberalization, Economic Growth and the Environment,*p.36
[189] Bhagwati (2000), p.253

Perroni and Wigle (1994) support this by arguing that trade accounts for only a share of world production, and that environmentally "clean" goods make up a large part of trade[190]. Hence the impact of trade measures on specific polluting products might not be effective enough to change regulations in another country – goods produced with polluting PPMs that are not traded will remain unaffected. This can only be evaded if trade measures are also used on other products of the particular country, similar to the right to retaliation in the WTO dispute settlement process. When a country has successfully claimed against another country's discriminating policies, and those policies are not changed, then it is awarded the right to retaliate on other products. For example, the US imposed tariffs on European designer handbags in response to the banana import dispute with the EU[191]. However, a punishment of unrelated products would lead to far reaching side effects, which will not be analyzed in detail in this thesis because the probability of the international community agreeing on such punishment in case of domestic environmental pollution is very low.

Moreover, in the case of US-Tuna/Dolphins, the trade measures harmed Mexican tuna fish producers, but there is no evidence suggesting that it saved any dolphins – which was allegedly the aim of the measure. Precisely this ineffectiveness of the US embargo was mentioned by the WTO dispute settlement panel in US-Dolphin/Tuna I, and was one of the reasons for holding the US trade measure to be "unnecessary". The Panel explicitly stated that the US trade measures had no chance of aiding the conservation of dolphins, and could only be effective if third countries employed these policies as well[192]. Hence when trade measures are imposed by only one country or by a small group of

[190] Perroni and Wigle (1994), p.566
[191] Krugman, Obstfeld (2006), p. 302
[192] GATT (1994), US – Tuna/Dolphin I, Panel report, paragraph 5.28

countries, they are bound to be ineffective – even when the country imposing the measure is the largest economy in the world.

Needless to say that trade measures undertaken by small countries with small economies have therefore no chance of being more than symbolic what concerns affecting change in another country's domestic policies. It could only have domestic effects such as protecting domestic producers of that industry[193]. Only an international coalition of countries can impose trade sanctions that effectively harm one country's economy, such as UN sanctions – though it is still not said that this "punishment" of one country would lead to a change in domestic environmental policy. The only case in history in which trade sanctions are generally claimed to have had a strong effect on domestic policies are the sanctions imposed on South Africa under the Apartheid regime. But even in this case some analysts dispute the claim that the sanctions regime was effective, arguing that other, political reasons led to the regime change[194]. In any case, an international imposition of trade measures against one country can only be expected when there is a severe violation of international norms, which this is not likely in case of domestic environmental pollution.

So, trade measures targeting a change in domestic environmental regulation have a very high likelihood of being ineffective. Hence, with no economic justification and no effectiveness, the option of trade measures should be removed from the table. But the WTO dispute settlement panel has not followed this rationale. Instead, it did not consider the economic justifications for trade

[193] See chapter 9, Krugman, Obstfeld (2006)
[194] See Levy (1999), *Sanctions on South Africa – what did they do?,* Yale University Economic Growth Center, Discusion Paper No. 796: Levy argues that the sanctions had limited economic impact and that their effectiveness is impaired by the substantial time lag between imposition of sanctions and political change. Compared with extensive trade sanctions imposed on Iraq under Saddam Hussein and trade measures by some countries on the current regime of Iran, this argument is further strengthened

measures, and the question on effectiveness of trade measures was only occasionally part of the "necessity" test of the dispute rulings.

2.3 Are trade measures necessary?

Some environmentalists and civil rights activists might argue trade measures should be imposed despite not being economically sound, and despite not being effective – but out of moral reasons, arguing that one should restrict trade with countries using morally offensive PPMs. They argue that they do not want to get in contact with these products and their industry should not have to compete with them, even if the restriction in trade has no effective consequence on the production of the goods in question and may have negative welfare consequences for the country imposing the measure[195].

A less dramatic viewpoint on the matter is that trade measures may be ineffective but they should still be used as a means to address offensive PPMs, to show one's objection and to punish the alleged wrong-doer even if that does not lead to a change in the environmental regulations of the other country. These environmentalists argue that trade measures are necessary because there is no better alternative[196].

This definition of necessity correlates with how the WTO case rulings have defined the term[197]: the least trade distorting measure must be found and alternatives must be exhaustively investigated, including potential domestic environmental policies that reflect the domestic conditions and financial or administrative restraints of the other country.

[195] Bhagwati and Srinivasan (1996), p. 163
[196] Liebig (1999), p.89
[197] See chapter 1

Evidently, the best possible alternatives to trade measures are cooperation, negotiation and aid and technology transfer. This was also held to be true in the cases of US-Tuna/Dolphin and more explicitly under US-Shrimp/Turtle, where the dispute panel held that a transfer of the technologically advanced nets would have been a much more effective means of saving the turtles. Similarly, developing countries can receive financial aid and technology transfer for other environmentally friendly production devices. The liberalization of environmental goods and services currently under negotiation could provide a sensible and effective measure.

Moreover, it has been suggested to impose on domestic firms the obligation to keep the domestic environmental standards when they produce abroad, thereby addressing the fear that own multinationals could move their production to low-standard locations[198], despite the fact that there was no empirical evidence for this. The main benefit would be the appeasement of public fears of "race to the bottom" theories. It could be either imposed unilaterally or by a multilateral treaty as a non-binding OECD code.

Further, values can and should be spread by their own persuasive strength rather than by trade measures, similar to the increasing worldwide valuation of human rights. NGOs and civil society structures in the foreign country with the low standard of pollution could be supported for this purpose.

The WTO system provides for another measure as well: a country may restrict the import of a good by offering the importing country compensation for the violation of its trading rights or by offering that the other country take an

[198] Bhagwati and Srinivasan (1996), p. 178, also referred to as the Sullivan principle: under Sullivan, US firms in South Africa were held to adopt US practices and not the South African apartheid practices

"equivalent" action[199]. And as long as there is no discrimination, particular products may be legally banned under the WTO, such as a non-discriminating import ban on tiger meat. Further, where the ethical preference is widely shared, a multilateral treaty signed by a large number of countries can enable a WTO waiver[200]. In fact, when there is large international agreement, then the most beneficial and effective means are Multilateral Environmental Agreements such as CITES[201].

There are also other alternatives such as private boycotting by consumers[202], or eco-labeling, both of which can be very effective. Eco-labels can be mandatory or voluntary labeling schemes, and provide information on the product as well as its PPMs. They can serve as effective, market-oriented tools for promoting environmentally sound products and production methods.

On the other hand developing countries argue that eco-labels could constitute trade barriers. Mexico protested against the U.S. Dolphin Protection Consumer Information Act, which set up conditions on using "Dolphin safe" labels. The GATT panel held this labeling scheme to be consistent with GATT law because it was applicable to domestic and foreign products and was designed to prevent the misuse of labels[203]. Developing countries argue that trade barriers under eco-labels could arise if accessibility of the label is restricted, or if it is only issued to domestic producers, or if the criteria for obtaining a label are not transparent, or if foreign suppliers' pollution abatement programs are not considered for the label. They claim that they have to bear with additional costs to receive eco-labels, or to set up eco-labels of their own. They demand that eco-labels, if set up at all, must

[199] Bhagwati and Srinivasan (1996), p.185
[200] Bhatwati and Srinivasan (1996), p.187
[201] Analysis of MEAs in chapter 4
[202] Bhagwati (1998), p.240
[203] Gatt (1992), p.27

be controlled or administered by a third party or international organization[204]. The issue is currently under negotiation in the CTE of the Doha Round.

In conclusion to the case of domestic pollution it can be said that there are no economically sound justifications for the use of trade measures. Further, it is a rather ineffective instrument and a variety of alternative measures exist if countries seriously want to engage in protecting another jurisdictions' environment. Hence, Bhagwati asserts that low environmental standards are set for trade-unrelated reasons, but are used for protectionist agendas by the high-standard countries[205]. This claim is one of a wide range of arguments against the use of trade measures and has been shown in chapter one to be a large point of consideration for the WTO dispute panel. These downsides of trade measures and the issue of power imbalance will be addressed in chapter 5.

[204] Bhattacharyya, B. (1998) p.10
[205] Bhagwati (2000), p.252

3. Trade measures in response to cross-border pollution

Cross-border pollution is defined as physical harm that spills over from the country producing the product into another country's territory. It may be due to a polluting product, a polluting production process, or the consumption of a product. When the PPM is causing the damage, one needs to differentiate between two cases: either the producers use a polluting PPM, which can be adjusted so that the product may be produced in an environmentally friendly way, or in the second case the product itself is excessively using natural resources irrespective of its PPM, and the production needs to be stopped or limited in order to end the pollution. An example for the first case is the polluted river that runs through another country's territory, and the second case can be exemplified by rain forest depletion, or the excessive use of a common river, so that it dries out before flowing into the other country. If consumption of specific products is polluting the environment, then consumer behavior needs to be addressed.

This separation of cross-border cases is crucial because it is relevant to the interest of the country that is being harmed: either it wants to stop the import of a "dirty" product, or it wants the PPM in the other country to be changed, or finally it wants an end to the production of the product.

In cross-border pollution cases there is an indication for state intervention or supranational intervention if third countries are negatively affected by others' economic activities[206]. The aim of trade measures in cross-border pollution cases

[206] See chapter 2

can be the internalization of external effects by the other country, compensation for negative externalities incurred or the stop of externalities crossing borders.

3.1 Economic reasons for trade measures

In cross-border pollution cases, market failure in one state, due to lack of internalization of environmental pollution costs, leads to the physical crossing border of external effects. These negative externalities then affect market players in another state, causing inefficiencies and thereby constituting a case of cross border market failure[207]. It is legitimate for the harmed state to intervene on economic grounds.

As laid out in chapter 1, state intervention in cases of market failure must be as directly as possible aimed at the reasons for market failure. This is not possible in cross-border pollution cases because the reasons for market failure lie under another jurisdiction. Hence, a trade remedy against the negative external effects can potentially lead to efficiency gains[208]. However, some shortcomings of using trade remedies must be considered: negative external effects are difficult to measure and hence the correct trade policy tool or its exact level are difficult to determine[209], and inadequate trade measures may cause more harm than benefit to domestic welfare, particularly if the country considering the imposition of a trade measure is a small economy. That is due to the fact that small economies, as opposed to large players in the world market, cannot influence the world price by setting tariffs and consequently cannot achieve terms of trade gains. Furthermore, there is also the danger that in implementing trade measures the

[207] Stremmel, D. (2006), p.154
[208] Luckenbach (2002), p.123f
[209] Krugman, Obstfeld (2006), p.286

administration ignores national welfare and is dominated by special-interest politics[210], which will be addressed under chapter 5.

The trade measures that the polluted country can potentially impose vary according to the type of cross-border pollution. If the product itself is polluting an import ban can provide a sufficient and legitimate remedy, such as in the case of EC-Asbestos 2001. The case is more complicated if the pollution is due to a polluting PPM or a polluting consumption behavior in the other country.

Generally, the victim country can impose a tariff on polluting products and thereby internalize their negative externalities when they enter the market, subject to the condition mentioned above that tariffs can have adverse welfare effects on small countries. The downside of this measure is that only those products will be targeted that are imported, and the other country also uses polluting PPMs for the production of domestic products or goods produced for third markets, these will not be targeted by the tariff.

Further, trade measures could be used as inducements on producers *or* on consumers in the market causing the spillover negative externalities, not both at once: Tariffs have opposite effects on consumption and production – the tariff of a large economy on a good will make it more expensive in the domestic market and curb consumption, but it will lead to a lower price of the good in the other market and in the world market. Hence that could lead to more consumption of the polluting good and thereby defeat efforts to curb its production[211].

[210] Krugman, Obstfeld (2006), p.288
[211] See Beghin (2002), p.20 and Krugman, Obstfeld (2006), theory on tariff and trade, chapters 8

Hence, when a tariff imposed by a large country could potentially even increase the polluting production, it could be a legitimate measure of compensation for negative externalities, but it cannot limit or stop the production and hence it would not stop the spilling over of further negative externalities. The polluting country might prefer this strategy because it could keep its cost advantages and current PPMs. The cost of avoiding external effects compared to the welfare loss due to the import tariff will determine whether the polluting country changes its PPMs, i.e. whether the tariff can induce it change its environmental regulations.

Hence the welfare effects of a tariff imposed on polluting products are as follows: In the country which produces with negative external effects, the terms of trade and the producer surplus will be diminished, while the consumers benefit from the lower price. In the victim country, the consumers lose in welfare terms due to higher prices in the domestic market while the domestic producer surplus gains for the same reason. If it is a large economy, its terms of trade gain because it can influence the world price – if it is a small economy, then it could also lose on terms of trade. For both large and small countries, the inefficiencies resulting out of the distortion of production and consumption must be taken into account as well, in addition to welfare gains on the environment. Out of consequence from these welfare distributions, it is clear that a small economy can only set a tariff if it weighs the producer surplus more heavily than the other welfare effects[212].

Consequently, the polluting country would only be induced to change its environmental policies due to a tariff if the negative welfare effects on its producers and its terms of trade are very large. That is only likely if it as small economy – an import tariff imposed on a large exporting economy is unlikely to have a large effect, but that is dependant on the relative size of the country

[212] These issues of protectionism will be addressed under chapter 5

imposing the tariff. Among countries of equal size or when the victim country is larger, the tariff could at least induce the beginning of negotiations. Moreover, the welfare gains and losses of the producers using polluting PPM are decisive: the import tariff diminishes their welfare and that must be weighed against their costs of implementing environmentally friendly PPMs. The impact of the import tariff is determined by the extent to which the producers depend on the victim country's market for their exports. In case they have a large domestic market or alternative third country export markets, the effects of the tariff can be evaded.

Hence, in the cases above, a (large) victim country can at least gain compensation for the negative externalities by imposing a tariff, though it is unlikely that the polluting PPM can be changed that way. In a more extreme case, the polluting country might not have the financial and technical means of introducing higher standards. Hence, due to the pressure of the tariff the price of the good will fall, and the production process could become even dirtier as a consequence. So the capacities of the polluting country must be taken into account by the state that wants to use trade measures against the cross-border pollution.

Moreover, the optimal level of an import tariff is difficult to determine, apart from the general difficulties of internalizing negative effects even when they are caused domestically. Optimal in the sense of a maximum efficiency level is a Pigou-tax in form of an import tariff that amounts to the difference between social and private marginal costs of the producers[213]. The problem arises if the two countries are unequal in the level of their development and if there is a large difference in preference curves of the polluting and the polluted country. That leads to differences in private and social costs between the two countries. If the

[213] Stremmel (2006), p. 188ff

social costs of the importing, more developed country are to be internalized, they could be higher than the social costs of the exporting, less developed country, when there are different utility functions in the two societies. In that case, when the polluted country imposes an "optimal" import tariff, then the exporting country will not reach its own optimal efficiency level because the tariff will be too high. These different valuations make tariffs and also harmonized standards between countries difficult to set from welfare theory perspective[214].

Accordingly, it has been shown that in case of incomplete information about the costs of negative externalities, the effectiveness of a tariff is not given: Takeno (2002) analyzed that in an incomplete-information optimal-tariff equilibrium, the pollution is higher than in the case of complete information[215]. Hence when the cost of pollution abatement not clear the optimal tariff is not set and therefore the pollution is not effectively targeted.

In case that product standards are set as a requirement, hence if the victim country demands the implementation of PPM standards, the model has also shown some inefficiencies: Takeno (2002) finds that standards are easily set too high and hence the optimal standard is not reached[216] – a market oriented scheme such as tradable emission permits would provide for more efficiency. Efficient PPM standards must be set according to the cost structures of the firms that they are applied to, which may be very different between the polluted and the polluting country, and hence a standard demanded by the polluted government could not provide an efficient remedy.

[214] Stremmel (2006), p.190
[215] Takeno (2002), Essays on trade and the environment, UMI publishing, p.19
[216] Takeno (2002), p. 27

However, if the country suffering from negative externalities is not concerned with welfare arguments but is just concerned with enforcing the end of negative externalities spilling into its territory, it could consider setting a tariff that would deter any further production of the polluting good: that is only possible if the importing country is very large, and its market is the most powerful and maybe sole demander of the product which causes the negative externalities. Due to a very high tariff, it could curb the demand for the product in its own country, and thereby induce that the world price falls so that marginal revenue of the product falls below marginal production costs, and the production ends.

Nevertheless, it can be argued that these measures must be regarded more cautiously because in some cases, revenue from a pollution tariff could provide enough of an incentive for a government to take excessive measures, out of proportion for the negative externalities incurred. In the absence of an international agreement on cross-border externalities, a country might unilaterally try to change the terms of trade in its favor by imposing a tariff, thus reducing world income as well as redistributing it, and risking that other countries retaliate against its tariffs with their own trade measures[217].

These concerns are probably just theoretical and not realistic because in case of dispute about a negative externality, the parties affected are likely to claim in front of the WTO dispute panel or find a bilateral solution, such as in the case of EU-hormone beef:

The EU banned the sale of hormone-fed beef to the dismay of the US beef producers that used hormones and the biotech firms that produced these hormones. They argued that the European fear of hormone-fed beef is unjustified because it is “unscientific”. The US reacted by way of trade retaliation – and the

[217] Snape (1992), p.75

EU did not counter retaliate. The matter was not taken to GATT/WTO dispute settlement process. A dispute settlement panel would have been likely to ask for a scientific test[218], and the EU could have lost the case. The difficulty with scientific tests from an EU perspective is that a damage might not be proven now, at the current stance of science, but nevertheless be proven to be right in the future.

The WTO "scientific test" condition can provide an objective safeguard element to the cross-border pollution case[219] because countries can always defer their dispute to the WTO if they cannot reach a bilateral agreement such as the EU and the US in this case.

Further, Snape (1992) has shown in a model that a polluted country should not agree to the mere internalization of negative external effects by the polluting country or by an international authority. It should rather impose the tariff itself, or demand the end of negative externalities spilling over to its territory[220]. It shows that if a polluting country internalizes negative external effects by insufficient means, such as a low environmental tax, and the cross-border pollution still continues, then that may be worse for polluted country than if no measure had been taken at all. It is exactly the same case as a country imposing an export tax or a voluntary export restriction. If that country is large enough to affect the market price it can gain in terms of trade from this measure and consequently the importing country will lose in terms of trade[221]. However, terms of trade losses due to more expensive imports must be weighed against the marginal social benefits due to less cross-border pollution or the end of that pollution. When there is no difference in the level of cross-border pollution, then of course an

[218] Bhagwati and Srinivasan (1996), p. 194
[219] Bhagwati and Srinivasan (1996), p. 196
[220] Simplifications used in the model: constant costs of production are assumed world wide, further the same cost of a 'unit' of pollution is assumed in all countries, and a constant cost of pollution per unit of output. Snape (1992), p. 77
[221] Krugman, Obstfeld (2006), p. 202

environmental tax of the polluting country is an insufficient means that causes even more harm to the polluted country. In that case, it might be in the importing country's economic interest to ban the product rather than watch its consumers pay the tax to the exporting country. This would be so unless the exporting country agrees to pay the importing country at least that part of the tax revenue as compensation for the pollution incurred[222].

This is in line with the "polluter pays principle", first introduced by the Organization for Economic Cooperation and Development (OECD) in 1975[223], which holds that either the victim of cross-border pollution receives compensation, or it is permitted to tax the product – in this case to levy a tariff. However, due to the Coase theorem, transfer payments as compensation will not be optimal because receiving countries are likely to portray their marginal costs higher in order to receive a higher transfer than what would be efficient[224].

A special case occurs if all the pollution falls on a third country that neither produces nor consumes the product – either because the polluting product is not exported or because it is only exported to other countries. A hypothetical example of a special case like that could be pollution caused by North Korea on South Korea or vice versa, where the range of products traded is limited. Then the polluted country is the only player who is interested in a reduction of this polluting production and has no means of imposing direct trade measures on the polluting product. Hence it could impose tariffs on other products of the polluting country if it is a large economy, or it could ban other products of the polluting country. In this case too, the effects could be small if it has a small economy. But sanctioning

[222] Snape (1992), p.80
[223] See Lee, Roland-Hurst (1997) on p. 520 or Low and Safadi (1992). Theory holds that the producer, i.e. the polluter, should pay the social damage – that way, environmental externalities can be internalized into the production cost
[224] Stremmel (2006), p.210f

larger parts of the export industry could provide more pressure to the polluting state to affect changes to its PPM[225], though the effectiveness would still not be certain, as set out in chapter 2.

Hence, international agreements settling the rights to compensation and to retaliatory trade measures in cases of cross-border pollution would be beneficial[226]. And if the polluting state takes over the compensation, that effectively amounts to the subsidization of the production costs.

In conclusion, there is economic justification for state intervention in case of cross-border pollution, but the possible remedies are limited in their outcomes or inefficient for the country imposing them. The only case in which a trade remedy could clearly satisfy the polluted country is when it is a large country and seeks compensation for the negative externalities by imposing a tariff. The possibilities of ending the negative externality by the means of trade measures are extremely limited.

3.2 Are trade measures effective in cross-border pollution cases?

The cases in which effectiveness of a trade measure is limited or prohibited by the economic effects of tariffs have already been set out above – now, further shortcomings are considered. The results of the effectiveness of trade measures under domestic pollution cases apply here too.

[225] Stremmel (2006), p. 178
[226] Snape (1992), p.84

Bhagwati and Srinivasan (1996) consider the case of the US industry that uses a CO_2-intensive production process for producing electricity, whereas the Canadian industry uses a cleaner hydroelectric process. Assuming that the US pollution causes the transmission of acid rain to Canada, they consider the remedies that Canada has if the US does not compensate for the damage[227]. If Canada taxes imports of US electricity or even other US exports that are produced using this polluting electricity, then the effects would be spread out over all producers of electricity in the US. Canada does not have a realistic option of only targeting the producers that cause acid rain and hence in this case, the trade remedy could be far too weak[228].

The same is true if the polluting product only makes for a small part of imports from a country, then the effect will be too small to cause a reduction of pollution[229]. Alternative options such as targeting other products have been discussed above. Moreover, even when agreements are reached over certain PPM standards, despite the difficulties in measuring the right level of standards mentioned above, there is also the problem that it is nearly impossible for a foreign country to effectively control the standard of PPMs. It can only measure the negative external effects on its territory as an indicator – and depending on the type of pollution, there might be a considerable time lag before consequences are obvious.

The merit of the WTO could be that it could effectively set out the rules for compensation in cross-border cases. It could serve as an effective enforcement tool if the rules are not abided by – even now without clear rules on cross-border pollution due to PPMs, it has provided some leeway in its case rulings to deal the

[227] Bhagwati and Srinivasan (1996), p. 197
[228] Bhagwati and Srinivasan (1996), p. 197
[229] Snape (1992), p.85

disputes in this area. It could provide a great benefit if it not only clarified the three types of pollution, but also set out for all members how cross-border pollution is to be remedied instead of two countries seeking a bilateral agreement and starting negotiations from scratch on the matter.

So, the most effective trade measure in case of cross-border pollution is the import ban on a polluting product – it is not subject to inefficiencies like the other cases and is frequently employed under the SPS and TBT Agreements, as well as under the Basel Convention. However, trade measures are unlikely to be effective when the PPM is causing the pollution, but under certain circumstances, trade measures in that case could provide for compensation.

3.3 Are trade measures necessary?

The analysis above suggests that trade policy measures in case of cross-border pollution can be economically justified, and can provide effective compensation whilst not necessarily affecting a change of PPMs or the end of negative externalities spilling over to their territory. Hence trade measures must be compared with other measures.

Theoretically it is possible that countries reach bilateral agreements: the negotiation solution according to Coase Theorem holds that in particular cases the parties would voluntarily negotiate because they would see positive income effects on all parties – yet, that may not be realistic because parties will prefer strategic behavior[230] and continue with the negative externalities if they do not

[230] Stremmel, D. (2006), p. 179ff

have to fear the other country's retaliations, such as in the case of a polluted small country.

A useful proposition against inefficient or inappropriate tariffs in response to cross-border pollution is that trade measures taken by the polluted country should have to state a macroeconomic assessment[231], including costs of disrupted trade and income losses for traders, consumers of final goods and processors of intermediates, and the pollution abatement costs of the negative externality. Though these items are difficult to measure, even estimates could make the effects of the trade measures clearer for both parties. This could induce the polluting country to stop the negative cross-border effects, or it could lay the foundations for better negotiations. Maybe that way, common abatement charges could be agreed upon, such as emission charges, which then would not have to be negotiated on from scratch in other cases. Disputes on these cases could then be resolved by an international environmental regime.

The long-term alternative to trade measures is international negotiation targeting the cause of market failures: ideally, they would lead to national institutions taking measures to internalize negative environmental externalities and thereby remove their market failures. This is only likely if there is an international agreement that all countries take internalization measure, and if flexibility is given to the standard setting so that countries can measures their individual costs and utilities. A harmonization of standards is probably impossible to agree on internationally, due to developing countries' resistance.

Alternatively, an international environmental organization could handle cross-border pollution payments and reparations. A Pigou tax on cross-border external

[231] Langhammer (2000), p.262

effects could be paid to an international body, which could give it to those countries that suffer from cross-border external effects. That way, countries could be induced to stop the PPMs that cause cross-border negative externalities, and at the same time there would be less danger of arbitrary or protectionist tariff and standard setting by the polluted country.

Multilateral agreements already exist on the cases of cross-border pollution due to “dirty” products, i.e. when the polluting product itself must be restricted. A successful example is the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989), which has effectively reduced the amount of international hazardous waste dumping[232].

In conclusion, it has been found that a country that is negatively affected by cross-border pollution has the legitimate right to take political measures against this action, albeit trade measures provide many inefficient side effects for the country imposing the measure. Still, in some cases it could be an effective way to receive compensation, but it is unlikely that trade measures can effectively end the cross-border pollution merely by their economic impact. Negotiations are necessary, and hence alternatives to trade measures rely on the willingness of the countries to participate in international negotiations on setting the framework for cross-border pollution remedies.

[232] Brack, D. (2000), p. 123

4. Trade measures in response to global pollution

The distinction between national and international pollution is not always clear, particularly not in cases of preservation of biodiversity, rainforest destruction or nuclear fallout. Only a few environmental degradations are overwhelmingly agreed to as being "global": for example, ozone depletion, carbon dioxide emissions that affect the world's climate, or pollution of international waters. Hence, a particularly large part of the discussion of global pollution and trade will focus on the example of climate change.

First, equally to chapters 2 and 3, the case is considered when an individual country wants to use trade measures against global externalities – the basic foundations for that set out briefly. Then, the focus will be on the more realistic case of an international agreement by a large number of states, hence MEAs. The example of climate change and its particularities are first set out, then trade measures under MEAs are considered generally, and with respect to different two examples of MEAs responding to climate change: the Montreal Protocol and the Kyoto Protocol.

4.1 Economic reasons for trade measures

Much of the economic analysis on cross-border pollution can equally apply to global pollution cases. Here, too, there is harm by negative external effects. Though the difference is that in this case negative external effects are global, and they justify state intervention by a "global" state, i.e. by international agreement.

Here, trade measures by individual countries are not as straightforward as in the case of cross-border pollution because the individual country has more or less also contributed to the global pollution. Causalities of negative externalities in global pollution, their effect on other countries and their attribution to a particular polluter are difficult to determine.

The measurement of global pollution caused by externalities is still under research. The UN System of Environmental and Economic Accounting (UNSEEA) suggested incorporating into the analysis estimates of physical and monetary flows associated with the environmental pollution[233]. Examples of such inter-relationships in environmental and economic flows are that air and water pollution can lead to lower timber yields and lower fish harvests, and to additional cleaning costs or higher health expenditures of the population. However, in cases of global interdependencies such as CO_2 emissions, this data can be impossible to gather, taking into account that also historical and present liabilities of individual countries would have be assessed if the country seeks compensation or wants to implement an internalization measure.

However, the general economic analysis of negative externalities and the justification for state intervention holds true in global pollution cases, too – apart from the fact that in global pollution, the country has no chance of addressing the reasons for market failure because that could only be possible if it could influence the jurisdictions of all countries in the world.

Equally to the analysis of trade measures in cross-border pollution cases, here too a tariff could at best provide compensation, but not the change of domestic environmental policies of another country. And compensation does not make

[233] Lee and Roland-Holst (1997), p.520. For more information see US Department of Commerce (1994).

sense in global polluting cases because the loss to be compensated for is nearly impossible to measure, and so are the liabilities of individual states. So, who should compensate whom, for what and how much? The open questions are too many for a case of compensation.

As stated under chapter 2 and 3, it is optimal for the welfare of all countries if each state set its national environmental regulations so that national market failures would be avoided and hence efficiencies would be maximized. But in global pollution where causality and effects are not clearly definable, and also obligations as to internalizations are not clear, the incentive is particularly strong for countries to keep their cost advantages, even if negative external effects spill over globally to other countries – without international agreements, countries will not bear part of the costs of the global society if they fear that other countries will not do the same.

Hence, if a country wants to remove global externalities of other countries, it would need to justify its measures by first internalizing its own global negative externalities. That is difficult to measure and to implement – equally, it is nearly impossible to measure another country's negative global externalities in order to impose efficient trade measures or determine the measures that the other country supposedly ought to take. If one individual country was to do that, then it is likely that the present and historical liabilities and the "equitable" burden sharing proposed by the country seeking to use trade measures will be set arbitrarily. Then other countries, in particular the ones targeted with trade measures, will not accept these unilateral decisions and claim against them in the WTO.

The need for international cooperation is further exemplified by the tariff example that was also part of chapter 3: supposing a tariff is used by one or some countries against certain products with global negative externalities, this could lower world price of the product[234]. Now depending on the demand elasticity, this could lead to an increase of third countries' demand for the polluting products, which would help the producers of these products. Besides, as set out above, the detrimental effects of tariffs, particularly on a small country, apply too.

Moreover, the optimal level of import tariffs or the optimal level of internalization that is demanded is difficult to determine just like in cross-border pollution cases. But in global pollution, the difference between social and private marginal costs of the producers could be a lot larger than in the case of two neighboring countries and more difficult to ascertain because of the large number of countries potentially involved in the global pollution case, and because of the difficulty to measure international public goods. Here, there are differences in preference curves worldwide, but in particular between developing and developed countries. As in chapter 3, this leads to differences in private and social costs that make it nearly impossible for one individual country to set the level of internalization for other counties. The optimal environmental standard will be different for each country[235].

Moreover, property rights to global or seemingly national environmental resources are not clearly defined, e.g. the Amazon forest could be regarded as a universal resource that the world has a right to. In that case, Brazil is causing a negative externality and needs to compensate the world for its destruction. Or the rainforest could be regarded as a Brazilian national resource that renders an

[234] Krugman, Obstfeld (2006), p.198ff
[235] Stremmel (2006), p.190

environmental service to the rest of the world due to its carbon absorption, hence it is a positive global externality that is not charged – and in that case, Brazil could ask for compensation for the preservation of the forest[236]. The analysis on the different valuations of environmental resources between countries and hence their different assessment of negative external effects was set out in chapter 2 and equally applies here.

Hence any kind of sanction or trade measure as a response to global pollution does not have the same convincing foundations as in cases of cross-border pollution where liabilities and causalities were easy to determine. Here, international agreement and international cooperation are crucial for economic and for effectiveness reasons.

4.2 Are trade measures effective in global pollution cases?

The effectiveness of trade measures in global pollution cases can be inferred from the analysis above and from the effectiveness discussed under cross-border pollution in chapter 3. Actions by individual countries have no chance of effecting the internalization of global externalities by other countries – the pressure that can be asserted by trade measures is not enough and considerations of competitiveness by the other country will outweigh the option of yielding to the trade measures of one country.

If sanctions are imposed unilaterally, that could have negative effect for the country invoking them because domestic exporters lose market share, and as

[236] Subramanian (1992), p.148

mentioned above, third countries might profit from sanctioned trade relations, "trade leakage"[237].

Moreover, similar to cross-border pollution, the polluting country can only cooperate and end its global externalities if it has the technical, financial, administrative capacities to do so – mere pressure is not likely to be effective.

Further, the effectiveness of trade measures is not only impaired by the shortcomings of trade measures as such, but also by the fact that it is difficult to identify any effective measures for global pollution cases – partly due to lack or dispute about scientific evidence, or due to the world wide interdependencies which make "effective" measures difficult to determine. In the example of climate change, there is no guarantee that reducing the emission levels will be "effective" in the sense of preventing climate change, and no guarantee that the levels set in previous international agreements can be effective for that purpose or not.

Finally, in a dispute area where international agreement is so difficult, trade measures as punishment seem not effective enough and at the same time dangerous because they could lead further away from international cooperation, particularly trade measures against unrelated products[238].

As under the economic reasons for trade measures in global pollution cases, the conclusion is that only international cooperation should be used to target global pollution cases.

[237] Droege (2007), p. 86
[238] GATT (1992), p.36

4.3 Are trade measures necessary?

Clearly, the alternative to using trade measures unilaterally is international cooperation and negotiation. The discussion on multilateral environmental agreements (MEAs) will follow in chapter 4.5 – but other alternatives are set out here.

From an economic perspective, in case of global pollution a multi-lateral cooperation should identify the most efficient way to internalize global externalities. The principle of cost-minimization across countries with efficient and cooperative solutions should be applied, including compensation and just distribution of the gains[239] if they are tangible like pollution taxes levied internationally. The aim should be the efficient minimization of abatement costs worldwide. But this requires an agreement of the international community as well as effective measures against "free riding", i.e. benefiting from the efforts of the international community whilst not contributing the goal. Yet the lack of potential policy instruments against free riding and the lack of an international enforcement agency or mechanism is partly the reason for stale negotiations and lack of cooperation.

In summary, all the alternatives set out for domestic environmental pollution cases apply to the global pollution cases, too: the liberalization of trade in environmental goods and services could contribute to a large extent to world wide reduction of pollution and emission levels. Continuing on this line, further aid and technology transfer, or inducements such as the offer of market access in return

[239] Bhagwati and Srinivasan (1996), p.199

for environmental protection is likely to be a much more effective instrument for better environmental protection word wide than the use of sanctions[240].

As Droege (2007) has shown in her game theory model, cooperation in Research and Development (R&D) and technology transfer are more effective incentives than trade measures[241]. However, in case of sharing R&D, firms that invent low-emission technology will have to be reimbursed[242] – their interest is to limit the number of benefiting parties, otherwise they will have less incentive to invent. If it is not reimbursed, this could in turn lead to market failure because social gains and positive external effects would not be charged[243]. Empirically, it has been shown that linking R&D cooperation to environmental cooperation leads to larger coalitions and more effective environmental measures[244].

Alternatively, trade inducements such as access to markets can be employed. In this case gains from environmental cooperation must be large enough to induce large countries to cooperate with countries that have small economies. If the gains from environmental protection seem low and unevenly distributed, or only relevant in the far future, then incentives might not be enough. And countries with high compliance costs will have to balance out their costs of adapting cleaner technology with the trade gains promised to them.

Consequently, a country's motivation to offer positive inducements and make transfer payments to other countries in order to receive their cooperation depends on the level of damage that it expects to incur from the global pollution. In the case of climate change, the damage will differ across countries, with some

[240] Knorr (1997), Umweltschutz, nachhaltige Entwicklung und Freihandel, p.32
[241] Droege (2007), p.98
[242] For a game theory analysis on this matter, see Droege (2007), pp. 78ff
[243] Krugman, Obstfeld (2006), chapter 9
[244] Droege (2007), p.83

nations like Russia even likely to benefit. Hence, in 2004, the EU employed this strategy when it promised to support the WTO accession of Russia if Russia would ratify the Kyoto Protocol[245].

Furthermore, direct compensation could be advisable when a country is providing an environmental service: The debate on global warming has often stressed the link between deforestation and increase of carbon dioxide in the atmosphere, so that it is still a matter of dispute whether the reduction of emissions or the preservation of forests should be the first priority. The GATT 1992 report on Trade and the Environment states that countries with large forests are providing a service to the rest of the world and should be compensated for reducing deforestation rather than being exposed to trade restrictions such as a ban on imports of tropical timber. According to the GATT report a ban on trade in tropical timber by some countries could only have a minor effect on deforestation whereas compensation paid to those countries could be a more effective inducement[246].

As already mentioned, trade liberalizations in environmental goods and services are necessary: Tariff and nontariff barriers (NTBs) as well as some intellectual property rights hinder the transfer of environmentally sound energy technologies in developing countries. Some developing countries have taken measures such as increased research on energy efficiency and alternative energy sources in order to prepare their contributions to emission reductions. China has become a dominant player in the global wind power market, and biofuel producers Brazil and Indonesia benefit from this development - though the downside effects such

[245] Droege (2007), p.90
[246] GATT (1992), p. 35

as less available resources for other production must be born in mind, as evident from the worldwide food price crises in April 2008.

However, developing countries are in need of cost-effective policies and long-term mitigation technologies, especially large coal-intensive economies like China and India. The UNFCCC promotes technology transfer to developing countries, including environmentally sound technologies, and also tries to induce government behavior so that an economic atmosphere conducive to public and private sector technology transfer is created. The UNFCC called on governments to adhere to fair trade policies and remove technical, legal and administrative barriers to technology transfer. At the Conference of Parties COP-7 in Marrakesh 2001, a technology transfer framework was adopted to enhance implementation of climate-friendly technologies.

Hence there could be substantial gains in trade and in environmental policy terms if developing countries remove or reduce these tariffs, and the Doha Declaration called for negotiations on liberalization in this sector[247].

Moreover, there is a continuous demand for an International Environmental Organization (IEO) to take on the responsibilities for global pollution cases. Like in cross-border cases, the international authority could measure costs of internalization and costs of pollution, and giving out certificates or licenses for using global resources, such as tradable emission permits. These are already part of the Kyoto protocol, which will be referred to under 5.4. For now, suffice to say that such an IEO would have to find international consensus on its measures, which is very difficult to achieve in case of climate change as exemplified by the Kyoto Protocol. And further, when certain international agreements have already

[247] Kumar, S. and Chowdhury, N. (2005), p.2

been made, then it could be an easier alternative to provide for their incorporation into the WTO instead of creating new costly international institutions.

Besides the governmental measures, civil society measures such as boycotts of polluting products and the use of eco-labels can be employed in the global case, similar to the domestic pollution case.

And finally one could claim that the overall goal of current international action is focused on prevention, whereas what is needed is substantive investment in adaption to the inevitable consequences of climate change[248]. Islands that are endangered of being flooded can be evacuated; and changes in production processes in areas that are likely to undergo drastic environmental changes can be prepared, especially in the agricultural sector.

In conclusion, the use of trade measures without international agreement in global pollution cases cannot be justified. The economic reasoning of negative external effects applies here similarly to the cross-border case of market failure, but is subject to much higher uncertainties and disparities when it comes to assessing the externalities. Due to the fact that property rights on the global environment are not clearly defined, the use of trade measures in cases of externalities must be arbitrary and cannot be adequately measured. Moreover, it is ineffective if only a small group or one individual country employ the trade measure, and even international sanctions cannot guarantee effectiveness in terms of inducing domestic environmental regulations, particularly if the polluter or the non-cooperative state has a large economy.

[248] Pearce, D. (2003), p. 380

Consequently, the most effective and most equitable alternative in the case of global pollution is international agreement in the form of MEAs, which settle the measures to be taken and the burden sharing cooperatively and multilaterally. Other measures like inducements, technology transfer, cooperation and compensation are better alternatives than trade measures and ideally the international community could use these alternative measures in MEAs. However, the question remains if the international community should use common trade measures in order to induce cooperation within an MEA or to punish "free-riding" attempts. That will be discussed using the example of climate change.

4.4 The case of climate change

A general overview on the economic effects of climate change is outside the scope of this thesis – merely those aspects will be briefly introduced or summarized from the above sections that make international negotiations on climate change so cumbersome.

In the case of climate change, a global solution must be found to a common problem. But the consequences of climate change differ across countries - some are likely to benefit, e.g. Russia could potentially use its large land resources in Siberia for agricultural or other productive purposes, whereas other countries are damaged strongly[249]: Countries around the Mediterranean will suffer, their agricultural capacities will diminish and they will need to adapt their infrastructure to even more intense global warming.

[249] See IPCC Climate Change Report 2007

These differences among countries make up one part of the difficulty because the incentives to take action against climate change vary among countries. Further, due to the large differences in historical and present emission levels between countries, there is no consensus on the "equitable" burden sharing, and the obligations and present and historical liabilities of countries, also called the stock and flow issue[250].

Moreover, due the imbalanced responsibilities for the current situation, and the differences in preferences between countries based on their different level of development, it is very difficult to agree on measures to combat climate change for each country. To ascertain the equitable burden for each country would need to take into account a complicated variety of data including social preferences that are difficult to measure[251].

Climate policies necessarily interact with trade policies because they can lead to competitive advantages or disadvantages depending on what level of regulation is set. In some countries the cost of adhering to climate change policies may be too large for them to participate. They demand transfer payments to compensate for their additional costs: However, as mentioned above, transfer payments to induce cooperation from other countries could be inefficient if that could lead to receiving countries portraying their marginal costs higher to receive a higher transfer than what would be efficient[252]. The direct technology transfer or R&D cooperation suggested by Droege (2007) is to be preferred, see above.

Commitments of the international community to combat climate change have been rather low in the past decades, such as in the 1992 UN Conference on the

[250] shall developed nations bear more burden because they have contributed to the stock of problems more in the past? See Srinivasan (1993), pp.23
[251] GATT (1992), .35
[252] Stremmel (2006), p.210ff

environment and development in Rio de Janeiro. This conference led to the UN Framework Convention on Climate Change, UNFCCC[253], which aims at controlling global warming but the notions remained fairly vague in this agreement. It included voluntary carbon dioxide emission targets for developed countries, which were to be reached by 1999. However, out of western developed countries only UK and Germany reached their goal[254] - and even they have reached it more out of accident than out of choice. In Germany the re-merger with East Germany was responsible and in UK it was due to the privatization of the electricity sector and consequently the switch to gas-fired stations instead of coal-fired stations[255]. This example shows how reluctant the international community has been towards these steps until recently. The Kyoto Protocol is also part of the UNFCC and will be analyzed as one of the MEA examples in subchapter 4.5.

However, due to the latest global environmental catastrophes in the past decade and due to a higher civil society concern, commitments of developed countries have increased – with the exception of the US, which has opted out of the Kyoto Protocol negotiations. Even though the commitment of some industrialized countries is currently very high, and increased even further on part of the EU as a result of the G8 summit in Germany in 2007 – still, all efforts by developed countries are just one part of the coin: the World Bank estimates that by 2030 the developing countries' share in world GDP could amount to 60% in terms of purchasing power parity and their share in world trade could rise to almost 50%[256].

Industrialized countries have historically caused excessive levels of greenhouse gas (GHG) emissions, and as developing countries claim, their own per capita

[253] The UNFCCC came into force on 21st March 1994
[254] Pearce, D. (2003), p. 368
[255] Pearce, D. (2003), p.369
[256] The World Bank (2007), p.3

emissions are still very low. However, GHG concentrations are already so high that action only on part of developed countries will not be enough to combat climate change[257]. It is projected, that between 2020 and 2030, developing country emissions of carbon from energy use will be even higher than those of developed countries, mainly due to the size and growth of India and China.

Developing countries understandably have other priorities than to adopt restrictive policies for their emerging industries with a view to long term expected climate change consequences. Their preferences are the reduction of poverty and social challenges. However, developing countries are most likely to be more vulnerable to the impacts of climate change due to their geographical locations, and to the fact that their economies are more climate-sensitive, e.g. agriculture and forestry. They are likely to be affected more regularly by floods, by extreme weather conditions and by reduced agricultural yields. Developing countries also have fewer capacities to react to the expected impacts of climate change[258] and adapt to them. Hence even for countries where in the short run the preferences lie elsewhere, the consequences in the long run can be very large and arguably have not been taken into account accordingly in the utility functions of these countries – though that remains a hypothesis. Further, it can be argued that if developed countries have the intention of supporting developing countries and mitigate the effects that will damage developing countries in the future, then they could also help in other urgent issues such as liberalization of agriculture and more technology aid now[259].

Though it is easier for developing countries to grow whilst integrating climate policies into their development than to undergo transition to a low-carbon

[257] Gibbs, T. (2008), p. 32
[258] The World Bank (2007), p.7
[259] Pearce, D. (2003), p. 379

economy at a later date, it is also evident that developing countries need support as they lack institutional, financial and technical capacities needed for implementing any of these climate change policies[260]:

The current scientific results and technological opportunities suggest that the following measures are needed to reduce greenhouse gas emissions (GHE). Applying a modern set of technologies, such as energy efficient technologies, renewable energy and other technologies such as electric and hybrid vehicles can achieve the stabilization or reduction of GHE. All of these are summarized under the term "environmentally sound technologies" (EST) in this thesis. Further measures apart from modern technology include end-user efficiency and conservation, i.e. more energy efficient consumer and producer behavior, a more efficient power generation, carbon emissions capture and storage, as well as employing alternative energy sources. At the G8 Summit in 2007, it was agreed that there should be greater investment in clean development mechanisms (CDM), which fosters investment in low-carbon energy generation in developing countries, and that more aid is needed from international organizations and donors, as well as more flexibility in international property rights so that low-carbon technology is transferable more easily[261].

There are already some MEAs that have incorporated some of these climate change policies, and that show how international agreement might be achieved and if it could be enforced using trade measures.

[260] The World Bank (2007), p. 6
[261] Gibbs, T. (2008), p.8

4.5 Trade measures under MEAs

Trade measures in MEAs can fulfill several objectives: either to restrict trade in polluting products (such as the Basel Convention and the Montreal Protocol), or to induce countries to join or comply with an MEA and thereby to prevent "free-riding" (also the Montreal Protocol), i.e. to prevent them profiting from the benefits of an MEA without incurring its costs, and to ensure effectiveness of the MEA[262]. Currently there are 238 MEAs and about 30 contain trade measures such as trade bans, trade licensing, packaging and labeling requirements[263]. MEAs address various types of pollution, including saving endangered species, which is considered an emotional externality in this thesis, and the prevention of climate change.

The central matter of dispute in MEAs concerning international public goods is how to prevent some countries from free-riding on the efforts of others, i.e. from opting out of their share of international commitment. Also the World Bank has voiced its concern about disparities in commitment between industrialized countries[264].

Proponents of trade measures argue similarly to the domestic pollution cases that trade measures are an effective tool, compared to diplomatic pressure, or financial and technological assistance. This thesis has already assessed the inadequacy of trade measures in domestic and global pollution cases, and its limitations in cross-border pollution cases. It has been shown that the only

[262] Brack, D. (2000), p. 123
[263] Sankar, U. (2007), p. 29
[264] The World Bank (2007), *International Trade and Climate Change,* p.3

condition in which trade measures can be effectively used is the import ban on polluting products when the product itself is polluting – and that case is already accounted for by the WTO legal system if domestic and foreign products are equally targeted[265]. However, the question that now remains is if the multilateral use of trade measures under an MEA changes any part of the above theories.

On the outset it must be noted that the compatibility of trade measures under MEAs and the WTO legal system is contested because in some MEAs, trade measures are used against non-parties to the treaty (the Montreal Protocol). That could violate the non-discrimination principle under WTO law[266]; and equally MEAs can discriminate between products based on the PPMs of a product and its environmentally friendly life cycle. To resolve the conflict, the WTO could amend its rules to incorporate for MEA exemptions, or issue a waiver on certain WTO trade obligations when trade measures are imposed for MEA purposes, or the WTO could hold that any trade measures in MEAs must be WTO consistent[267]. However, changing WTO rules needs consensus of all WTO members and that seems unlikely currently[268].

An analysis of legality of MEAs is outside the scope of this thesis – suffice to say that the matter is currently under negotiation in the CTE, and so far, no WTO cases have come forward to challenge the consistency of MEAs with the WTO rules.

In order to assess if the findings of this thesis on the legitimacy of using trade measures in environmental pollution cases hold true for the particular cases of MEAs, two examples of MEAs on climate change are analyzed: the Montreal

[265] GATT (1992), p.25
[266] Clapp, Dauvergne (2005), p. 147
[267] Brack, D. (2000), pp. 133-135
[268] Clapp, Dauvergne (2005), p. 147

Protocol on Substances that Deplete the Ozone Layer 1987 (Montreal Protocol), and the 1997 Kyoto Protocol (implemented in 2005). The Montreal Protocol provides a good example for a MEA that uses trade measures against free riders for the protection of climate change. This will be compared with another climate agreement, the Kyoto Protocol of the UNFCCC, which does not use direct trade sanctions.

Considering that the economic foundations for trade measures will not be altered by this example, these two MEAs can only provide further insight as to the effectiveness of trade measures and their necessity in terms of available alternatives.

4.5.1. The Montreal Protocol

The Montreal Protocol 1987 is seen as a successful MEA, because of its high level of international participation and the successful environmental effects with respect to ozone layer depletion[269]. Four amendments were made over the past two decades, adding to the list of substances and enhancing the scope and controlling schemes for its provisions.

The Montreal Protocol has a high rate of WTO members that have assigned to it: 98% of its members are also WTO members. And all WTO members apart from Taiwan are members of the Montreal Protocol[270]. In total, the Montreal Protocol has 182 parties.

[269] Krueger (2000), p. 152
[270] Droege, S. (2007), p. 20ff

The objective of the Montreal Protocol is to limit the release of ozone-depleting substances (ODS), such as aerosols containing chloreofluorocarbons (CFCs) and other substances, into the atmosphere. It incorporated provisions for reducing emissions and phasing out the most commonly used CFCs altogether, but providing for a 10-year delay in the phase out for developing countries[271].

Trade measures are used against non-parties to control and restrict trade in ODS, but also affect trade with parties. Restrictions were imposed on trade with non-parties in bulk ODS, such as CFCs themselves, and on products containing ODS, such as air conditioners – the trade restrictions were applied to developing countries first, then gradually extending to other countries[272]. It allowed for some flexibility because parties who did not comply with the control measures could be deemed non-parties. Equally, parties who had not signed the Protocol but proved that they are in effect complying with control measures of ODS in the Protocol, were exempt from trade restrictions[273].

The parties to the Montreal Protocol decided that trade of products made with but not containing ODS should not be restricted due to feasibility concerns. The Montreal Protocol also entails financial and technical assistance to developing countries, taking into account their individual economic situations, and has introduced a licensing system to allow control and monitoring of trade in substances controlled under this protocol[274].

Trade measures in the Montreal Protocol induce participation because they are directed at non-parties, controlling trade in ODS (Article 4 Montreal Protocol) –

[271] Bhattacharyya, B. (1998) p.14
[272] Krueger, (2000), p.153
[273] In 1992, Columbia proved that it complied with the terms of the Protocol despite not being a party and hence was no longer subject to trade measures, Kruger (2000), p. 162
[274] Droege, S. (2007), p. 35

there is no ban on products made with the listed substances, only products containing ODS are restricted in trade, hence it is a trade measures against "dirty" products. Moreover, the trade measure of the Protocol concerns the prevention of migration of industry to non-participating countries – hence the competitive advantage of non-signatories over signatories was undermined[275].

The second important aspect of the Montreal Protocol is aid and technology transfer and R&D cooperation: it supports exports of technology that recycle or destruct ODS, and holds that innovations in member countries should not be withheld from non-members.

It has lead to universal participation and fast technological progress regarding substitutes to ODS, leading to an environmental success story[276]. The key factors apart from trade measures are financial assistance to developing countries for adaptation costs, and technological cooperation.

The success of the Montreal Protocol is not only due to trade measures, because coincidentally the substitutes for the chemicals became available earlier than expected. But still, trade measures affected that exporters of ODS had an incentive to encourage their customer countries to join the Protocol. The party/non-party trade restrictions provided for strong incentives, because these trade measures cut off supplies of ODS and markets for ODS-based exporting industries[277]. Trade measures also speeded up competitiveness of substitutes and preventing trade leakage. However, the success was the threat and not the

[275] Droege (2007), p.87
[276] Droege (2007), p.88 and OECD (1998), p.20
[277] Droege (2007), p.89

application of trade measures[278], in cooperation with technical transfers and special provisions for developing countries.

But this may not be directly applicable to other environmental problems. At the time when the Montreal Protocol negotiations started, the economic value of the chemicals was very large and world production was mainly concentrated in the US and the EC. Multinational companies were actively pursuing substitutes because they were expecting regulations. The US and the EC were concerned with their competitiveness – and the question how to reduce production and consumption of these chemicals without surrendering advantages to those who did not comply with an agreement, and at the same time ensure markets for alternatives, hence substitutes to ODS that were under research in the US (and the EC). Therefore restriction in trade in these regulated chemicals seemed like the most beneficial measure.

Hence there were both environmental and national economic reasons for restricting trade[279]: companies were prevented to change location and continue producing CFCs, non-parties to the Protocol were hindered from gaining competitive advantage over the industries in member countries that were subject to control measures, and at the same time the trade measures ensured that a market for substitutes was created.

Thus no free rider benefits were possible because both countries that were exporters and importers of ODS had to join to maintain market access[280] – hence there was an incentive to join for developing countries (importers) and developed countries alike. The incentive was particularly strong for the producers that

[278] Droege (2007), p.90
[279] Krueger (2000), p. 156
[280] Krueger (2000), p. 157

wanted to export and for those importers with small markets that needed to maintain access to supplies – and the incentive was strongest for small domestic markets with small production capacity.

But for developing countries with large domestic markets and large production capacities for CFCs, the trade restrictions were not enough as an incentive, such as India and China. For these countries, the incentives were access to funds, technology and alternative substances.

Hence trade measures were use successfully to join the Protocol, due to a large difference between treatment of parties and non-parties to the Protocol – it was advantageous to join the Protocol, also to take part in deciding on substances, to have a voice in the negotiations rather than staying outside and being affected by it[281].

Developing countries were reserved about the Montreal Protocol, especially India and China wondered why they should restrict their own industry and rely on Northern supplies without any compensation. India and China took the initiative and called for an "international fund to pay for research into alternatives and to assist the free transfer of technology"[282]. In the London Meeting 1990 (where the first amendment to the Protocol was made), they reaffirmed that they would not sign the Protocol without additional funds.

The main opponent was the US. They finally agreed to the additional funds, also due to pressure from home industry that convinced the US administration that unless developing countries had the financial resources to pay for substitutes,

[281] Krueger (2000), p. 159
[282] Krueger (2000), p.161

large new markets would be denied to US industry and to other exporting nations. The fund was created and provided for enough incentive for developing countries to join, even though the technology transfer was not "free"[283]. Further details on the position of India in this matter will follow in chapter 6.

Critics on the Montreal Protocol hold that the environmental goal of reducing the consumption of CFCs could have been targeted without restricting trade with non-parties. They see the main reason in the use of trade measures against non-parties in the interests of the CFC producers and not necessarily in the environmental goals of the Protocol. They claim that the drafters of the Montreal Protocol had in mind to compensation CFC producers in participating countries, by allowing them to increase their profits from selling the decreasing quantity of CFCs[284] while safely exploring substitutes that they knew would be marketable without competition from CFCs.

However, in the case of the Montreal Protocol, a good combination of measures was used so that effectiveness and incentives were given for all market players. Without the trade measures that were in effect to the detriment of developing countries that also produced CFC, there would have been no agreement on the side of the developed countries, and without the fund and technological transfer there would have been no agreement by large developing countries like India and China who would have continued producing CFC.

The Montreal Protocol seems to be a particular case because the agreement was reached at the right time – when CFC industry in developed countries knew it had to expect regulations, and when India and China were quite readily convinced to

[283] Krueger (2000), p.161
[284] GATT (1992), p. 25

join due to a fund. It is to be doubted if the same fund would have been any incentive for China today – the larger their economies are, the less likely that they would concede the a measure that affects their domestic industry (in this case their CFC producers).

Usually, trade measures to deter free-riding seem to be rarely effective, and the game theory concepts of Barrett (1999) and Droege (2007) indicate that "the number of cases in which trade sanctions will be both effective and credible is probably very small. The Montreal Protocol appears to be a special case"[285]

And finally, there must be general agreement on the environmental goals of the MEA and its scientific basis: because if "non-signatories to the MEA doubt the legitimacy, the effectiveness or the equity"[286] in burden sharing of the MEA in question, it will be difficult to justify trade measures for its enforcement. Particularly small nations could fear the danger that powerful countries impose an inequitable or otherwise unsuitable MEA on politically weaker nations.

4.5.2 The Kyoto Protocol

The Kyoto Protocol 1997 is a protocol to the UNFCCC from 1992, which aims at greenhouse gas reductions. The Kyoto Protocol 1997 does not have any trade sanctions, but instead provides for alternative measures such as emissions trading and technology transfer.

[285] Barrett (1999), p.169
[286] Bhagwati and Srinivasan (1996), p. 198

The Kyoto Protocol entered into force in February 2005 with Russia's ratification of the Protocol, totaling 172 member countries as of now. The UNFCC decided on a differentiated approach for different bundles of countries, holding that the largest share of historical and current greenhouse gas emissions originate in developed countries, whereas developing countries should still be allowed to increase their share of global emissions to meet their development needs[287].

The Kyoto Protocol has a smaller range of WTO members than the Montreal Protocol: to date, 81% of Kyoto Protocol members are also WTO members and 70% of WTO members are also Kyoto Protocol members[288]: Most importantly, the US is not a member to Kyoto[289], and Russia is a member to Kyoto but is not yet a WTO member.

Member countries are divided into these categories: Annex I, which are OECD countries and economies in transition such the Russian Federation, the Baltic states and several Central and Eastern European states (41 countries); Non-Annex I, which are all those not listed under Annex I and mainly consist of developing countries (145 countries). Further Annex II countries, consist only of the OECD countries (24), and the final category is that of Annex B countries, which are those under Annex I except Turkey and Belarus (38). This categorization shows the efforts of the drafters of the Kyoto Protocol to form various combinations of groups of countries in order to address each group with different levels of obligations.

The Annex I countries committed themselves to reducing their combined emissions to 5% below 1990 levels in the first commitment period of 2008-12. In

[287] UNFCC, (2007), Essential Background, http://unfcc.int/essential_background/items/2877.php
[288] Droege, S. (2007), p. 20ff
[289] The G.W. Bush administration withdrew the US from Kyoto Protocol negotiations in 2001

the Kyoto Protocol, Non-Annex 1 countries do not commit to specific targets, but they are asked to develop national climate change mitigation programs. Although the average reduction of emissions is 5%, there is an individual target for each country, e.g. the EU agreed to 8% reductions while Iceland is allowed to increase its emissions by 10%.

The Kyoto Protocol sets binding levels of emission reduction targets for its members but countries are flexible as to the policies they use in order to reduce emissions – hence it is up to them whether they use taxes, subsidies, certificates, standards or other types of regulations. Hence, there is flexibility in adjusting the policies to one's own economic and structural circumstances.

Further, the flexibility of the Kyoto Protocol provides for three market oriented emission reduction measures that can help countries to lower the costs of mitigating emission targets, such as Joint Implementation (JI), the Clean Development Mechanism (CDM), and Emission Trading. These mechanisms effectively allow Annex 1 countries to mitigate emissions in other countries where it is cheaper.

Emission trading implies that those countries with excess emission credits can sell their emission allowance to those who are unlikely to achieve their targets. This is particularly useful for Eastern Europe and the Former Soviet Union states because the Kyoto Protocol has set targets for these countries above the "business as usual" scenario 2008-2012. This curiosity is due to the enormous economic restructuring of these countries after the fall of the Berlin Wall, leading to a drastic fall of emission levels in the 90s[290].

[290] Pearce, D. (2003), p. 372

On the downside, emission trading leads to smaller overall reduction of global emissions. Pearce (2003) identified the difference by estimating that global emissions would rise by 23% till 2010 if all countries apart from the US sign and abide by the Kyoto Protocol without emissions trading, but if emissions trading is allowed the same countries would see an overall emissions rise of 31%. Now if all countries apart from the Least Developed Countries abide by the Kyoto Protocol and no emissions trading is allowed, then emissions would rise only by 15% till 2010[291]. However, the smaller effectiveness of allowing emissions trading as an alternative must be balanced out against the fact that it allows to enhance economic efficiencies. Hence, the aim of tradable emission permits is not necessarily the highest possible level of emission reduction, but the most cost-effective measure. This is beneficial for the economies of member countries and has potentially been one of the reasons that some countries joined the Protocol. It must be compared with the case of a non-implemented Kyoto Protocol, i.e. no binding emission reduction targets.

These flexibility measures are necessary because the costs of implementing Kyoto differ across countries, mainly due to differing "business as usual" paths, i.e. due to the different development of emission levels per country if no measures were taken. These costs were found to be larger for developed countries[292], who can abate that by investing in developing countries through this mechanism.

Under the Kyoto Protocol Clean Development Mechanism (CDM), Annex I countries can levy domestic taxes on energy to spend it on CDM investments; which are investments in clean technology and EST in developing countries.

[291] Pearce, D. (2003), p. 373 ff, this is in emissions of „tCequ"
[292] Pearce, D. (2003), p. 376 f.

Non-Annex 1 countries receive these investments and their production processes will face increased technological progress, as a result of which Annex 1 countries acquire additional emission credits called "Certified Emission Credits"[293]. Essentially it implicates that developed countries can earn emission rights by investing in developing countries' clean technology, hence a direct way to govern technology transfer.

Effectively, the Kyoto Protocol has little chances of achieving its aim of significant reduction of greenhouse gases (GHGs)[294]. Only few industrialized countries are actually required to cut their emissions under this Protocol. The US and Australia have not ratified the Protocol. The US conditioned its entry on a larger commitment of China and India.

The Kyoto Protocol offers a set of flexible alternative measures that provide for a large amount of equity, fair burden sharing, as well as efficiency and possibilities of cost abatement. As opposed to the Montreal Protocol, inherent egoistic reasons of powerful nations are not evident, whereas securing the market for CFC substitutes was one of the reasons for the trade measures in the Montreal Protocol.

Hence, the Kyoto Protocol suffers from its lack of enforcement mechanism as well as its compliance incentives[295]. Where the Montreal Protocol provided for clear benefits for all, the Kyoto Protocol only has incentives for developing countries that are likely to benefit from CDM and emission trading measures. Developed countries are not induced to join apart from civil society pressure and lobbying of environmentalists. Hence, there is a large danger of free-riding

[293] Global Change (2001), p. 165
[294] Pearce (2003), p. 374f
[295] Attempts were made to introduce "side payments", i.e. paying countries to abide by an agreement, but that did not work for the US and was then put aside

incentives in the Kyoto Protocol, as evident from the fact that the US has opted out of negotiations and from the fact that Kyoto was only implemented very late – in 2005. And the implementation was only possible by providing the Russian Federation a clear incentive: faster WTO accession if Kyoto is implemented.

In conclusion, the cases of the Montreal and Kyoto Protocol show that inducements to cooperation, in particular market access, technology transfer and aid, are the most important aspect to reaching an effective international agreement. Secondly, trade measures can at times be effective – not necessarily their use but their threatened use, and mostly if these trade measures provide incentives, such as for the developed countries under the Montreal Protocol. However, agreements cannot be reached merely by the threat of punishment – positive inducements are necessary, otherwise even the most equitable, economically efficient and low-cost pollution reduction measures such as those of the Kyoto Protocol, will not be adhered to. The reasons for that are laid out in the political economy chapter (5).

The latest conference on international cooperation on climate change was the United Nations Climate Change Conference, which was held 3rd to 12th December 2007 in Bali. No concrete emission reduction targets could be agreed on but a mandate was given to create a new climate change agreement in Copenhagen in 2009, which could replace the Kyoto Protocol.

5. The political economy of linking trade to environmental pollution

When the main demanders of environmental standards, such as the EU and Japan, successfully asked for the inclusion of environment issues onto the WTO agenda, a majority of other WTO members protested[296]. The concerns of most developing countries were that adding the environment to the agenda would hamper their development prospects, distract from other issues such as agricultural liberalization and potentially provide countries with tools for protectionism. The potential misuse of the environmental agenda for protectionist purposes is heaviest objection to allowing the use of trade measures, and has also been the focus of the WTO panel rulings on environmental disputes.

5.1 The misuse of trade measures in environmental pollution

As laid out in chapter 1, the WTO dispute settlement panels focused a large part of their test of legitimacy of trade measures on this aspect of preventing the misuse of environmental regulations for protectionist purposes.

In setting up their conditions for the use of trade measures, they first applied the principle of non-discrimination, which is effectively a test of protectionism. Then the dispute settlement body (DSB) applied the notion that trade measures should be no more trade restrictive than necessary and that alternative

[296] WTO Public Symposium 2003, Session II, available at www.cid.harvard.edu/cidtrade/geneva/sessions/

measures must be exhaustively analyzed, taking into account the other country's financial and technical capabilities and individual conditions. Hence the availability of alternatives was taken as a sign for a protectionist case. Moreover, they demanded that measures should not interfere with another country's jurisdiction, and its right to set own preservation goals, unless it amounts to a cross-border damage and in that case, the country imposing the trade measures must have engaged in negotiations and taken into account the other country's own conservation programs, hence regulations cannot be rigidly enforced on another country without providing for some flexibility and alternative measures. It is evident that all these conditions are targeted at preventing protectionism.

To leave out doubts, there is the requirement of scientific evidence for damage, and even though unilateral and extraterritorial issues were not dealt with consistently in WTO dispute settlement, and now have led to some confusion on the matter, it is clear by the history of WTO rulings that both unilateral and extraterritorial measures are viewed with caution, so that the misuse for protectionist ambitions could be avoided.

Hence the WTO dispute panel seem to pay due consideration to preventing power imbalances to lead to discriminatory and protectionist trade policies. But developing countries claim that it has not always succeeded in prevented the misuse of trade measures, and that generally no unilateral, extraterritorial measures should be allowed.

Most of these concerns have been raised with respect to domestic environmental pollution cases where the motivation for trade measures is particularly disputed. It arises out of the reasons discussed under chapter 2: when there is no spillover of pollution or damage on another country, there are

no convincing economic reasons for trade measures, and better alternatives for achieving the aims are available, then it is difficult to justify this measure to the developing world that depends on trade for its economic development[297]. Consequently developing countries amongst others claim that motives for trade measures are likely to be protectionist.

This is supported by some parts of the economic analysis in previous chapters. For example, the legitimacy of having different environmental preferences and accordingly different standards was shown in chapter 2. But there are still demands by developed countries for international harmonized standards. These can be detrimental for developing countries if they are set too high. And this measure can be used by large countries to increase their national welfare at the expense of other countries: if a large economy sets standards on products that it exports, this would raise the world price for the product and benefit the terms of trade of that country[298].

Moreover, imposing environmental standards in cases of domestic pollution abroad can effectively amount to powerful countries using their means to push through either their values and concerns, or their protectionist ambitions. It can however not be a power balanced means because only large countries are able to set their standards on others by using effective trade measures.

Even if it is conceded that the standards are not set for protectionist purposes but out of "altruistic" concern[299] for the environment, the difference in power between countries is addressed by developing countries. They claim that they are subject to so-called "eco-imperialism" by strong countries imposing their values on weak

[297] Neumayer (2000), pp.152
[298] See Krugman, Obstfeld (2006), chapter 9
[299] Bhagwati (2000), p.249

countries. This is even supported by environmental NGOs in developing countries[300].

Equally, the eco-dumping argument brought forward in developed countries was held to be economically unjustified, but it is nevertheless asked for by parts of the industry and by environmentalists. Yet countervailing duties on imports, which are set on the grounds that other firms have had to bear a lower environmental pollution abatement cost, are in most cases arbitrarily set because the "true" cost of the product, hence the cost of implementing domestic standards abroad must be estimated.[301] This can easily be misused by protectionist intentions.

This aspect of arbitrariness due to the immeasurability of some pollution cases or the difficulty in assessing negative externalities applies to all cases of trade measures except for the import ban on a polluting product. The leeway that is provided to the level of trade measures by this uncertainty on the cost of externalities is also an indicator for the fact that trade restrictions could be easily misused for protectionist purposes. And trade measures on protectionist grounds could lower total world income as well as redistributing it. Then, not the most effective trade measure to tackle the environmental pollution is chosen but the one with highest benefit for the industry that seeks protection.

It is for these dangers of arbitrariness and protectionism that WTO members have insisted on international agreements rather than unilateral measures, assuming that this could provide some safeguard against protectionist ambitions of individual countries. Hence there was an outcry amongst developing countries when the AB decision in the Shrimp-Turtle case held that unilateral measures

[300] For example: Down to Earth, published in New Dehli, issue 1992, August 15, p.4
[301] Bhagwati and Srinivasan (1996), p. 176

were not automatically illegal under the WTO system[302]. Many commentators have viewed this as a dangerous development of the WTO law for developing countries[303]. They claim that environmental pollution should be the focus of international agreements only. However, it must be conceded that not all international agreements are equitable and in effect beneficial for developing countries[304].

Moreover, extraterritorial and unilateral measures can only be taken by large powerful countries, hence "unilateralism in environmental as in other matters is inherently asymmetric in its effectiveness"[305]. It is claimed that unilateral imposition of ethical values should not be allowed to impede on free trade. The power imbalance is particularly feared by the developing world if measures are taken unilaterally because that could enhance the arbitrariness. Bhagwati makes the powerful example that while US environmentalists favor dolphins, Indians favor cows – yet they cannot impose an equal measure[306].

The danger of unilateral imposition of trade measures, as well as their application on extraterritorial grounds in domestic pollution cases is that it could easily expand into other grounds[307]. It would "open the floodgates" to innumerable actions by countries against one another – this is a slippery slope because then trade restrictions could be implemented almost arbitrarily and on protectionist grounds[308].

[302] Macmillan (2001), p.103
[303] Biermann (2001), p.434
[304] Consider detrimental effects of TRIPS, see also Stremmel (2006) for a detailed welfare analysis of TRIPS
[305] Srinivasan (1993), p.22
[306] Bhagwati (1998), p.239
[307] Srinivasan (1993), p.21
[308] Bhagwati and Srinivasan (1996), p. 181 f.

Protectionism leads to inefficiencies and in most cases it is detrimental to world welfare as well as to the country using the protectionist measure[309]. Tariffs can only benefit the domestic economy in case it is a large country that can influence the world price and thereby gain in terms of trade. However, the inefficiencies of production and the detriment to the consumers are still incurred. And the political case for free trade outweighs the terms of trade arguments because "in reality, any government agency attempting to pursue a sophisticated program of intervention in trade would probably be captured by interest groups and converted into a device for redistributing income to politically influential sectors"[310].

Hence the next subchapter explains why protectionist measures are still applied despite the overall welfare loss on the nation as a whole in most cases.

5.2 Lobby coalitions for linking trade and environment

The line of arguments for linking trade measures to domestic pollution abroad shows an alliance of environmentalists with parts of the industry and unions who fear for their competitiveness[311], hence combining the protectionist ambitions with the altruistic concern about the global environment.

Environmental NGOs in these coalitions with protectionists have conceded to enforce environmental standards through trade measures as a second-best option. From the perspective of the protectionist industry lobby, they seek to raise their welfare even if it is to the detriment of the society as a whole. It follows from

[309] See Krugman, Obstfeld (2006), p.274
[310] Krugman, Obstfeld (2006), p. 279
[311] Bhagwati (1998), *A Stream of Windows,* pp.235

the Stolper Samuelson and Heckscher-Ohlin theorems[312] that certain groups will not benefit from free trade despite the overall welfare benefits of trade liberalization for the society: those individuals who own rare production factors will lose through free trade because the price for those factors will fall. Hence, unskilled or low educated workers have reason to fear for their wages because their production factors of simple labor will face increasing competition through trade liberalization. These groups have an interest in protectionist trade measures.

Liebig[313] makes out that both environmental groups and trade politicians enhance their lobby chances by cooperating with more influential interest groups. Therefore environmentalists bond with industries threatened by competition that is imported through free trade, and free traders bond with the lobbies from export industries to reduce trade barriers. Hence both groups have their coalition partners and accommodate these partner's preferences for strategic reasons in order to achieve the goals that are common to them. The worst outcome of this battle between environmentalists/protectionists and free traders/anti-environmentalists would be a sub-optimal combination of protectionism and bad environmental policy[314].

To understand why these lobbying activities are effective despite their overall detrimental effect on the society, the theory of collective action by Olsen should be invoked. Olsen set out that political activity on behalf of a group benefits all members of the group irrespective of their involvement in the lobbying activities. This leads to the fact that policies imposing large losses on the welfare of society,

[312] Krugman, Obstfeld (2006), chapter 4 and 5
[313] Liebig (1999), *The WTO and the Trade-Environment Conflict,* p.85
[314] Liebig (1999), p.89

large losses in total, but small losses on any individual, will not face effective opposition[315] – hence in the case of a tariff, the benefits of the protected industry may be large whereas the direct costs to any individual consumers may be small. The group that loses (the consumers) is too large to effectively organize an opposition or to even be aware of the losses that it incurs.

But when the group is small, the benefits of a particular measure can be large for each individual, and hence it is likely to be an effective lobby activity. Or it could be large but well organized, so that members can be mobilized to take collective action. Hence, if the large unorganized group like the consumers loses, but a small effective group could gain from a particular trade measure, then this measure could be implemented. Olsen calls this the "exploitation of the great by the small"[316].

There are also large groups that are organized well and perform successful lobbying – but Olsen has shown that these groups are not merely organized for the purpose of lobbying in government policy. Normally, these groups are organized for other purposes as well, such as the labor unions. Their lobbying for protectionist foreign policy is a "by-product"[317] of other activities such as dealing with employers. And then in coalition with their employers, i.e. the business lobby of their industry, they successfully lobby for trade policies that protect their industry, which Olsen calls "special interest" politics[318]. Several studies have shown the effectiveness of lobbying and in particular of donations to congressmen[319].

[315] Olsen (1965), p.58ff
[316] Olsen (1965), p.3
[317] Olsen (1965), p.134 ff
[318] Olsen (1965), p.146
[319] Krugman, Obstfeld (2006) use the example of correlation of donations from export industries and labor unions before with the voting behavior on GATT and NAFTA, chapter 10

The environment is a particularly interest aspect for protectionists because of two reasons: the WTO rules leave some (though limited) room for environmental policy, especially what regards health and safety in the domestic market, e.g. demonstrated by the SPS Agreement. And secondly, using the environment, pro-protectionist groups can form a successful coalition with environmentalists because the latter have significantly gained influence in the past decades, particularly in developed countries[320].

The power of environmental organizations such as Greenpeace is that they can influence consumer behavior, such as the consumer boycott against Shell in the Brent Spar case. And environmental NGOs are quite influential in damaging or benefiting the image of a company, which is evident from the "voluntary approach" to environmental schemes of multinationals[321]. That is because environmentalists have high moral authority in developed countries.

However, not all environmentalists engage in trade related lobbying – some are only concerned with their national environment, others also with environmental pollution anywhere in the world irrespective of whether they are affected in their home countries, referred to as "Greens" and "Supergreens"[322]. Hence the "Supergreens" are likely to cooperate with the industry seeking protection because their ethical concerns also include other country's domestic pollution.

The power of environmentalist groups has also increased because governments in developed countries try to integrate environmental NGOs into the political process and to avoid protests in the streets – hence environmentalists are attractive coalition partner both for their moral authority in civil society and for

[320] Koerber, A. (2000), p. 28
[321] See chapter 2
[322] Koerber, A. (2000), p.34, and Hillman, Ursprung (1994)

increased power. Their preference is normally not a tariff but the implementation of an environmental standard worldwide. That in turn benefits domestic industry because it raises costs of foreign competitors. For example, in the US-Tuna/Dolphin case, the US tuna producers were competing in the region with Mexican tuna producers. They had an interest in trade measures and the "Supergreens" cooperated with a very effective civil society movement resulting in consumer boycotts of Mexican tuna with the help of the disputed "dolphin safe" labels.

Moreover, NGOs have frequently claimed that they should be more involved in environmental dispute cases at the WTO[323] to present civil society concerns. By contrast, Bhagwati holds that they should be represented by their governments like all other lobby groups and that there is no reason why they should participate in GATT/WTO panels and not also consumer groups, protectionist lobbies, unions or other NGOs[324].

Hence the coalition between protectionists and environmentalists has been analyzed but the question still remains how these lobby actions can be successful. Drawn from the theory of collective action, lobbyists are well organized and have clear interest group. They can lobby with information, thereby influencing voters, or they can pay financial contributions to politicians and parties. The most effective lobby group is that of industry which competes with imports because they normally provide large amounts of jobs in domestic market[325]. This leads directly to the interests of politicians, whose first priority is gaining votes and then state welfare comes second to that, though this is a generalization and in reality this also depends on the type of democracy and

[323] See discussion on amicus curiae briefs in chapter 1
[324] Bhagwati and Srinivasan (1996), p.196
[325] Stremmel (2006), p.222

hence the level of parliamentary scrutiny, and on the question how far away they next elections are. Politicians benefit from votes and from donations to their party by the lobby groups – hence a combination of trade union votes and donations by the industry seeking protectionism is effective.

This might explain why some developed countries such as the US are front runners in cases of domestic pollution abroad or psychological damage such as the Dolphin/Tuna case, but are fairly reluctant in climate change policies. Pearce identifies one of the main problems in the climate change debate to be the substantial time lag in climate dynamics, meaning that the costs of reducing global warming is incurred now whereas the potential benefits will be attained many decades into the future[326]. Hence politicians would have to impose burdens on potential voters now but probably not be in power when potential benefits of global environmental protection measures are detectable.

In conclusion, negotiations on trade measures for environmental purposes are hampered by the different positions of developing and developed countries. Developed countries have a high income and hence a larger preference on environmental standards, leading to strict environmental regulation in their domestic markets – due to this, developed countries have a comparative disadvantage in production costs compared to developing and transition countries. They fear competitive disadvantages and hence it is not unlikely that protectionist intentions intermingle with environmental concerns.

By contrast, developing countries enjoy a comparative advantage in their cost structure, and they refuse to adapt their standards to the levels of industrialized

[326] Pearce, D. (2003), *Will Global Warming be Controlled? Reflections on the Irresolution on Humankind,* p. 367

countries because they fear to be cut off from world trade[327]. They claim that they can only participate in world trade due to their comparative cost advantage in production, which they claim is also the result of lower standards. They argue that with growth, their environmental standards will rise eventually, and that trade should not be unduly restricted so they have a fair chance of raising their welfare.

However, the bargaining powers of developing countries have changed somewhat since the magnificent economic growth of China, India, Brazil and other countries that were traditionally in the group of developing countries.

Part of the difficulties of the current negotiations in the Doha round is attributed to the fact that developing countries have formed large and effective coalitions to defend their interests in the WTO negotiation rounds. India, China, Brazil and South Africa are key members of these coalitions, adding most of the economic and political weight to the group. Their concerns range from further negotiations on trade liberalizations, in particular agricultural liberalization, to preventing the introducing new issues into the WTO such as labor and environmental standards:

In the 90s, the Like-Minded Group (which included India) issued a joint statement rejecting the inclusion of new issues into the WTO, and refusing cooperation in the Doha round unless concerns of developing countries receive more consideration in the negotiations[328]. There have been coalitions before, but not as successfully and as coherently as the current Doha Round. Also, there are currently more developing countries in the WTO than ever before, and more countries have moved up to transition countries, which add to the political weight in the negotiations. Particularly the large markets of China, India and Brazil

[327] Klemmer (1997), p.189
[328] Narlikar, A. (2003), p.180

provide for larger bargaining power because developed countries seek broader market access there. Interests and dependencies are a little more balanced this time than in the previous negotiation rounds.

Interestingly, developing countries have not only begun to form coalitions within their groups, but they have also turned to cooperating on certain issues with NGOs in developed countries such as OXFAM (Oxford Committee for Famine Relief) or the Third World Network, using the strategies of the import competing industry in the developed countries as it seems.

The next chapter provides the position of India on the various issues raised in this thesis. It is particularly interesting because of its strong opinion on the linkage of trade with environmental provisions.

6. India's position on linking trade and environment

India's general position on the linkage of trade and environment is in line with the overall developing country perspective. India's Minister for Commerce issued a press release in September 2001 saying that he has "underlined the concern of developing countries including India that environment was being used as some sort of a Trojan horse to provide legitimacy to protectionist trends"[329] at the WTO negotiations. India has further stated that the existing WTO rules on environmental protection are sufficient and that there is no need for further rules to that respect[330].

[329] Government of India, Minister of Commerce and Industry (2001), press release September 2001, available at http://commerce.nic.in/PressRelease/pressrelease_detail.asp?id=674

[330] ibidem

In the CTE, India has emphasized the right of governments to establish their national environmental and development conditions, needs and priorities, and its preference for multilateral solutions in form of MEAs for global and cross-border pollution cases[331].

India emphasizes need to target free trade as much as possible and opposes trade restrictions for environmental purposes fiercely by emphasizing the sovereignty of individual countries over environmental resources and over domestic environmental regulations. In the negotiations, India strongly protests against introduction of non-product related PPM standards in any WTO agreement.

It also opposes voluntary eco-labeling schemes because of their effect on market access of developing country exports. And India seeks safeguards for developing countries against restrictions on their market access due to environmental regulations in form of product standards. What concerns global pollution, the Indian government promotes equitable burden sharing and consideration for developing country needs. Further, India advocates, that ESTs should be transferred to developing countries in affordable terms[332]

To support its statements, India draws on some of the arguments already mentioned in this thesis. It has claimed that trade liberalization itself has no negative impact on the environment, and that the appropriate response to pollution ought to be correcting regulation and adopting better suited technologies, but not reversing trade liberalization[333].

331 Sankar, U. (2007), p. 12
[332] Ojha, V.P. (2001), p.49
[333] Ojha, V.P. (2001), p.3

However, in India trade liberalization has expanded exports, but they still constitute only a small part of total Indian production. A study on emission levels showed that carbon emissions of the export industry amounted to 10% of emissions in the country, and that environmental damage caused by its export industry is mostly domestic[334].

In India, consciousness for environmental pollution and the demand for eco-friendly products is still very low, which is shown by the lack of success of the Indian "Ecomark"[335] – as set out in chapter 2, demand for eco-products rises with affluence and apparently it rises slowly.

India has signed onto several MEAs, e.g. it is a party to the Basel Convention, which issues the right to ban the import of toxic waste. Roughly 10% of OECD waste enters international trade, i.e. when disposal of hazardous wastes is cheaper abroad, Hence the waste was mostly imported into developing countries who in fact do not have adequate waste disposal facilities[336]. Hence the MEA was positive for developing countries, as wastes used to erode the productivity of natural resources[337]. However, the US is largest producer of hazardous wastes and is not a member of the Basel Convention. India has profited from this Convention because toxic wastes no longer get imported into the country. India was actively in favor of this Convention[338].

India is also member of CITES, banning the export and import of species listed therein, including their parts and products such as ivory. CITES has been disputed in India and in other developing countries. It is held against is that for the preservation of species, not their trade should be restricted but economic

[334] Ojha, V.P. (2001), p.4
[335] Bhattacharyya, B. (1998) p.13
[336] Ojha, V.P. (2001), p.24
[337] Ojha, V.P. (2001), p.29
[338] Bhattacharyya, B. (1998) p.16

incentives for managing species. It is claimed that the ban in trade does not protect the species because internal domestic trade still continues, and their natural habitat is still destroyed. Zimbabwe has reported significant losses in its crocodile farming and ivory trade – it claimed that trade could be carried out without endangering crocodiles and elephants[339].

Hence, the focus of the Indian foreign trade policy is the ensure as much trade liberalization as possible and the prevention of domestic environmental pollutions being subjected to trade measures. When it agrees with the aims of a cross-border pollution trade measure, such as in the Basel Convention, then India will actively promote it. But if it does not consider a damage to be "cross-border pollution" such as in the case of US-Shrimp/Turtle, it opposes the measures resolutely and claims that the DSB has extended the rights and obligations of WTO members[340]. However, considering India is a promoter of removal of trade barriers, it might seem surprising that it signed onto the Montreal Protocol.

As explained in chapter 4, India and China initially resisted the Montreal Protocol. The trade inducements against non-parties were not incentives enough for India and China due to their large domestic markets and own CFC production capacities. They demanded a compensatory fund for developing countries and technology transfer, which was eventually awarded.

Still, the Montreal Protocol is not viewed positively because India claims that it was not taken into account that industrialized countries have had a much higher share of consumption of these chemicals to date and they should have been

[339] Ojha, V.P. (2001), p.29
[340] Chaisse (2004), p. 405

taken more responsible[341]. Moreover, it was claimed that it has not benefited substantially from technology transfer and aid[342] under the fund because it was not large enough, claims India.

In India, the Montreal Protocol led to decline of exports that contained the controlled substances under the Montreal Protocol, e.g. adverse affect on exports of refrigerators and air conditioners from India[343]. All members were required to change technology and to switch to substitutes- that led to an increase in production costs or those products directly affected and also of products that rely on refrigerating for which CFC was used before, such as flowers or processed meat. Further, costs for switching technology are higher for SMEs (Small and Medium-Sized Enterprises) than for large firms and India's export industry relies heavily on SMEs.

Hence the ban on CFC was difficult in India, despite the longer phase-out time for developing countries. In India, CFC was used in a large variety of products, and adjustment costs to using substitutes are estimated to be about 30-35% of prices of refrigerators using CFC. That is why the fund for adjustments of the Montreal Protocol was considered insufficient[344]

Despite these difficulties, the concept of the Montreal Protocol with differential treatment and a multilateral fund for developing countries appreciated by India. And the fact that India can induce the creation of such a fund shows that it has grown into a more powerful player in international negotiations and that trade measures alone without positive inducements cannot be effective for large

[341] Bhattacharyya, B. (1998) p.18
[342] Bhattacharyya, B. (1998) p.14
[343] Ojha, V.P. (2001), p.27
[344] Ojha, V.P. (2001), p.32

economies with large domestic markets, own production possibilities and high growth expectations.

Accordingly, India has claimed that the lack of effectiveness of trade measures is an obstacle to the WTO allowance of retaliatory measures in case on non-compliance by the respondent. India argues that retaliatory measures are useless between unequal trading partners – it could never have a large impact if India tried retaliatory measures against the US or EU. Hence, India argues that this should not be left to negotiations between unequal parties but there should be guidelines such as the right of more member states (or even the majority of WTO members) to impose retaliatory measures together, within the level allowed by the WTO panel[345]. This directly relates to the conclusion on effectiveness of trade measures in this thesis, namely that one country cannot realistically have a large effect on another country's domestic policy by using trade measures.

In Indian domestic regulations, e.g. the Water Act of 1974, Air Act of 1981 and Environmental Act 1986, the focus lies on sustainable development, for example availability of drinking water and sanitation facilities, and not on problems of global pollution such as climate change[346].

However, a very strong increase in emissions of GHG is expected in India – with economic growth rates targeted at 7 to 8%, an associated increase in emissions is expected in the next 25 years, particularly when large parts of the population gain access to energy (currently 56% of the population lack energy provisions)[347]. Even in case of vast investments in renewable energy, a strong increase in CO_2

[345] Chaisse (2004), p.403
[346] Ojha, V.P. (2001), p.5
[347] Gibbs, T. (2008), p.5

emissions is expected- India's government is concerned because climate change could hit the agricultural sector hard, on which about 60% of the rural population rely. Crop yields could decrease and water supplies could shorten. The Indian government has taken measures to diversify energy sources and promote energy efficiency and renewable energy sources, though there are concerns about cost implications and security of energy supply[348]. Still, the Indian government is reluctant towards international obligations because in an international comparison, per capita use of energy is still very small in India, and will remain relatively small. Despite large growth projections in 2030 per capita usage will still be smaller than the global average in 2004[349]. The Indian government is mostly concerned about costs of reducing emission levels, and the burden sharing world wide.

Those countries promoting further linkage of trade and environment typically ask for the endorsement of MEAs into the WTO. India has been opposed to this, which will be shown in 6.1. However, the bulk of the concern of the Indian government regards "environmental standards" or product standards set abroad, which affect Indian exports. These standards can be set in a WTO compatible way by domestic regulation in the import countries, such as under the SPS and TBT Agreement. These cases will be set out in 6.2. However, standards can also be set voluntarily by NGOs or by way of "eco-labeling", which India is opposed to. That case is set out in 6.3, followed by the alternative approach by the Indian government in promoting cooperation for environmental protection: the environmental project approach.

[348] Gibbs, T. (2008), p.6
[349] Gibbs, T. (2008), p.6

6.1 India's position on MEAs and compatibility with WTO

In the CTE, the EU[350] suggested amendments to GATT that would incorporate the possibility of trade measures decided on in an MEA, or else a confirmation that WTO rules and MEA obligations should be equal in international law and not MEA provisions subordinate to WTO rules[351], supported by Switzerland. New Zealand also supported a kind of incorporation or official recognition of MEA provisions, but separating between those rules applied to members and those to non-members. This approach is supported by a larger group of countries including ASEAN. India however made official statements of its own, maintaining that the existing GATT provisions are sufficient for the protection of health and environmental purposes and also leave sufficient room for the application of legitimate environmental regulations that are already contained in existing MEAs[352]. Further, it emphasized that future MEAs should be formulated so as to be compatible with WTO rules and be within the scope of GATT Article XX of 1994 to ensure the principle of non-discrimination. During the course of negotiations, it conceded to a MEA-by-MEA analysis (a case by case analysis) to accommodate for specific trade obligations in some MEAs, if WTO member rights are not disturbed[353]. An example of specific trade obligations is CITES, hence trade measures against the polluting product itself – India probably considered that some flexibility and multilateralism is still better than a unilateral approach by powerful members which would have otherwise been expected.

Indian contribution to the MEA negotiations also include that MEAs should ensure "effective participation in the negotiations by countries belonging to different geographical regions and by countries at different stages of economic and social

[350] EC non paper, 19th February 1996
[351] Sawhney, A. (2004), p.59
[352] Sawhney, A. (2004), p.79
[353] Sawhney, A. (2004), p.62

development"[354], all showing the fear of protectionist measures or agreements that could be a disadvantage for developing countries.

India's skepticism towards any further environmental provision within the WTO, even in the form of an official recognition of MEAs under the WTO is evident. It expects safeguards from the WTO system and its emphasis on "specific trade obligations" show that India wants to prevent the use of non-product related PPM measures such as those it claimed against in US-Shrimp/Turtle.

6.2 India's position on environmental standards

Environmental standards are typically set by the importing country to prevent cross-border pollution or harm by some polluting products, mainly under SPS and TBT Agreements.

Indian exporters have felt the impact of the increasing number of these standards and the growing environmental agenda. India fears that these new issues at the WTO could negate gains from trade liberalization. Some major export industries in India are particularly sensitive to environmental measures abroad, such as textiles and garments, agro-based items, marine products, leather or pharmaceuticals – these are also industries in which industrialized countries seek higher environmental standards and regulations[355].

India protests against the increasing complexity and stringency of the environmental requirements that affect its export sector. India claims that importing countries should only seek information on PPM when it is traceable in

[354] Sawhney, A. (2004), p.67
[355] Bhattacharyya, B. (1998) p.21

the end product, such as pesticides[356]. India claims that extending the scope to non-product related PPMs such as in the Shrimp/Turtle case should not be allowed. In setting standards, India demands that TBT and SPS Agreements must be strictly adhered to, and developing countries should be involved in negotiations when new standards are set so that their conditions can be taken into account. Technical and financial assistance is required and enough adaptation time for developing countries.

India claims that decisions on standards are made in developed countries who only take into account their own factor endowments, and their availability of environmentally friendly substitutes and technology – whereas developing countries still face problems on intellectual property rights making access to environmentally friendly technology difficult[357].

For example the Indian textile industry expects that it will be affected by environmental standards in EU and US: from cotton cultivation to spinning, processing and dyeing. For example, as a consequence of the German restrictions on textiles treated with azo-dyes, the Indian industry had to invest in developing substitutes because Germany provides an important market for Indian textiles. Similarly, Indian exporters of food, beverages, tea and coffee need to adapt to ever more stringent health and safety standards in US and EU, which are at times higher than the standards set by the WHO (World Health Organization)[358]. And marine products such as shrimp were affected, too. In response to the Shrimp/Turtle cases, India has introduced the TEDs (Turtle Extruder Devices) demanded by the US. As a result of product standards in its export markets, India had to implement domestic regulations such as bans on

[356] Sankar, U. (2007), p. 183
[357] Sankar, U. (2007), p. 184
[358] Bhattacharyya, B. (1998) p.22

benzidine dyes, and pesticides or chemicals. The SMEs have the most difficult standing because of their lack of financial resources, and they account for 50% of Indian exports[359].

The largest share of Indian exports goes to OECD countries, and roughly 25% consists of environmentally sensitive products: such as processed foods, marine products, leather, textiles and dyes. And ecological regulations on these products are on the increase in OECD countries.

Consequently, agro-products have suffered in competitiveness due to substitution of pesticides with eco-friendly Malathion which is 4 times as expensive – hence the costs have risen, and there has been increased subsidy expenditure of the government[360] on these sectors. The same increase in production costs due to more costly substitutes can be observed in the other export sectors subject to regulation such as the leather industry, which is affected by the ban on certain dyestuffs and strict regulations on pH levels.

Due to the large share of Indian products that face strict product standards in their export markets, the Indian government has instituted quality control and inspections, which helps Indian exporters meet requirements of importing countries but poses additional waiting time, testing and certification costs. Moreover, costs arise also when the EU requires that its own representatives shall inspect meat and drug production facilities in India before approving exports to the EU[361]. And packaging requirements in industrialized countries that

[359] Ojha, V.P. (2001), p.39
[360] Ojha, V.P. (2001), p.16
[361] Ojha, V.P. (2001), p.10

ask for recyclable packaging also imposes additional costs of adaptation on India and developing countries[362].

Hence India claims that its industry faces capacity constraints when it has to identify the complex and different import requirements of the foreign countries, to implement technical and procedural changes and also to demonstrate compliance or a good proof of it. It argues that its poor institutional capacities, and the dominance of SMEs in export industries are additional obstacles, apart from the lack of finance and access to technologies[363]

However, these product standards by foreign governments apply equally to all WTO members so India's competitors face the same adaption costs. The downside is that the textiles industry is also a very competitive sector in which India faces tough competition from other low wage countries like China.

But these standard requirements also bear some positive aspects for the Indian industry: India's SMEs may have difficulties adhering to new regulations and proving the quality of their standards, but at the same time, India has a comparative advantage in eco-products and could use focus on the production of "green" products even above the OECD requirements, in order to obtain eco-labels[364].

And India needs to reduce pollution for the efficiency of its own production too, even without external requirements, because it wants to increase production and for that, efficient use of resources are necessary otherwise quality of land and water would deteriorate and environmentally sound technology could benefit

[362] Ojha, V.P. (2001), p.11
[363] Sankar, U. (2007), p. 28
[364] Ojha, V.P. (2001), p.22

efficiency and quality of the products[365]. And not only industrialized countries demand safety and quality of products, but that demand will be increasing in all transition countries too and India should adapt rather sooner than later[366].

However, the Indian government contests the inflexibility of foreign standards regarding local conditions and the difficulties in proving certain standards for SMEs due to strict verification demands by developed countries. For example the primary production of Mango Pulp in India takes place in small, unorganized units. Primary-level quality assurances are difficult to provide, yet EU demands maintenance of a record of each mango-farmer from whose orchard the mango for mango-pulp processing unit comes from[367]. Despite Indian complaints, these health and safety standards are accepted under the WTO and the Indian government can only adapt by providing better testing and monitoring institutions to its producers as well as incentives for foreign direct investment of EST, or technical and monitoring cooperation with other developing countries in the region who face the same standard requirements.

6.3 India's position on eco-labeling and NGO involvement

India holds that even voluntary standards set by NGOs can be discriminating if manufacturers in the developing world cannot afford them due to high costs of compliance, and could in effect amount to a barrier to market access for small

[365] Sankar, U. (2007), p. 185ff
[366] Bajumder, M. (2003), p.242
[367] Saqib, (2004), p. 205

Indian manufacturers[368]. India set out in a submission to the CTE that voluntary standards affect market access and in particular eco-labeling.

India objects to eco-labeling because it claims that price premiums for eco-labeled goods are not as significant so as to make it possible for small and medium sized manufacturers in India to afford the compliance costs, unlike their large competitors in industrialized countries[369]. Moreover, all reservations against standards generally also apply to these voluntary standards.

Eco-labels and voluntary standards are not illegal under WTO and have been promoted by market liberals as an alternative to restrictive trade measures. But the Indian government holds that eco-labels demand information on all stages of the life cycle of a product, hence they include its non-product related PPMs and they are effective in reducing market share because of the increasing "green" awareness of consumers.

A well documented example for that is the case of cut flowers from Colombia, which were targeted by a eco-labeling program (the Flower Label Program) in Germany, by private German NGOs and German Industry, which aimed at restricting the use of toxic chemicals and pesticides for cultivating flowers. Flowers are Colombia's third most important agricultural export and while global flower exports showed an increase between 1992 and 1996, exports to Germany declined significantly[370] – Colombia claimed the criteria applied were arbitrary and discriminating, but the issue was not resolved and it is unclear if Colombia's claims were justified. OECD and UNCTAD have also acknowledged the

[368] Gandhi, S. (2006), p.4
[369] Gandhi, S. (2006), p.4
[370] Gandhi, S. (2006), p.8 and http://www.fairflowers.de/

potentially discriminating and trade restricting effects of voluntary labels[371]. The matter is currently under negotiation in the CTE.

Suffice to say that in the case of eco-labels, it is crucial who gives out the label and whether foreign firms may acquire it or not. Consumer awareness of "green" products is high, but an information disparity exists when foreign products have no label or their own foreign labels. Consumers could discriminate against foreign labels based on lack of information, and this creates home bias[372], which would also remain under a mutual recognition regime of labels by governments. Hence developing countries must either be able to access the domestic label, though they would be at a disadvantage compared with domestic producers, or a third party international organization could be responsible for allocating labels. That would be best for developing countries that rely on export industries[373].

So far the CTE negotiations have held that voluntary eco-labeling schemes should take local geographic, environmental and economic conditions into consideration and also developing countries should be asked for input in the drafting of criteria for labeling schemes. Further, it was demanded that maximum transparency in the labeling process must be guaranteed[374].

India in its paper to the CTE[375] proposed that it is the responsibility of importing countries to ensure that such measures do not affect the market access of developing countries. Environmental measures should be based on the criteria of sound science, transparency and equity. These measures should be compatible

[371] See www.unctad.org/en/docs/tdxibpd1_en.pdf and http://www.oecd.org/dataoecd/4/30/39362947.pdf, the OECD report explicitly refers to the flower labling program of German NGOs and German Industry
[372] Althammer, Droege (2006), p.25
[373] Althammer, Droege (2006), p.26
[374] Appleton, A. (2002), p. 263
[375] See http://commerce.nic.in/

with the open, equitable and non-discriminatory nature of the multilateral trading system and conform to its basic provisions and disciplines. While participation of developing countries in developing the environmental measures needs to be ensured, members also need to promote suitable mechanisms for information dissemination systems to ensure that changes in environmental measures and standards can be accessed by industries and SMEs in the developing and the least-developed countries.

India also proposed that longer time frames for compliance should be accorded to products of interest to developing country Members so as to maintain opportunities for their exports. Exceptions should be provided to environmental measures in exporting countries, which are equivalent in effect with environmental measures in the importing country, though the measures themselves may be different.

On the issue of technical co-operation, it was proposed that when environmental measures affect the market access of developing countries, they should be assisted by way of bilateral technical and financial assistance for compliance. Such technical assistance and transfer of technology should be provided and/or facilitated on concessional and preferential terms. The negative effects of environmental measures on market access should be mitigated or eliminated altogether by providing additional market access to developing countries in these products.

The issue of eco-labeling is directly correlated with the question of the level of integration of NGOs at the WTO – often NGOs are directly involved or responsible for eco-labels, and more generally both approaches have a civil society integration element that India does not seem to approve of.

India was opposed to the DSB decision to accept amicus curiae briefs from NGOs[376] and claims that there should not be any participation of NGOs in the WTO dispute settlement process. India held that obligations are to be fulfilled by governments and not by NGOs, and the intergovernmental character should not be changed. Secondly government positions should include the opinions of all domestic stakeholders, hence there is no reason for additional submission such as in the US-Tuna/Dolphin cases. And thirdly India holds that developing countries will be disadvantaged because their NGOs are unprepared to send briefs without being asked for it, and due to lack of resources.

Though all presentations of the Indian position above indicate reluctance towards environmental issues within the WTO, there is also another aspect to the Indian position on trade and environment:

6.4 India's proposal: Environmental Project Approach

India has often argued in favor of the mutually supportive approach, which incorporates exchanging national experiences and supportive measures such as capacity building and technical and financial assistance. India claims that the success of the Montreal Protocol is mainly due to the supportive measures that are part of the agreement.

As for the third section of paragraph 31 of the Doha Ministerial Declaration, many hopes lie on this measure to facilitate trade in environmental goods and services. It is still unresolved what goods shall count into that category. Some members

[376] Chaisse (2004), p. 395

have handed in lists of environmental goods, which are to be compiled by the WTO secretariat. India's approach diverts somewhat from the list-based approach – instead, India favors an environmental project approach, which incorporates waiving duties on the goods and giving special treatment to services that are part to specific projects[377].

There have been propositions for lists by various countries, including the US, the EU, South Korea and others. Most developing countries have declared that they lack the technical and financial capacities required to draw up their own list of environmental goods and negotiating proposals[378]. Their responses to the lists already submitted has been hesitant because it is claimed that most lists submitted contain goods in which these countries have an export advantage, and hence they have asked for a set of common product criteria. There is no consensus on the criteria for such products, neither between developing and developed countries, nor between the developed countries themselves – the lists that have been submitted so far have applied largely differing criteria for the products.

The Indian submission of an "Environmental Project Approach" (EPA)[379] could provide for a valuable alternative. The EPA focuses the decision over tariff concessions to individual products lines of environmental goods. A project which meets certain criteria, e.g. necessary to achieve a nationally defined environmental goal, will be analyzed by the Designated National Authority (DNA), which can then grant specific tariff concessions to particular goods or services for the duration of the project. The DNA could be a government agency or a combination of governmental and non-governmental and private sectors. This

[377] Kumar, S. and Chowdhury, N. (2005), p.7
[378] Kumar, S. and Chowdhury, N. (2005), p.9
[379] See website of Government of India, Ministry for Commerce and Industry, www.commerce.gov/in/trade/international_trade_enviro_te.asp

approach is obviously very far from the usual WTO measure of eliminating tariffs permanently, but it gives the opportunity of flexible and differential treatment, which is very beneficial if one considers that some environmental pollution is local or regional and needs measures and solutions specific to that region.

This EPA approach, which is need based, limited in time and project specific, could provide an alternative to the lists approach with its risk of misusing environmental frameworks for individual trade gains. Moreover, the EPA would always be up to date with the latest technology and product developments because of its project-based approach, not to mention the benefits from avoiding negotiation deadlocks. It provides countries with a national policy freedom to decide autonomously on their national development and environmental priorities. This EPA approach could be most useful in the transfer of environmentally sound technology and capacities from developed to developing countries, that way helping developing countries to meet their commitments under multilateral treaties[380] while both sides gain from trade.

In conclusion, the case of India shows that trade measures are viewed very skeptically by the Indian government, in accordance with the findings of this thesis. On numerous occasions, India has clarified its standpoint that interference with its domestic environment is illegitimate and that the use of trade measures generally, even in retaliation after a WTO ruling, are ineffective for small countries or individual countries without international support. Further, India has participated in MEAs that deal directly with cross-border pollution cases of polluting products and has viewed the results positively. But India has claimed that foreign governments should not scrutinize non-product related PPMs – this leaves out the case if a production process is polluting on a neighboring country.

[380] Kumar, S. and Chowdhury, N. (2005), p.16 f.

In global pollution cases, India has shown that it is wiling to cooperate internationally, but the inducements must be positive such as technical transfer and aid, as opposed to trade measures.

Further, India seeks to avoid any broadening of the issue of environmental pollution in the WTO and sees its export industry already struggling with product standards in other countries. However, the alternatives mentioned by India as well as the EPA indicate that the main interest of the Indian government is technology transfer and cooperation on environmental issues rather than punishment on free-riders.

7. Next Steps, Outlook and Conclusions

Finally, some concluding remarks will be made on the most prominent alternatives to trade measures for all three types of pollution, before the conclusions are drawn together.

7.1 An International Environmental Organization (IEO)

Bhagwati[381] has proposed that trade instruments should be used for what they are made for, that is the furtherance of free trade, and that there should be separate instruments concerned with environmental standards and agendas, which would be a more efficient and adequate solution. One ought to have one instrument for one target, i.e. free trade should be the aim of WTO negotiations and treaties, children's rights should be the cause of UNICEF, and environmental improvement should be the cause of an environmental institution. This is likely to disentangle the issues, be more beneficial to furthering the cause of environmental protection and it would discharge the WTO from dealing with these issues that hinder its own cause.

An institutionalization of the issue is important because the political difficulty of achieving appropriate environmental policies is generally underestimated. If one succeeds in the most difficult task to negotiate an agreement on this, despite the developing-vs.-developed world divide in opinion and needs, an international environmental policy regime could commit all countries to the principles of cost

[381] Bhagwati, J. (2000), *On Thinking Clearly about the Linkage between Trade and the Environment,*p.248-249

internationalization and making polluters pay[382], which is indispensable for the sustainability of the environment. The organization needs to be provided with enough enforcement power though, similar to the WTO, to overseeing the international environmental agreements and ensure the compliance of all countries. It enforcement measures should not disrupt trade though, for the multitude of reasons discussed above, but should be financial, for example[383].

One could argue against this that creating a new institution is costly and draws on the resources of all countries. Instead of creating a new institution, one could broaden the competencies of one of the existing forums for environmental issues such as the UNFCCC or UNEP. However, what is needed in the issue of global environmental pollution is an enforcement mechanism that could be as effective as that of the WTO. This would relieve the trade system of problems concerning the legitimacy of trade measures in all three types of pollution – no matter whether an own institution is created or not, it is advisable to shift these matters out of the WTO. That would free the DSB from having the combine the seemingly opposite objectives of free trade and legitimate environmental concerns

7.2 Aid and Technology Transfer

For example in the Shrimp-Turtle case, which caused so much agitation among civil activists, the solution to both the US civil society problems and the affected Indian, Pakistani and Malaysian fishermen complaints could have been to provide the fishermen with the specified nets by the US[384]. If the aim was

[382] Langhammer (2000), p.260
[383] Bhagwati (2000), p.251
[384] Bhagwati (2000), pp.254

actually to save the turtles, no ban would have been necessary but aid and technology would have helped the cause. This plausible solution makes sense morally and would serve as an indicator for whether the motivation for the trade ban is environmental or protectionist. It would also be a much more effective way to help the cause than merely a trade ban, which is unlikely to effect changes in the domestic regulations, and thereby would appease environmentalists and civil activists.

Aid and technology transfer are not only an effective remedy in domestic pollution, but also in global pollution cases. Both the Kyoto and the Montreal Protocol have applied aid and technology transfer provisions, and this aspect is also the most frequently voiced demand by the Indian government. Especially those countries that are growing fast and near the status of transition countries will be more likely to cooperated when compensation or technology cooperation is offered, rather than trade sanctions.

The international trading system has also recognized this need by starting the negotiations on liberalization of trade in environmental goods and services, and by negotiation on adjustments to TRIPS so that environmentally sound technology is not prevented from being spread due to intellectual property rights.

7.3 Conclusions and outlook

This thesis has provided a comprehensive test of legitimacy for linking trade measures and environmental policies within the WTO. It has separated environmental pollution into domestic, cross-border and global pollution and it has found that in most cases, trade measures are not legitimate. They are neither economically justified, nor effective, nor necessary and also run danger of being misused for protectionist purposes. The only exception to this is the case of cross-border pollution when a polluting product can be directly banned from being imported.

On the outset, it was shown that the WTO legal system leaves some room for protecting the environment. Cases of trade measures against domestic pollution are unlikely to be upheld by the WTO dispute settlement panel, though it does not apply a clear and consistent definition of domestic pollution cases. When cross-border pollution is target, the import ban of polluting products is legitimate under the WTO and provided for by various additional agreements such as the SPS Agreement, the TBT Agreement or the Basel Convention. Cross-border pollution as a result of a production process has not yet been brought in front of the WTO, but in that case trade measures are likely to be upheld. Finally, there is no provision under the WTO legal system for the case of trade measures against a global pollution.

Further, the analysis of the WTO legal system shows that the WTO applies a test of legitimacy that is mainly focused on the danger of protectionism in case of trade measures. By contrast, the legitimacy test proposed in this thesis first asks

whether the trade measure is economically justified, then it assesses whether the trade measure can be effective for achieving the aim of protecting the environment, and thirdly, the necessity of the measure is analyzed by exploring the alternatives.

In case of domestic pollution, it has been shown that there is no economic justification for using trade measures. It is also an ineffective tool because tariffs and import bans are not enough inducement for a country to change its domestic environmental policies, apart from the fact that imposing one's own environmental preferences on others is unjustified. Thirdly, it has been shown that trade measures are not even necessary for achieving the aim of protecting the environment because better alternatives exist such as aid and technology transfer, which are more effective.

In case of cross-border pollution, there is economic justification for state measures against the spillover of negative externalities into their country, as long as these externalities are physically detectable and not merely psychological. For polluting products, there is an economic justification for an import ban in order to stop the negative spillovers. But in case the production process is polluting, trade measures can be economically justified but hold great inefficiencies – they can serve the needs of the polluted country only by way of compensation in certain cases. The effectiveness is set out similarly – trade measures against polluting products themselves are immediately effective, but trade measures against polluting production processes are unlikely to induce a change in the production process or the end of production. They can serve as compensation only.

Global pollution is more complicated to address from an economic point of view, and though the country that is harmed by negative externalities has a justification

for intervention, it cannot hold true in a unilateral measure against global externalities. That is due to the difficulty of ascertaining the cost of externalities and their distribution to the international community, and due to the fact that there is no country that does not emit global externalities. Hence, the reasons for market failure cannot be addressed and there is no economic justification for trade measures. Accordingly, unilateral trade measures must be ineffective. They are also unnecessary because more effective alternatives exist, such as Multilateral Environmental Agreements (MEAs).

Trade measures have been used in MEAs. In that case, some of the inadequacies of the unilateral economic justification are softened because international agreement can at least lead to negotiation on the just burden sharing and costs and obligations to be shared by all countries, to different levels. Two examples of MEAs are given, the Kyoto and the Montreal Protocol. The latter uses incentives for cooperation as well as trade measures to prevent free-riding and is a very successful MEA in the sense that it has reached its environmental objectives. The Kyoto Protocol has no enforcement mechanism but offers a flexible, efficient toolbox for reducing emissions – however, due to its late implementation in 2005 and likelihood of soon replacement in 2009 in Kopenhagen, it must be considered a failed attempt.

The overall conclusion from the legitimacy test is that if a trade measure is not economically justified, nor is it effective, and it is not necessary due to better alternatives, then there should be no reason for demanding trade measures. But it is shown in the political economy chapter that these reasons can still exist, even if trade measures have a negative welfare effect: reasons for protectionism and the lobby system that allows it to be part of a foreign trade policy of most countries is assessed.

Finally, the position of India on issues of trade and environment is presented. India embodies some of the results of this thesis because it holds against the use of trade measures in domestic pollution cases, and against the unilateral use of trade measures also in global pollution cases. It frequently asks for aid and technology transfer and safeguards for developing countries against protectionist ambitions of stronger trading partners. Its export industry suffer from the domestic product standards of its export markets in EU, US and Japan, which shows the difficulty of a developing country adhering to and verifying its environmental standards to foreign countries. India has a very strict understanding of discrimination, which lead to the fact that it rejects some measures such as eco-labeling that had been found to be good alternatives in this thesis. But when it comes to trade liberalizations of any kind, and in particular liberalization of environmental goods and services, India is very cooperative. It shows that alternative measures such as inducement and technology transfer are better tools for cooperation on environmental issues than the imposition of trade measures as punishment or negative inducement.

Hence the danger of using trade measures is that the gains of trade liberalization will be jeopardized or mitigated, whilst environmental objectives cannot be tackled effectively either[385]. Seeing the inadequacy of the measure, and dangers it entails, one should not hinder the cause of free trade for its sake.

Besides, the consequences of adding more and more issues to the WTO arena is an overload of the WTO system, so that negotiations and implementation will be very difficult for developing countries, and it should be considered moving the issue of environment out of the context of the WTO.

[385] Winters, (2000), *Comment,* p.264

In contrast, the UN could be given higher priority to developing nations and environmental concerns not linked with economic interests. The proponents of linkage in the WTO are developed countries with huge influence in WTO, who appreciate the effective enforcement mechanisms of the WTO through trade sanctions.

Moreover, it is suggested that the WTO should coordinate its work with the World Bank, OECD, UNCTAD (UN Conference on Trade and Development), WHO, UNEP, ILO and others, and improve its contact with civil society for reasons of transparency. A broader range of views may be beneficial to the WTO and consultation and cooperation with NGOs can make the WTO more effective and may enhance public support[386]. This is a pressing need considering the protests in the streets when WTO ministerial conferences are held.

[386] Charnovitz (1999), pp.50

Appendix

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Zusammenfassung

In den letzten Jahrzehnten wurde immer wieder die Forderung gestellt, dass Umweltschutz oder bestimmte Umweltstandards auch mit Handelsmaßnahmen durchzusetzen sein sollten, und dass sich die WTO in ihrer Rechtssprechung nicht gegen diese Möglichkeit stellen solle. Dem werden die Argumente der Entwicklungsländer entgegengesetzt, die auf die Aufgabe der WTO verweisen, sich gegen Handelsschranken einzusetzen und sie nicht durch zusätzliche Ausnahmen wie Umweltschutz zu legitimieren. Der Forschungsbeitrag dieser Dissertation besteht darin, einen umfassenden Legitimationstest für die Verwendung von Handelsmaßnahmen zur Durchsetzung von Umweltschutz zu bieten.

Hierzu wird unterschieden zwischen nationalen, grenzübergreifenden und globalen Umweltverschmutzungen. Diese Differenzierung ist notwendig für jede Legitimationsdiskussion, da Handelsmaßnahmen sowohl aus ökonomischer als auch aus politischer Sicht eine andere Legitimation erfahren, wenn sie gegen Umweltverschmutzungen eingesetzt werden, die das eigene Land beeinträchtigen im Gegensatz zu Umweltschutz in einem anderen Staat ohne Konsequenzen für das eigene Territorium. Der Legitimationstest, der auf alle drei Arten der Umweltverschmutzung separat angewandt wird, besteht erstens aus der Analyse der ökonomischen Rechtfertigung für die Anwendung von Handelsmaßnahmen. Zweitens folgt eine Beurteilung der Effektivität dieser Maßnahmen als zweitbeste Lösung. Drittens wird die Frage der Notwendigkeit der Handelsmaßnahmen gestellt, die sich aus gegebenenfalls weniger Handel verzerrenden Alternativen ergibt. Diese drei Stufen verdeutlichen, dass Handelsschranken keine Legitimation erfahren und daher vermutlich

protektionistische Ziele verfolgen, wenn sie weder ökonomisch gerechtfertigt sind, noch effektiv zur Verringerung der Umweltverschmutzung führen, und auch nicht notwendig sind, da es bessere Alternativen gibt.

Dem Legitimationstest ist eine Analyse des geltenden WTO Rechts vorangestellt, die auf die drei Arten der Umweltverschmutzung angewandt wird. Aus dieser Analyse ergibt sich, dass die WTO Strafverfahren sich bislang im Detail mit Fragen der Notwendigkeit von Handelsmaßnahmen und der Verhinderung von Protektionismus befasst haben, jedoch nicht mit der Frage der ökonomischen Rechtfertigung oder der Effektivität der Handelsmaßnahmen. Das Prinzip der Nicht-Diskriminierung liegt im Fokus der WTO Strafverfahren, allerdings werden zum Teil unterschiedliche Kriterien hierfür abgeleitet und auch die Differenzierung zwischen nationalen, grenzübergreifenden und globalen Umweltverschmutzungen ist uneinheitlich (US-Tuna/Dolphin als nationaler Fall, US-Shrimp/Turtle als grenzübergreifender Fall interpretiert). Das hat dazu geführt, dass die Vorgaben der WTO vor allem im Bereich nationaler Umweltverschmutzungen zur Zeit unklar sind, so dass ein umfassender und einheitlicher Legitimationstest erforderlich ist.

Der Legitimationstest dieser Dissertation ergibt, dass in den meisten Fällen der Umweltverschmutzung die Verwendung von Handelsmaßnahmen nicht gerechtfertigt ist. Ausnahmen sind nur im Bereich grenzübergreifender Umweltverschmutzung zu finden.

Handelsmaßnahmen gegen nationale Umweltverschmutzungen eines anderen Landes bieten den meisten Diskussionsstoff für die WTO Strafverfahren und auch für Verhandlungen zwischen Industrie- und Entwicklungsländern, da in diesem Fall der Vorwurf des Protektionismus am häufigsten erhoben wird. Der

Legitimationstest ergibt, dass hier eine ökonomische Rechtfertigung für Handelsmaßnahmen nicht gegeben ist. Die Argumente, dass Freihandel der Umwelt schade, und dass ein Konkurrenzdruck für immer niedrigere Umweltstandards weltweit entstünde („race to the bottom“), wurden in empirischen Studien nicht nachgewiesen. In der Theorie werden diese Argumente kontrovers diskutiert und konnten nicht überzeugend belegt werden: zum Beispiel spricht die Theorie der Kuznets Kurve gegen diese Argumente (Vertiefung in Diskussion möglich). Vielmehr scheint die Befürchtung unbegründet, dass Unternehmen in Regionen mit niedrigen Umweltstandards auswandern könnten, und ferner sind Unterschiede zwischen Ländern zur Erlangung von relativen Vorteilen durchaus legitim.

Des Weiteren gibt es in diesem Fall auch nicht die Rechtfertigung als zweitbeste Lösung, da die Effektivität von Handelsmaßnahmen gegen Umweltverschmutzung nicht gegeben ist: es ist bislang kein Fall bekannt, in dem auf Grund von Handelsschranken die interne Gesetzgebung zum nationalen Umweltschutz geändert worden wäre. Eine Chance auf effektive Einflussnahme haben ohnehin nur Länder mit einem großen Markt oder Marktmacht, da ein kleines Land mit Hilfe von Handelsschranken vermutlich keine bemerkbare Auswirkung auf ein anderes Land haben kann.

Ferner sind Handelsmaßnahmen nicht notwendig, da es bessere Alternativen gibt, wie zum Beispiel Verhandlungen und technische Kooperation, wie auch der WTO Gerichtshof im Fall US-Shrimp/Turtle angemerkt hat. Weitere Alternativen sind multilaterale Umweltabkommen und Ökosiegel, die den Konsumenten die Entscheidungsfreiheit und damit die effektive Macht übertragen. Aus den drei Stufen ergibt sich, dass im Fall von nationalen Umweltverschmutzungen keine Handelsmaßnahmen zugelassen sein sollten, da sie nicht ökonomisch gerechtfertigt sind, nicht effektiv und nicht notwendig, so dass man von

protektionistischen Ambitionen ausgehen kann, wenn sie dennoch angewandt werden.

Anders ist es bei grenzübergreifenden Umweltverschmutzungen. Hier ergibt sich eine ökonomische Rechtfertigung, da negative Externalitäten auf das Territorium des anderen Landes übertreten. Damit liegt ein Fall von grenzübergreifendem Marktversagen vor, der eine staatliche Intervention rechtfertigt. Allerdings sollte dieser staatliche Eingriff so direkt wie möglich sein – wenn ein Produkt an sich verschmutzend ist, wie zum Beispiel Baumaterial mit Asbest, dann kann das direkt mit einem Importverbot verhindert werden. Wenn allerdings nur der Produktionsprozess verschmutzend ist, dann bleiben dem geschädigten Land lediglich begrenzte Möglichkeiten, wie zum Beispiel ein Einfuhrzoll auf die Produkte, deren Produktion zu negativen Externalitäten auf dem Territorium des geschädigten Landes führen.

Dieser Einfuhrzoll kann allerdings auch viele Nachteile mit sich bringen: wenn das Land, das den Zoll erhebt, einen kleinen Markt hat, dann kann der Zoll durch die Verzerrung von Produktions- und Konsumanreizen diesem Land mehr schaden als nützen. Und wenn das Land einen großen Markt hat, dann kann es mit seinem Zoll zwar staatliche Einnahmen generieren und seine terms of trade verbessern, indem es den Weltmarktpreis für das verschmutzende Importprodukt senkt, aber dieser sinkende Weltmarktpreis kann zu unbeabsichtigten Folgen führen: die Nachfrage kann dadurch in anderen Märkten wachsen und damit auch die Produktion dieses Gutes steigern, was dann noch mehr negative Externalitäten zur Folge hätte.

Das führt direkt zur Frage der Effektivität. Da mit einem Einfuhrzoll nur die Produkte betroffen sind, die auch in das geschädigte Land eingeführt werden, ist die Reichweite der Handelsmaßnahmen gegebenenfalls gering – die Produkte, die auf anderen Märkten konsumiert werden, sind nicht betroffen. Es ist auch

nicht wahrscheinlich, dass auf Grund eines Zolls die internen Umweltschutzvorschriften in dem produzierenden Land geändert werden, denn das hängt ab von den Kosten des Zolls im Vergleich zu den Kosten höherer Umweltstandards. Wenn es noch andere Abnehmer für die Produkte gibt, dann wird der Zoll eines Landes nicht so viele Kosten verursachen wie es notwendig wäre zur Durchsetzung von Umweltstandards.

In jedem Fall kann der Zoll eines kleinen Landes keine effektive Wirkung erzielen und sich sogar negativ auf das eigene Land auswirken. Ein großes Land kann hingegen den Zoll als Entschädigung für grenzübergreifende Umweltverschmutzungen nutzen, auch wenn dadurch gegebenenfalls der Produktionsprozess in dem produzierenden Land nicht effektiv beeinflusst wird. Wenn jedoch die Umweltverschmutzung mit einem verunreinigten Produkt zusammenhängt, dann kann eine Importbeschränkung als ein direktes effektives Instrument dienen, wie üblicher Weise gegen gesundheitsschädigende Produkte.

Alternativen zu Handelsschranken sind bilaterale oder multilaterale Verhandlungen, die Reparationszahlungen und Verantwortlichkeiten zwischen den Staaten regeln, oder eine internationale Instanz, die die Höhe der Kosten der Umweltverschmutzung und auch der Handelsschranken errechnen und festlegen könnte.

Bei globaler Umweltverschmutzung wie zum Beispiel Klimawandel liegen zwar negative Externalitäten vor. Deren Kosten sind jedoch schwer messbar und auch nicht einzelnen Ländern zuzuordnen ohne willkürliche Annahmen zu treffen, die die heutigen und historischen Verantwortlichkeiten der einzelnen Staaten betreffen. Ferner gibt es Unterschiede der Präferenzen und Nutzenfunktionen zwischen den Ländern, vor allem zwischen Industrie- und Entwicklungsländern. Diese unterschiedlichen Präferenzen zum Beispiel für

Armutsbekämpfung vor Eindämmung des Klimawandels oder anders herum führen ihrerseits zu zwischenstaatlichen Unterschieden bei der Bemessung der Kosten und der Bewertung der Externalitäten. Es kann demnach nicht legitim sein, einem einzelnen Land die Urteilshoheit über Kosten der globalen Umweltverschmutzung, über erforderliche Maßnahmen, sowie über historische und gegenwärtige Verantwortlichkeiten einzelner Länder zu übertragen. Davon abgesehen hat ein einzelnes Land nicht die Möglichkeit, mit Hilfe von Handelsschranken globale Externalitäten zu beeinflussen. Daher sind im Fall globaler Umweltverschmutzungen internationale Verhandlungen und Abkommen eine effektivere und ökonomisch sinnvollere Alternative, ergänzt mit positiven Anreizen wie zum Beispiel Zusammenarbeit in Forschung und Entwicklung, Technologietransfer oder Kompensation, sowie weitere Liberalisierung der Handelspolitik im Gegenzug für umweltpolitische Zusammenarbeit.

Im Rahmen von internationalen Umweltabkommen kann es auch zu Handelsschranken kommen. Zwei Beispiele werden hierzu untersucht: zum einen das Montreal Protokoll, das Handelsmaßnahmen zum Schutz der Ozonschicht vorsieht, und zum anderen das Kyoto Protokoll, welches zur Reduzierung von Treibhausgasen keine Handelsschranken verwendet. Es stellt sich heraus, dass das Montreal Protokoll wesentlich erfolgreicher ist, sowohl was die Zahl seiner Mitglieder als auch die Durchsetzung seiner Umweltziele angeht. Jedoch ist das nicht nur mit den Handelssanktionen zu begründen, sondern auch mit den positiven Anregungen wie technologischer Kooperation und einem Entwicklungshilfefonds, der im Rahmen des Montreal Protokolls auf Anfragen der Entwicklungsländer (vor allem China und Indien) eingerichtet wurde. Im Gegensatz dazu bleibt das Kyoto Protokoll ein ineffektives Unterfangen, da es keine Möglichkeit zur Durchsetzung seiner Vorgaben hat, und auch nicht genug positive Anreize bietet, dem Protokoll beizutreten. Hier

zeigt sich, dass Handelssanktionen gegen unkooperative Staaten oder Freifahrer durchaus wirkungsvoll sein können, wenn sie international abgestimmt implementiert werden und nicht nur von einzelnen Staaten eingesetzt werden, und wenn sie in Kooperation mit positiven Anreizen genutzt werden.

Der Legitimationstest zeigt auf, dass nur in wenigen Fällen das Einsetzen von Handelsmaßnahmen zur Durchsetzung von Umweltstandards legitim ist. Die Schlussfolgerung lautet, dass es andere Motivationen geben muss, wenn Handelsmaßnahmen dennoch eingesetzt werden, obwohl sie nicht ökonomisch gerechtfertigt sind, sowie ineffektiv und nicht notwendig sind. Dies entspricht dem häufig von Entwicklungsländern vorgebrachten Argument, dass der Umweltschutz nur eine vorgeschobene Absicht sei und dass tatsächlich protektionistische Ambitionen der Grund für Handelssanktionen seien. Wie schon die Analyse der WTO Rechtsprechung zeigt, ist die Vermeidung von Protektionismus und der Risiken durch die Dominanz von starken Handelspartnern auch der wesentliche Fokus der WTO Strafverfahren. Kapitel 5 analysiert dieses Argument des sogenannten Ökoimperialismus und die Frage inwiefern es zu protektionistisch motivierten Handelssanktionen gegen Umweltverschmutzung kommen kann. Es wird deutlich, dass die Lobbykoalitionen zwischen Industrie und Umweltaktivisten sehr einflussreich sind und dass die Befürchtungen der Entwicklungsländer vor protektionistischen Ambitionen bei Handelssanktionen gegebenenfalls berechtigt sein können.

Darauf folgt eine Darstellung der Position Indiens in der WTO zu diesen Themen. Indien wird als Beispiel genommen für ein Entwicklungsland mit wachsendem Spielraum auf der internationalen Verhandlungsebene, das sich selbst auch in einer Führungsrolle sieht und sich somit aktiv an WTO

Verhandlungen beteiligt. Aufgrund seiner stark gewachsenen Wirtschaft kann es seine Interessen in der WTO deutlicher vertreten als viele andere Entwicklungsländer – zur gleichen Zeit ist es auf Grund seiner engen Handelsbeziehungen zu Industrieländern auch stärker betroffen von Handelssanktionen und Umweltstandards. Vor allem im Bereich der Textil- und Nahrungsmittelindustrie leiden die kleinen und mittelgroßen indischen Produzenten, die den Hauptanteil der Exportindustrie ausmachen, unter den komplizierten Produktvorgaben der EU, der USA und Japans. Indien lehnt die Anwendung von Handelsmaßnahmen zur Durchsetzung von Umweltstandards ab, vor allem im Bereich nationaler Umweltverschmutzung, und spricht sich für einige der Alternativen aus, die im Laufe der Dissertation vorgestellt wurden – allen voran technologische Zusammenarbeit und Kompensationszahlungen, oder eine weitergehende Liberalisierung der Handelspolitik im Gegenzug für umweltpolitische Zusammenarbeit. Indiens Haltung demonstriert auch deutlich die Grenzen der Effektivität von Handelssanktionen – da Indien einen eigenen großen Markt hat, muss es durch positive Anreize zu Umweltstandards bewegt werden, wie zum Beispiel im Fall des Montreal Protokolls, dem Indien erst durch die Errichtung eines Geldfonds für Entwicklungsländer beigetreten ist. Einseitige Handelssanktionen hingegen erzielen ihre Wirkung nur im Fall von Importbeschränkungen auf Umwelt verschmutzende oder die Gesundheit gefährdende Produkte, die in Form von Produktstandards auf alle Importe festgesetzt werden. Indien ist kein repräsentatives Entwicklungsland, jedoch ein wichtiger Akteur, der mit Hilfe seiner angenommenen Führungsrolle für Entwicklungsländer die zukünftigen WTO Verhandlungen in diesem Bereich und auch andere internationale Umweltabkommen maßgeblich beeinflussen kann.

Der Legitimationstest in dieser Dissertation zeigt auf, dass nur in seltenen Fällen Handelssanktionen gegen Umweltverschmutzung eine Berechtigung haben, und

zwar bei grenzübergreifenden Umweltverschmutzungen. Die Effektivität ist in diesem Fall nur bei einer Importbeschränkung gegen Umwelt verschmutzende Produkte gegeben, nicht jedoch bei Produkten, deren Produktionsprozess Umwelt verschmutzend ist. Hier kann bestenfalls ein Einfuhrzoll eingesetzt von einem großen Land als Kompensation dienen. Bei globalen Umweltkrisen kann nur eine internationale Kooperation wirkungsvoll sein, und hierbei zeigt das Montreal Protokoll die Möglichkeiten, Handelssanktionen gegen Freifahrer effektiv einzusetzen, wenn sie mit positiven Anreizen für kooperative Staaten einhergehen. In allen anderen Fällen sind die Alternativen wie zum Beispiel Kooperation und Technologietransfer zur Durchsetzung von Umweltschutz vorzuziehen.

Der Lebenslauf wird aus datenschutzrechtlichen Gründen nicht veröffentlicht