THE ROTTERDAM CONVENTION ON HAZARDOUS CHEMICALS AND PESTICIDES: A MEANINGFUL STEP TOWARDS ENVIRONMENTAL PROTECTION?

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Abstract

The export of chemicals that are banned or severely restricted for domestic use in the exporting country for reasons of the environment or health is still a common practice. These double standards have allowed pesticide manufacturers to export hazardous pesticides to developing countries, which have limited capacity to manage them in a safe manner. The consequences are not surprising. It is estimated, for instance, that although the great majority of pesticides are applied in industrialized countries, the majority of poisonings and deaths arising from pesticide use occur in the developing world.

In 1998, the Rotterdam Convention was adopted to deal with this and other related problems. The treaty, not yet in force, essentially converted a voluntary system of information exchange and prior informed consent (PIC) into a legally binding procedure. This thesis undertakes a critical evaluation of the Rotterdam Convention. It argues that the treaty is fundamentally flawed, as it does not address some of the essential elements upon which a successful PIC system depends. Furthermore, because it is limited to information exchange and PIC, the convention may well be insufficient to deal with the problems pertaining to hazardous chemicals in an effective manner.

In order to substantiate that assertion, the thesis considers the context in which the transfer of hazardous chemicals occurs, and the challenges facing the Rotterdam Convention. It describes the nature of the substances being traded, and explores the pesticides market. It also considers the context in which the North-South transfer of hazardous chemicals develops, and argues that it is primarily an ethical question. As a result, it studies the moral and legal principles that apply to that transfer, and the implications of fully implementing them in the Rotterdam Convention. Then, it undertakes a critical evaluation of the convention's main provisions, considering the voluntary instruments that served as its base. Lastly, it suggests some measures that could be incorporated into the convention for a more successful PIC procedure. However, it warns that a system of PIC may not the most appropriate way of dealing with the problems pertaining to hazardous chemicals and pesticides.

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Acronyms

COP	Conference of the Parties
DNA	Designated National Authority (for PIC)
ENB	Earth Negotiations Bulletin
EC	European Community
EPA	Environmental Protection Agency (U.S.)
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDA	Food and Drug Administration (U.S.)
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act (U.S.)
GATT	General Agreement on Tariffs and Trade
GC	Governing Council (e.g. of UNEP)
GEF	Global Environment Facility
GIFAP	Groupement International des Associations de Fabricants de Produits Agrochimiques (now Croplife International)
GNP	Gross National Product
G-77	Group of 77 (developing countries)
IFCS	Intergovernmental Forum on Chemical Safety
INC	Intergovernmental Negotiating Committee
IRPTC	International Register of Potentially Toxic Chemicals (now UNEP Chemicals)
NGO	nongovernmental organisation
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
PAN	Pesticide Action Network
PANNA	Pesticide Action Network North America
PAN UK	Pesticide Action Network United Kingdom
PIC	Prior Informed Consent
POPs	Persistent Organic Pollutants
TSCA	Toxic Substances Control Act (U.S.)
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNGA	United Nations General Assembly
WHO	World Health Organization
WTO	World Trade Organization

To my mother

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The Rotterdam Convention on Hazardous Chemicals: A Meaningful Step Towards Environmental Protection?

Chapter One

During the last three decades, the production of chemicals increased spectacularly.[1] Realising that some of these substances pose serious threats to the environment and to human health, governments in most industrialised countries decided to promulgate strict regulations dealing with their registration, testing, production, distribution and sale.[2] In addition, several hazardous chemicals were banned or severely restricted for domestic use. However, these substances could be exported to other countries, as regulations were silent or lenient with regard to exports.[3]

Developing countries were and continue to be a favoured destination of hazardous chemicals, since they are less aware of the risks involved and they often depend on them to earn foreign currencies (e.g. the use of low-priced pesticides to sustain export agriculture) or to control vector-borne diseases (e.g. malaria and yellow fever). However, these countries usually lack appropriate environmental regulations to deal with hazardous chemicals, and when these regulations exist, there is very limited capacity to enforce them. Developing countries also generally lack the ability and the infrastructure to handle these materials in an environmentally sound manner (i.e., in a way that protects the environment and human health from their negative effects). As a result, the export of

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[1] In 1982 there were around 60,000 chemicals on the market, and production of synthetic materials had increased some 350 times since 1940. In the 1990s the number was 100,000, with some 1,000 substances becoming available every year. Mostafa Tolba & Osama A. El-Kholy, eds., *The World Environment 1972-1992. Two Decades of Challenge*, 1st ed. (London, New York: Chapman & Hall on behalf of UNEP, 1992) at 249. See also UNEP Chemicals, *Introduction to the Rotterdam Convention*, UN doc. UNEP/Chemicals/98/17 (January 1999).

[2] This raised the costs of producing and registering chemicals. The costs of developing and marketing a new insecticide are, for instance, around US $75 million, due partly to strict registration requirements. See Helmut F. Van Emden & David B. Peakall, *Beyond Silent Spring: Integrated Pest Management and Chemical Safety*, 1st ed. (London; New York: Chapman & Hall, 1996) at 62.

[3] In the United States, the export of banned or never registered pesticides to other countries is permitted as long as the foreign purchaser signs a statement acknowledging that he understands that the pesticide is not registered for use in the U.S. The US Environmental Protection Agency strengthened the notification and labelling requirements in its Export Policy 1993, but U.S. companies can still produce and export unregistered pesticides to any country, as long as they are labelled "unregistered" and the importer is notified of this classification. [See *Federal Insecticide, Fungicide and Rodenticide Act* (FIFRA), 7 U.S.C. § 136 et seq. (1996), at § 136o.]. In the European Union, Council Regulation EEC No. 2455/92 allowed the export of pesticides that were banned or severely restricted within the EC to other states, as long as the exporter complied with certain requirements such as prior notification and consent by the importer and acceptable standards of packaging and labelling. (EC, *Council Regulation 2455/92 of 23 July 1992 concerning the export and import of certain dangerous chemicals* [1992] O.J. L. 251/13. The regulation was recently replaced by Regulation 304/2003 (EC, *Regulation 304/2003 of the European Parliament and of the Council of 28 January 2003 concerning the export and import of dangerous chemicals*, [2003] O.J. L. 063/1), which implements the Rotterdam Convention within the EU. For further details see section 2.3. in Chapter 2.

hazardous chemicals to these countries poses a serious threat to human health and to the environment. The most alarming figures involve the use of hazardous pesticides by farmers in the South.[4] Reviews of hospital data from the WHO, which record only the gravest cases, indicate that there are about 1 million accidental poisonings and 20,000 deaths due to pesticides every year, primarily in developing countries. Agricultural surveys, for their part, suggest that there could be as many as 25 million agricultural workers in the developing world suffering from an episode of pesticide poisoning each year. In addition, there is evidence that pesticides banned in developed countries may return to them in the form of residues in food imported from the developing world. This phenomenon is known as the 'circle of poison.'[5]

These and other problems prompted a global response to deal with trade in hazardous chemicals between developed and developing countries in the late 1980s. The initial reaction of states was to adopt two voluntary instruments that created a system of information exchange on hazardous chemicals and pesticides. They are the International Code of Conduct on the Distribution and Use of Pesticides, adopted by the Food and Agriculture Organisation of the United Nations (FAO) in 1985, and the London Guidelines for the Exchange of Information on Chemicals in International Trade, adopted by the United Nations Environment Programme (UNEP) in 1987. In 1989, the prior informed consent (PIC) procedure was introduced into both instruments, due to the pressure exerted by developing countries and by environmental nongovernmental organisations. The PIC procedure was intended to give importing countries the opportunity to refuse future imports of a number of hazardous chemicals that had been banned or severely restricted in other countries. In 1998, the voluntary PIC system was transformed into a legally binding instrument, with the adoption of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. The treaty is not yet in force,[6] and it was agreed that the voluntary system would continue to operate on an interim basis, after undergoing some adjustments that put it in line with the convention's provisions.[7]

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[4] While the word 'South' refers to the developing and less developed countries of Africa, Asia and Latin America, the word 'North' encompasses the industrialized nations of Europe, Japan, North America and Australasia. For further details see section 3.2. in Chapter 3.

[5] For further details on the health and environmental effects of hazardous chemicals see Chapter 2.

[6] As of August 2003, the Rotterdam Convention had 73 signatories and 46 parties. 50 ratifications are needed for the treaty to enter into force, online: <http://www.pic.int> (last visited 24 August 2003).

[7] Conference of Plenipotentiaries on the Convention of the PIC Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, Rotterdam 10-11 September 1998, *Resolution on Interim Arrangements*, Annex I, doc. UNEP/FAO/PIC/CONF/5 (1998) [Hereinafter Resolution on Interim Arrangements] at 9.

The purpose of this thesis is to undertake a critical evaluation of the Rotterdam Convention. Its central argument is that the treaty is fundamentally flawed, and that it will not adequately respond to the problems and challenges it is intended to address. This is not only because it virtually reproduced the voluntary PIC system without introducing much needed provisions on testing, management and production of chemicals, but also because it does not feature some of the essential elements upon which a successful PIC system depends. Its most notable deficiency is that it fails to truly acknowledge the differences between developed and developing countries. Thus, although it seems to recognise the lack of capacity of developing countries to manage hazardous chemicals and to implement its provisions, it reflects in practice the mistaken assumption that information will by itself improve that capacity. Yet, the experience gained with the voluntary system reveals that enhancing the ability of developing states to analyse data on chemicals, to test chemicals under their own conditions, to document and report poisoning incidents, and generally to safely manage hazardous chemicals, is essential for the successful implementation of the PIC procedure.

Although the central subject of this analysis is the Rotterdam Convention, two multilateral treaties that are connected to it are also considered, to the extent that they assist in the evaluation of the convention. These treaties are examined, in particular, in the study of the underlying causes of the problem, and of the possible solutions that could contribute to achieve some progress in the area of hazardous chemicals management. They are the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (adopted in March 1989 and in force since May 1992),[8] and the Stockholm Convention on Persistent Organic Pollutants (adopted in May 2001, not yet in force).[9] While the Basel Convention seeks to control the international trade of hazardous *wastes*,[10] the Stockholm Convention deals with *persistent organic pollutants* (hereinafter

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[8] In the late 1980s, and encouraged by several scandals involving the dumping of hazardous wastes in the South by industrialised countries, a coalition of developing countries (led by African states) and non-governmental organisations lobbied UNEP's Governing Council to negotiate an international legally binding instrument dealing with the international trade of hazardous wastes, which resulted in the adoption of the 'Basel Convention on the Transboundary Movement of Hazardous Wastes and their Disposal' in 1989. For a review of the Basel negotiations see Jennifer Clapp, *Toxic Exports. The Transfer of Hazardous Wastes from Rich to Poor Countries* (Ithaca, N.Y.: Cornell University Press, 2001) at 38-44 [Clapp, "Toxic Exports"], and Pamela S. Chasek, *Earth Negotiations. Analyzing Thirty Years of Environmental Diplomacy* (Tokyo; New York: United Nations University Press, 2000) at 110-116. As of June 2003, the Basel Convention had 158 parties. The only signatories that are not parties to the treaty yet are the U.S.A, Afghanistan, and Haiti, online <http://www.basel.int> (last visited 24 August 2003).

[9] As of 22 August 2003, the Stockholm Convention had 151 signatories and 35 parties. 50 ratifications are needed for the treaty to enter into force, online <http://www.pops.int> (last visited 24 August 2003).

[10] Although there is no legal definition of 'hazardous wastes,' they can be defined as those substances that require special technologically advanced methods of disposal to render them harmless or less dangerous because of the threat they pose to human health and the environment. They are generated in manufacturing processes, the chemical industry, the petroleum industry and other industrial sectors. Some examples include

POPs), a group of chemicals that persist in the environment, bioaccumulate exponentially up the food chain,[11] and travel long distances. As pointed out by UNEP, these two treaties and the Rotterdam Convention "together provide an international framework governing the environmentally sound management of hazardous chemicals throughout their life-cycles."[12] As a result, the effective implementation of each one of these treaties depends in part on the successful implementation of the other two. The reduction of POPs, for instance, partially depends on the sound management of hazardous wastes,[13] which in turn partially depends on certain pesticides not being exported to a country with very limited or no capacity to dispose of them once they expire.[14]

The Basel Convention on hazardous wastes is the only one of these treaties that is currently in force (since June 1992) and, like Rotterdam, it is based on the PIC procedure. It also deals with a problem that particularly affects the South, which due to its lower environmental standards has been an appealing destination for the hazardous waste generated in the North.[15] Because it takes place under similar circumstances, the North-

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acids, alkalis, solvents, medical waste, sludge, resins and heavy metals. See David R. Boyd, *Canada vs. the OECD: An Environmental Comparison* (Victoria, B.C.: University of Victoria, Eco-Research Chair of Environmental Law & Policy, 2001) at 20.

[11] POPs resist breakdown in water but they are soluble in fatty tissue. Thus, they bioaccumulate exponentially up the food chain, reaching their greatest magnitudes in birds, mammals and humans. In addition, POPs bioconcentrate under typical environmental conditions. Bioconcentration is the process by which animals absorb high concentrations of POPs directly from the environment. See Resource Futures International, "POPs and the Stockholm Convention: A Resource Guide" (Draft), presented at the Forum "Implementing the Stockholm Convention," March 11-12, 2002 Vancouver, BC, Canada (September 2001) [unpublished] at 2.

[12] UNEP, Secretariat of the Basel Convention, Interim Secretariat of the Rotterdam Convention and Interim Secretariat of the Stockholm Convention, "The Hazardous Chemicals and Wastes Conventions" (July 2002), online <http:// www.pops.int/documents/background/hcwc.pdf>

[13] The recycling and incineration of some hazardous wastes are important sources of PCDD, PCDF, HCH and PCBs, which are all persistent organic pollutants. See *Stockholm Convention on Persistent Organic Pollutants*, 22 May 2001, Doc. UNEP/POPS/CONF/2, 40 I.L.M. 532 (not in force as of 24 August 2003) [hereinafter Stockholm Convention] Annex C, Part II, online: <http://www.pops.int/documents/convtext/convtext_en.pdf>.

[14] Obsolete pesticides are wastes, and they are thus excluded from the scope of the Rotterdam Convention (Art. 2). FAO estimates that there are more than 100,000 tonnes of obsolete pesticides in developing countries, most of which are leftover from donations provided by foreign aid programmes. Among these substances are DDT, dieldrin and HCH (hexachlorocyclohexane). Due to a lack of environmentally sound disposal facilities stocks are constantly increasing, FAO has called for an urgent concerted global effort to dispose of this hazardous waste and to avoid further accumulations. FAO, Press Release, "Stocks of Obsolete Pesticides Threaten the Environment" (5 June 1996).

[15] About 95 per cent of the total annual output of hazardous waste comes from a few developed countries. Due to strict regulations on waste disposal in those countries, the export of such wastes to the developing world became an attractive option. During the 1970s and 1980s, the world learned about several toxic wastes dumps in Africa and the Caribbean, and it was found that an estimated U$3 billion worth of hazardous wastes was being exported from the industrialised world to developing countries, most of which lacked the technology or the administrative capacity to dispose of them in a safe manner. In response to this problem, the legal department of UNEP began working towards an international agreement to control the international trade of hazardous wastes in 1981. A group of experts elaborated the "Cairo Guidelines and Principles for the Environmentally Sound Management of Hazardous Wastes," which was adopted by UNEP in 1987. Subsequently, encouraged by the scandals involving the dumping of hazardous wastes in the South by industrialised countries, a coalition of developing countries (led by African states) and non-governmental organisations lobbied UNEP's Governing Council to negotiate an international legally binding instrument dealing with the international trade of hazardous wastes. Negotiations started in 1988, and culminated with the adoption of the 'Basel Convention on the Transboundary Movement of Hazardous Wastes and their Disposal' in 1989. See Christoph Hilz, *The*

South transfer of hazardous wastes sheds light on the causes underlying the transfer of hazardous chemicals. In addition, the experience gained with the implementation of the Basel Convention (and the fact that it has proven largely insufficient to address the problems posed by hazardous wastes despite its comprehensiveness) may provide insight into how to address the problem of the transfer of chemicals more effectively. As for the Stockholm Convention on POPs, its most direct relation with Rotterdam is that they have seven substances in common.[16] However, POPs are perceived as a more pressing problem for the North,[17] because they travel long distances and tend to accumulate in cold regions and at high altitudes, e.g. the Canadian Arctic.[18] One could argue that partly because of this,[19] the approach of the Stockholm Convention to deal with POPs is different than that of the Rotterdam and Basel conventions, which seek to control trade through prior informed consent rather than through controls on the production or generation of the substances they regulate.[20] Besides including provisions on trade, production and use of POPs, aiming at their ultimate elimination, the Stockholm Convention has valuable provisions dealing with North-South disparities that are not featured in either Basel or Rotterdam.[21] Notably, it expressly recognizes the different responsibilities of the South

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International Toxic Waste Trade (New York: Van Nostrand Reinhold, 1992) at 12-37; Clapp, "Toxic Exports," *supra* note 8 at 33-34; and Chasek P., *supra* note 8 at 110-116.

[16] See *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade*, 10 September 1998, UN Doc. UNEP/FAO/PIC/CONF/2, 38 I.L.M. 1 (1999), (not in force as of 31 August 2003) [hereinafter Rotterdam Convention], Annex III, online: <http://www.pic.int/en/ViewPage.asp?id=104>, and Stockholm Convention, *supra* note 13 Annexes A and B.

[17] Although POPs are also problematic for developing countries, especially in relation to the environment, human poisonings in the South are mostly due to organophosphates and carbamate pesticides, which do not persist in the environment but are acutely toxic for humans and wildlife (See Chapter 2 for details). In addition, the fact that most POPs are inexpensive because patents no longer protect them, and that they serve important health or agricultural purposes suggests that developing countries had no wish to halt the use of these substances, unless affordable and effective alternatives were available.

[18] Mechanisms such as the "cold condenser effect" exist for intra-hemispheric distribution of POPs, such as HCB. These POPs are sourced in temperate and tropical regions, and volatilised and transferred by atmospheric movement to cold arctic regions. The major source for environmental contamination with POPs is still the Northern Hemisphere, with tropical Asia being a recent and major source. See D.W. Connell *et al.*, "POPs in the Southern Hemisphere: Executive Summary," prepared as a Consultancy Service for the Department of Environment, Sport and Territories, Environment Protection Agency, Environment Standards Branch of Australia (June 1996), online: <http://www.chem.unep.ch/pops/indxhtms/manexp14.html>

[19] Other factors that serve to explain the stronger measures of the POPs treaty include: the particular properties of POPs, which triggered serious concern and public attention; the limited number of POPs being initially controlled (12), which may have contributed to broad consensus on some of the most ambitious elements of the convention; many of the initial 12 POPs had already been heavily regulated in many countries and, in some cases, were no longer protected by patents. This suggests that industry did not exert such a great influence to prevent the development of strong commitments to protect the environment and human health from the risks posed by POPs. See Peter L. Lallas, "The Role of Process and Participation in the Development of Effective International Environmental Agreements: A Study of the Global Treaty on Persistent Organic Pollutants (POPs)" (2000) 19 UCLA J. Envtl. L. & Pol'y 83.

[20] Although initially the Basel Convention only regulated the export of hazardous waste from North to South, the pressure exerted by developing countries and environmental nongovernmental organisations culminated in 1995 with the adoption of Decision III/1, which proscribes the export of hazardous wastes from the countries of Annex VII (EU members, OECD members and Liechtenstein), to Non-Annex VII countries. It is an amendment to the Convention and, as of August 2003, it had not entered into force. See note 380 and section 3.4.3. in Chapter 3.

[21] See Chapter 3 for further details.

and of the North in dealing with POPs, and provides the means to ensure that developing countries will receive the funds and the technology they require in order to implement their obligations under the treaty. In this way, the Stockholm Convention fills some of the gaps of the Rotterdam treaty in relation to the substances they have in common. It also provides some guidance on how to better deal with other hazardous chemicals that are especially problematic for the South but are only regulated by Rotterdam because they do not exhibit the characteristics of POPs.

This thesis is divided as follows. Chapter 2 looks at the problems that made a convention on hazardous chemicals necessary. First, it shows the effects that some pesticides and industrial chemicals have on the environment and human health, with special attention to the chemicals presently included in the PIC procedure. Then, the chapter looks at the domestic laws that have allowed major agrochemical companies to export hazardous chemicals (i.e. chemicals banned or severely restricted for domestic use) to developing countries. The justifications regulators have given to sustain these double standards are also briefly considered. Lastly, the chapter looks at the global pesticide market. Given that it is controlled by six multinational corporations based in the North,[22] a brief profile of these companies is presented. In addition, the chapter looks at the production of hazardous pesticides in the South by multinational corporations and by some local manufacturers in China, India and Brazil, which are the most important Southern markets.

Chapter 3 sets the context in which the export of hazardous chemicals from developed to developing countries takes place, taking into account the transfer of hazardous waste, which occurs under similar circumstances. It argues that there are essentially two forces facilitating –if not promoting–, these transfers. The first one is the North-South divide (i.e., the economic and technological gap that exists between developed and developing countries). The second one is embedded in the paradigm that is upheld within the context of a free market globalised economy. The chapter looks at these two forces within the context of multilateral economic institutions, i.e. the Bretton Woods institutions and the World Trade Organization, as they have promoted trade liberalisation at a global scale and have considerably influenced, if not shaped, North-South relations since their inception.

[22] The chapter focuses on agrochemical companies because, unlike most industrial chemicals included in the PIC procedure, pesticides are still largely traded and used in agriculture and public health programmes in the South, and they pose the biggest problems due to conditions of use in those countries.

After considering the conditions underlying the transfer of hazardous chemicals and wastes, Chapter 3 looks at the moral and legal principles that apply to the treaties dealing with that transfer, and the relevance that states have given to these rules in the international environmental arena. These principles are important for at least three reasons. First, because of the limited choice developing countries have, and because of the nature of the substances being exported, the decision of a Northern company to export hazardous chemicals and wastes to the South (and of a Northern state to allow such exports) is ultimately of ethical nature. Thus, even if a company overlooks moral considerations when deciding to export a domestically banned chemical to a country with very limited or no capacity to manage it, that is, *in itself*, an ethical choice. Second, these principles are included, either implicitly or explicitly, in the Basel, Rotterdam and Stockholm conventions, which indicates that they are directly applicable to the transfer of hazardous chemicals and wastes. Moreover, they have been recognised by the majority of states in the international environmental arena, some of them to the extent of having gained the status of customary international law. Third, if fully implemented these principles would greatly contribute to the effective protection of the environment and human health from hazardous chemicals and wastes. Along these lines, two principles and their implications for the transfer of hazardous chemicals and wastes are considered. The first is the principle of state responsibility for transboundary harm, embedded in principles 21 of the Stockholm Declaration (1972) and 2 of the Rio Declaration (1992). The second is the principle of international environmental equity and the rules that derive from it, in particular the principle of common but differentiated responsibilities (as formulated in principle 7 of the Rio Declaration).

Taking into account the context in which the transfer of hazardous chemicals and pesticides occurs, Chapter 4 provides a critical evaluation of the Rotterdam Convention. First, it examines the origins of the international regime of hazardous chemicals and pesticides,[23] and describes the voluntary instruments that preceded the convention, i.e., the FAO Code of Conduct and UNEP's London Guidelines.[24] These two instruments

[23] International regimes are, according to Keohane (1989) "institutions with explicit rules, agreed upon by governments, that pertain to particular sets of issues in international relations," while institutions are "persistent and connected sets of rules (formal and informal) that prescribe behavioural roles, constraint activity, and shape expectations." This means that the Rotterdam Convention, the voluntary PIC system and the principles of international environmental law analysed in Chapter 3 are part of the regime of hazardous chemicals and pesticides. See Robert O. Keohane "The Analysis of International Regimes. Towards a European-American Research Programme," in Rittberger Volker, ed. *Regime Theory and International Relations* (Oxford: Claredon Press; New York: Oxford University Press, 1993) at 28-29.

[24] For the full name of these instruments see page 2, in this chapter.

launched a system of information exchange on hazardous chemicals, and were amended in 1989 to introduce the prior informed consent (PIC) procedure, which is described in detail in the chapter. Then, the chapter presents a survey of the negotiations that led to the adoption of the Rotterdam Convention, considering the major points of divergence between state representatives. A brief description of the treaty's main provisions follows, taking into account the corresponding provisions of the voluntary PIC system. Lastly, in view of the experience gained with the voluntary procedure –particularly the opinions expressed by the FAO/UNEP Joint Group of Experts on PIC– the chapter reflects on whether the Rotterdam Convention enhanced the voluntary system in any meaningful way. The conclusion of the analysis is that no significant improvements were introduced into the convention, and that even by its own standards (i.e., considering that it seeks to improve the environment and human health through information exchange and not through the safe management of chemicals) the treaty is fundamentally flawed. This is because it does not adequately address the very limited capacity of developing countries to effectively implement its provisions. Thus, it makes a procedure mandatory without providing the means for most vulnerable countries (for which the system was created) to implement it. In addition, it does not promote participation of all important players, as recommended by the Joint Group of experts on PIC.

Having explored the challenges facing the Rotterdam Convention and the shortcomings of the treaty, Chapter 5 considers the ways in which the Rotterdam Convention could meaningfully contribute to the protection of the environment and human health from hazardous chemicals and pesticides. Taking into account the experience gained with the implementation of the voluntary PIC procedure, and the relevant provisions of the Basel Convention on hazardous wastes and the Stockholm Convention on POPs, the chapter suggests a number of measures that could be introduced in the text of the Rotterdam Convention for a successful PIC procedure. The chapter argues, however, that a system of prior informed consent might not be the most appropriate method to address the problems pertaining to hazardous chemicals and pesticides. The prior informed consent approach reflects the idea that trade in hazardous chemicals and export double standards are not a problem in themselves, and thus trade should not be proscribed but merely regulated. For that reason, Chapter 5 reflects on whether trade in hazardous chemicals and environmental protection are inherently compatible, as claimed by the Rotterdam Convention and reflected in the PIC procedure approach. The analysis shows that to make that assumption is in many ways problematic, and it has detracted states from effectively addressing the problem of trade in hazardous chemicals. Although a more effective way

of dealing with this problem is within reach, the chapter notes the lack of political will to implement it. This is because except for those that are persistent organic pollutants, the chemicals and pesticides regulated by the Rotterdam Convention are primarily a concern of the South. Meanwhile, the solutions largely depend on the willingness of the North to take action.

Chapter Two

Hazardous Chemicals and Pesticides: Understanding the Problem

2.1. Introduction

The purpose of this chapter is to introduce the problem that led states to negotiate a convention on trade in hazardous chemicals. First, the chapter looks at the effects some industrial chemicals and pesticides have on the environment and human health.[25] Then, it presents a brief synopsis of the laws that have allowed Northern agrochemical companies to export chemicals banned or severely restricted for domestic use to the developing world.[26] Because these double standards are still in place, the justifications that regulators have offered to sustain them are also briefly considered. Lastly, the chapter looks at the global pesticide market,[27] providing a brief profile of the six multinational corporations that control it, and an overview of a number of local companies producing hazardous pesticides in China, India and Brazil, which are the biggest Southern markets. The study of the pesticides market reveals not only the magnitude of the challenges facing the Rotterdam Convention, but also the problems that could arise if double standards were simply eliminated. Because the Rotterdam Convention deals only with trade in hazardous chemicals, Northern companies could transfer their production facilities to developing countries, where they have several subsidiaries and some of them are already producing hazardous pesticides.[28] In addition, Southern companies could embark on –or expand–, the production of hazardous chemicals. If no regulations on production are established, a ban on the export of hazardous chemicals could thus intensify hazardous production in developing countries by both national and foreign players (or by joint ventures between them).[29] This would merely transform the problem

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[25] Substances that are not included in the PIC procedure but are also problematic for the South (e.g. the herbicide paraquat) are also mentioned in the chapter.

[26] The world's agrochemical market is controlled by six agrochemical corporations based in the U.S., Switzerland and Germany. For that reason, only EU, Swiss and U.S. legislation is considered.

[27] The main focus of this chapter is on pesticides, since they pose the biggest problems in due to their use in agriculture and public health programmes, and they are still largely traded and used in the South.

[28] Syngenta, for instance, opened a US$85 million factory China to manufacture paraquat, a herbicide responsible for many poisonings in developing countries. Paraquat is banned in Switzerland, home of Syngenta, and other countries. (For details on paraquat please see notes 142 and 194).

[29] Lower standards of production in developing countries could potentially lead to more disasters such as the one occurred in 1984 in Bhopal, India, when about 40 tonnes of methyl isocyanate and other lethal gases leaked from Union Carbide Corporation's pesticide factory. On the night of the disaster, six safety measures designed to prevent a gas leak were not functioning properly, they were shut down or inadequate. The safety siren, intended to alert the community in case of an accident, was turned off. See "Bhopal: The Ongoing Disaster 1984-2001," Greenpeace International, 2001, online: <http://zope.greenpeace.org/z/gpindia/bhopal-factsheet>.

of transfer of hazardous chemicals into one of transfer of production, rather than addressing the issue at its root.

2.2. Hazardous Chemicals and Pesticides: Why regulate them?

Hazardous chemicals can be defined as industrial chemicals and chemical pesticides that in small doses can cause significant harm to the environment or human health.[30] They may pollute water, air and soil, and destroy fauna and flora; some of them persist in the environment for a long period of time, and accumulate in the food chain.[31] Impacts on health can be both acute and chronic. Acute effects include skin burns, paralysis, blurred vision, blindness and death, while some chronic effects are neurological damage, endocrine disruption, reproductive damage, birth defects, cancer, immune system suppression, lung and heart disease, and kidney damage.[32]

Under the Rotterdam Convention, 17 pesticides, 5 industrial chemicals and 5 severely hazardous pesticide formulations[33] should not be exported unless agreed by the importing country.[34] In addition, five new pesticides have been added in the interim period,[35] and parties will consider including these chemicals in the originally agreed list of 27 substances once the convention enters into force.[36]

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[30] Lakshman D. Guruswamy & Brent R. Hendricks, *International Environmental Law in a Nutshell* (St. Paul, Minn.: West Pub. Co., 1997) at 190.

[31] Organochlorines, for instance, persist in the environment and accumulate in fatty tissue of animals, reaching the greatest magnitudes in predatory birds and mammals. Bioaccumulation means an increase in the concentration of a chemical in a biological organism over time compared to the chemical's concentration in the environment (e.g., some POPs present in water may bioconcentrate in the fatty tissue of fish by factors up to 70,000 times their concentration in the water column). Resource Futures International, *supra* note 11 at 2.

[32] For pesticides see World Resources Institute, UNEP, UNDP, World Bank, *World Resources 1998-1999* (New York: Oxford: Oxford University Press, 1998) [hereinafter World Resources 1998-1999] at 42-45. For industrial chemicals, see next two pages.

[33] While the active ingredient is the one that has the pesticidal effect, a formulation is a mixture of active ingredient(s) with carriers, spreaders or other inert materials, to improve the storage, mixing and/or application properties of a product. See Government of British Columbia, Ministry of Land, Water and Air Protection, *Integrated Pest Management Manual for Home and Garden Pests in BC:* Glossary, online: <http://wlapwww.gov.bc.ca/epd/ipm/docs/envirowe/gloss.htm>. [Hereinafter BC Glossary].

[34] Annex III of the Rotterdam Convention lists the substances subject to the PIC procedure. Although Annex III chemicals should not be exported unless expressly agreed by the importing country, three exceptions apply to this rule. See Rotterdam Convention, *supra* note 16 Art. 11(2), and Chapter 4.

[35] Binapacryl, toxaphene, ethylene oxide, ethylene dichloride, and monocrotophos. The first two were added to the list in July 1999, the following two in November 2000, and the latter in October 2002. Certain formulations of monocrotophos were already included in Annex III.

[36] Art. 8 of the Rotterdam Convention states that any chemical other than those listed in Annex III that has been included in the voluntary PIC procedure before the first meeting of the Conference of the Parties (COP) may be added to Annex III by the COP if it finds all the relevant requirements have been fulfilled. See Rotterdam Convention, *supra* note 16 Art. 8.

2.2.1. Industrial Chemicals

Industrial chemicals are chemical compounds used or produced by industry. Those presently subject to the PIC procedure are: polychlorinated biphenyls (PCBs); polychlorinated terphenyls (PCTs); polybrominated biphenyls (PBBs); crocidolite (a type of asbestos); and tris (2,3-dibromopropyl) phosphate (TBPP). Both PCBs and PCTs are chlorinated compounds. PCBs are non-flammable oily liquids or waxes used as hydraulic fluids or additives to oils in sealants, electrical applications and paints. They are suspected of promoting cancer, damaging the immune and reproductive systems and interfering with hormone systems through endocrine disruption. There is also evidence that children born to mothers contaminated with high levels of PCBs suffer impaired nervous system development.[37] PCBs persist in the environment, bioaccumulate in the food chain, concentrate in human fatty tissue and milk and travel long distances. For that reason, they are also included in the Stockholm Convention. PCTs are yellow resins with properties similar to PCBs and used for similar purposes. Their production was terminated in most countries in the mid-1970s, which indicates that there is no significant trade of PCTs. Although they are toxic, persistent, and bioaccumulative like PCBs, further studies are needed to evaluate the health impact of PCTs and their potential link to long-range transboundary air pollution,[38] which is possibly why they were not included in the initial list of 12 POPs of the Stockholm Convention.

PBBs and TBPP are two brominated flame-retardants. PBBs are added to plastics used in products such as computer monitors, televisions, textiles, and plastic foams, to make them difficult to burn. Tests on laboratory animals show that PBBs can cause body weight loss, skin disorders, nervous and immune system damage, and injure the liver, kidneys, and thyroid glands. The International Agency for Research on Cancer (IARC) has determined that they are possible humans carcinogens. They are stored mainly in body fat, tend to concentrate in breast milk fat, and can enter the bodies of infants through breast feeding, and the bodies of unborn babies through the placenta.[39] TBPP is a viscous liquid that was used primarily as a flame retardant additive for synthetic textiles,

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[37] See Paul Harrison & Fred Pearce, American Association for the Advancement of Science, *AAAS Atlas of Population and the Environment* (Berkeley, CA: University of California Press, 2000) at 111.

[38] Environment Canada, "Polychlorinated Terphenyls (PCTs)" by Greg Filyk (Quebec: 2002) at 24, online: <http://www.unece.org/env/popsxg/pct.pdf>.

[39] PBBs were banned in the U.S. in 1976, but they can be released in small amounts into the environment from poorly maintained hazardous waste sites and improper incineration of plastics that contain them. U.S., Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, *Public Health Statement for Polybrominated Biphenyls and Polybrominated Diphenyl Ethers* (Draft for Public Comment) (September 2002), online: <http://www.atsdr.cdc.gov/toxprofiles/tp68.html>.

particularly in children's sleepwear.[40] It can be absorbed through the skin, and carcinogenic effects have been found in rats and mice. In 1977, the US Consumer Product Safety Commission banned children's clothing treated with TBPP, on the grounds that it may be a human carcinogen. The use of this substance as a flame retardant in consumer products has been severely restricted in many countries and prohibited in textiles.[41]

Lastly, asbestos is the name given to a group of six different fibrous minerals made of thin, separable fibres that do not dissolve in water or evaporate and are resistant to heat, fire, and chemical and biological degradation.[42] These properties make it ideal for a wide range of products, such as building materials, friction products, and heat-resistant fabrics. The downside of asbestos is that its fibres get easily trapped in the lungs, where they build up over time and may not be degraded. This can cause asbestosis, a lung disease that may lead to disability or death, and increased chances of getting lung cancer and cancer in the stomach, intestines, oesophagus, pancreas, and kidneys.[43] The Rotterdam Convention includes only one kind of asbestos (crocidolite), but the other five forms may be added to the PIC list in November 2003, triggered by bans in Australia, Chile and the EU.[44]

These industrial chemicals pose a serious risk to health and to the environment everywhere. However, with the exception of asbestos (though not the type regulated by the Rotterdam Convention),[45] most of them are no longer being produced or exported, or they are not produced in significant amounts.[46] In contrast, many hazardous pesticides

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[40] U.S., Department of Health and Human Services, National Toxicology Program (NTP), "Tris(2,3-Dibromopropyl) phosphate," *Ninth Report of Carcinogens* (January 2001), online: <http://www.sanitaweb.it/web/Biblioteca/carcinogens.htm>.

[41] TBPP is banned in several European countries, the U.S. and Japan. International Programme on Chemical Safety, "Tris(2,3-dibromopropyl) phosphate and Bis(2,3-dibromopropyl) phosphate," *Environmental Health Criteria No. 173* (Geneva: World Health Organization, 1995), online: <http://www.inchem.org/documents/ehc/ehc/ehc173.htm>. [hereinafter Int'l Programme of Chemical Safety].

[42] These are amosite, chrysotile, crocidolite, and the fibrous varieties of tremolite, actinolite, and anthophyllite. Chrysotile is considered less hazardous than the other forms of asbestos fibres, which belong to the amphibole family. U.S., Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, *Public Health Statement for Asbestos* (September 2001), online: <http://www.atsdr.cdc.gov/toxprofiles/phs61.html>.

[43] Both the U.S. EPA and the IARC have determined that asbestos is a human carcinogen. See *Ibid.*

[44] United Nations Environment Programme (UNEP), Press Release, "Three Deadly Pesticides and Asbestos Targeted for Trade Controls" (February 2002).

[45] The only type of asbestos manufactured today is chrysotile, and only products in which the fibre is encapsulated in a matrix of cement or resin, preventing the release of fibres, are sold. Major producers are, in order of importance: Russia; Canada; China; Brazil; Zimbabwe; Kazakhstan; Greece; India; Swaziland; South Africa; Colombia; and the U.S. (The Asbestos Institute, 1999-2000, online: <http://www.asbestos-institute.ca/main.html>).

[46] Production of PCBs has almost totally ceased worldwide, although there are reports of it continuing in Russia. (Greenpeace International, Toxics Campaign, "Down to Zero. POPs in the OSPAR Priority List" (2002), online: <http://archive.greenpeace.org/toxics/downtozero/POPS/ospar-list.html>.) Production of PCTs is not known to

are still widely produced and used, and developing countries strongly rely on them to sustain export agriculture. For that reason, the focus of this chapter is on the international trade and production of hazardous pesticides.

2.2.2. Pesticides and Pesticide Formulations[47]

Pesticides are substances intended to prevent, destroy or control pests, such as vectors of human or animal disease and unwanted species of plants or animals causing harm or interfering with the production, processing, storage or marketing of food, agricultural commodities, and wood.[48] They are the only toxic chemicals purposefully introduced by humans into the environment to combat, amongst others, insects (insecticides), weeds (herbicides) and fungi (fungicides), and to control insect-borne diseases such as malaria, dengue fever, and river blindness.[49]

Chemical pesticides have contributed to increased global agricultural productivity, reduced vector-borne disease, and to the protection or restoration of plantations and forests.[50] However, many of them bear effects that may surpass their benefits. Millions of human poisonings per year, the pollution of air, soil and water, food contamination (in the case of use of pesticides on food crops), and disruption of wildlife, are all side effects of the production, distribution and use of pesticides.[51]

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occur anywhere since the early 1980s (Filyk G., *supra* note 38 at 7). U.S. Monsanto, leading manufacturer of PCBs and PCTs terminated production and export of both chemicals in 1977. (Dr. Heidelore Fiedler, "PCBs: Uses and Environmental Releases," St. Petersburg, Russia (1-4 July 1997), online: <http://www.chem.unep.ch/pops/POPs_Inc/proceedings/bamako/eng/FIEDLER1.html>). PBBs are no longer produced in commercial quantities in the U.S. Many countries have banned their use in textiles (e.g. several European countries, the U.S. Japan), while their manufacture, use and importation is prohibited in Austria, Canada, and Switzerland. However, PBBs are still used in many electrical and electronic devices [OECD, Environment Policy Committee, "Report of Incineration of Products Containing Brominated Flame Retardants," doc. ENV/EPOC/WMP(97)4/REV2 (Paris: OECD, 1998)]. Lastly, as far as is known, TPBB is no longer produced or used in the world as a flame retardant in textiles, but it may be added to polymers used for other purposes. (See Int'l Programme on Chemical Safety, *supra* note 41).

[47] See "BC Glossary," *supra* note 33.

[48] For a complete definition *See* Food and Agriculture Organization of the United Nations, International Code of Conduct for the Distribution and Use of Pesticides, 23 FAO/CONF/RES 10/85 (28 November 1985) (amended in 1989 to include prior informed consent) [hereinafter Code of Conduct] Art. 2, online: <http://journals.iranscience.net:800/Default/www.fao.org/waicent/FaoInfo/Agricult/AGP/AGPP/Pesticid/Code/PM_Code.htm>. [Note: A revised version of the Code of Conduct was adopted at the 123rd session of the FAO Council in November 2002, after the adoption of the Rotterdam Convention].

[49] See Andrew M. Crain, "Opportunities to Improve Pesticide Policy in Central America," (2000) 11 Colo.J. Int'l. Envtl.L. & Pol'y 151 at 155-156.

[50] See Donald J. Ecobichon "Pesticide Use in Developing Countries," (2001) 160:1-3 Toxicology 27 at 27.

[51] Peter Hough, *The Global Politics of Pesticides. Forging Consensus from Conflicting Interests* (London: Earthscan, 1998) at 21. [Hough, "The Global Politics of Pesticides"].

2.2.2.1. Impact of hazardous pesticides on human health

Pesticides have a clear impact on human health. Global reviews of hospital data by the WHO estimate that there are 1 million accidental poisonings and 20,000 deaths every year due to pesticides, primarily in developing countries.[52] Yet, hospital data usually record only the most serious poisoning incidents,[53] which explains why agricultural worker surveys present much higher estimates. According to a 1990 survey by the WHO in the Asian region, there may be as many as 25 million agricultural workers in the developing world suffering from an episode of poisoning every year. This is based on 3% of farmers recalling an illness episode over a year among a work force of 830 million workers. Recall surveys from other countries find still a larger ratio at 4.5% in Costa Rica, 9% in Indonesia, and up to 10% in Bolivia.[54]

According to the FAO, although more than 80% of the world's pesticides are applied in industrialised countries, 99% of all poisonings occur in developing countries.[55] Several factors might serve to explain this situation. First, many pesticides classified as extremely or highly hazardous by the WHO are still used in the South, while they are banned or severely restricted in the North.[56] Second, in developing countries, pesticides are usually applied by people with very limited or no training in safe application or storage. Studies of farmers and their families repeatedly show that there is a high risk of exposure through lack of protective clothing, leaking spray equipment, mixing and application of pesticides with bare hands, and storage of pesticides with food.[57] As a result, the risk of poisoning is much higher in the South than in the North. The best health data suggest, for example, that Latin American farm workers are 13 times more likely to suffer pesticide poisoning

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[52] If intentional poisonings are included, there are 3 million cases of pesticide poisoning per year, which result in approximately 220,000 deaths. Toxic pesticides are extensively used as an agent for suicide in developing countries because of their ready availability to the general public. The herbicide paraquat is largely used for these purposes. See J. Jeyaratnam "Acute Pesticide Poisoning: A Major Global Health Problem," (1990) 43 World Health Statistics Quarterly 139 at 143.

[53] See "World Resources 1998-1999," *supra* note 32 at 44.

[54] Helen Murphy, "IPM and Farmer's Health" *Spider Web Newsletter* (5 November 2001) Online: <http://www.communityipm.org/Spiderweb/spider05p1.htm> and Jeyaratnam J., *supra* note 52 at 141 and 143.

[55] In "International Code on Pesticide Use Adopted in Rome," *EuropaWorld* (8 November 2002), online: <http://www.europaworld.org/week104/internationalcode81102.htm>.

[56] According to the Rotterdam Convention, a banned chemical is one all uses of which within one or more categories have been prohibited by final regulatory action in order to protect human health or the environment. A severely restricted chemical is one virtually all use of which within one or more categories have been prohibited by final regulatory action in order to protect human health or the environment. See Rotterdam Convention, *supra* note 16 Art. 2, and Chapter 4.

[57] Jeremy Harris, *Chemical Pesticide Markets, Health Risks and Residues* (Wallingford, Oxon, OX; New York: CABI Pub., 2000) at 15.

than farm workers in the U.S.[58] Lastly, a factor that might also explain the higher incidence of acute poisonings in the South is that while the Northern pesticide market is dominated by herbicides,[59] most developing countries are greater consumers of insecticides,[60] which are generally more toxic. With the exception of the herbicide paraquat, responsible for many accidental and intentional poisonings in the South,[61] the great majority of accidental intoxications can be attributed to two groups of insecticides: organophosphates and carbamates.[62] These pesticides inhibit the action of acetylcholinesterase, an enzyme that is essential to the proper functioning of the nervous system.[63]

There are four major groups of insecticides: organophosphates, carbamates, organochlorines, and synthetic pyrethroids.[64] Organophosphates were discovered during World War II,[65] as a side effect of wartime research into toxic gases.[66] Although they do not persist in the environment or accumulate in fatty tissues, they are usually very toxic to mammals.[67] Early poisoning symptoms include nausea, dizziness, sweating, salivation, lacrimation, and rhinorrhea, while muscle twitching, weakness, tremor, lack of coordination, vomiting, abdominal cramps, and diarrhea are all signals of a worsening of the poisoned state. Poisoning can also cause sensory and behavioural disturbances, depressed motor function, and respiratory depression. Death from organophosphate poisoning is usually linked to increased pulmonary secretions, coupled with respiratory

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[58] Richard R. Tansey *et al.*, "Eradicating the Pesticide Problem in Latin America" (1995) 92 Business and Society Review 55 at 55.

[59] These are used primarily to reduce the workload of workers. G.S. Dhaliwal & M.D. Pathak, *Pesticides: Their Ecological Impact in Developing Countries*, Dhaliwal G.S. and Balwinder Singh eds. (New Delhi, India: Commonwealth Publishers, 1993) at 9.

[60] Insect populations build up more readily in tropical and subtropical regions, and cause the biggest problems. There are some exceptions, such as Malaysia, where herbicides account for ¾ of pesticides used. See *Ibid.* at 10, and John Madeley, "Unsustainable for Use –Profile of Paraquat," *Pesticide News* 56 (June 2002) 3 at 3-5, online: <http://www.pan-uk.org/pestnews/pn56/pn56p3.htm>.

[61] Besides being a cause of accidental poisoning, paraquat is extensively used in the South as an agent for suicides. Jeyaratnam J., *supra* note 52 at 140.

[62] Organophosphates may account for as many as 70% of occupational pesticide poisonings. In "Environmental Change and Human Health," *supra* note 32 at 44.

[63] For further details see Emden H. and Peakall D., *supra* note 2 at 17.

[64] Since they are responsible for the majority of global poisonings, this chapter focuses mainly on insecticides. However, not only insecticides are hazardous. Captafol, hexachlorobenzene (extremely hazardous) and pentachlorophenol (highly hazardous), for example, are three fungicides included in the Rotterdam Convention. In addition, the classifications of carbamates, organochlorines, organophosphates and pyrethroids are also valid for other substances: some fungicides are carbamates, acaricides may be organochlorines, herbicides can be organophosphates, etc. See Alan Wood, "Compendium of Pesticide Common Names," 1995-2003, U.K., online: <http://www.hclrss.demon.co.uk/summ_groups.html>.

[65] Organophosphates are a type of organophosphorous compounds. However, many authors use these two terms interchangeably.

[66] See Hough, "The Global Politics of Pesticides," *supra* note 51 at 4.

[67] See Dhaliwal & Pathak, *supra* note 59 at 7.

failure.[68] Parathion, monocrotophos and phosphamidon are examples of organophosphates. Certain formulations of these three pesticides are subject to the PIC procedure under the Rotterdam Convention, and monocrotophos was added also as a pesticide in the interim procedure.[69]

Carbamates, discovered in the early 1950s, are also nerve poisons. Most of them are toxic to mammals but they are usually excreted rapidly. If exposure ends, cholinesterase inhibition reverses promptly. In non-fatal cases, the illness generally lasts less than 24 hours.[70] Carbamates have short to medium persistence, they are biodegradable and do not accumulate in fatty tissues. Effects of poisoning include muscle weakness, dizziness, salivation, nausea, vomiting, abdominal pain, diarrhoea, blurred vision, lack of coordination, muscle twitching, and slurred speech. More serious effects include coma, seizures, hypotonicity, hypertension and cardiorespiratory depression.[71] Carbofuran, aldicarb, and carboryl are examples of carbamates.[72]

The other two categories of insecticides are organochlorines and pyrethroids.[73] Organochlorines, like organophosphates, were discovered during World War II. DDT, the most popular of these compounds, was discovered in 1939, and due to its low cost, broad spectrum, selective toxicity, ease of formulation and persistence (which means less applications are needed), it became the most widely used insecticide ever manufactured. Aldrin, dieldrin, heptachlor, and chlordane are other examples of organochlorines. Like DDT, they are all regulated by both the Rotterdam and the Stockholm conventions, while endrin, toxaphene and mirex are regulated only by Stockholm, and HCH only by Rotterdam.[74] Although they are not acutely toxic, organochlorines tend to bioaccumulate and persist in the environment for a long period of time (2-15 years). As a result, they may eventually have a negative effect on the environment or human health. Although the

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[68] See U.S., Environmental Protection Agency, Office of Pesticide Programs, "Recognition and Management of Pesticide Poisonings," 5th ed., by Drs. J. Routt Reigart & James R. Roberts, (Washington D.C., 1999) at 34 and 38.

[69] Monocrotophos was added as a pesticide in October 2002, as only certain formulations of the pesticide are included in Annex III of the Rotterdam Convention. Once the treaty enters into force, Parties will decide whether they want to include the pesticide in Annex III. See Rotterdam Convention, *supra* note 16 Art. 7.

[70] See "Carbofuran. Pesticide Information Profile," Extension Toxicology Network (Oregon University State Archives, September 1993), online: <http://ace.orst.edu/info/extoxnet/pips/carbofur.htm>.

[71] See Reigart & Roberts, *supra* note 68 at 49.

[72] According to WHO classification, aldicarb is 'extremely hazardous' (class Ia), and carboryl and pimiricarb are 'moderately hazardous' (II). These classifications are related to concentration levels and a weaker formulation moves an active ingredient into a lower hazard classification. Pesticide Action Network U.K., "The List of Lists," Briefing 3 (November 2001) at 3, online: <http://www.pan-uk.org/briefing/ListofL.pdf>.

[73] David Dent, "Integrated Pest Management," 1st ed. (London; New York: Chapman & Hall, 1995) at 48.

[74] See Rotterdam Convention, *supra* note 16 Annex III, and Stockholm Convention, *supra* note 13 Annexes A and B.

most conclusive studies refer to animals, epidemiological studies have found an association between exposure to organochlorines and various cancers such as lymphoma, leukemia, lung, pancreatic and breast cancer.[75] While tests are not conclusive, there is also evidence that organochlorines affect the human immune system. This might be especially true for the rural South, where immune responses are already weakened by malnutrition, contaminated water supplies, lack of sanitation and poor housing conditions.[76]

Synthetic pyrethroids are the last major group of insecticides. Most of them have low mammalian toxicity and are relatively safe for the spray operators during mixing and application.[77] This is largely because they are rapidly degraded by mammalian liver enzymes, and because they are partly excreted by the kidney.[78] The problem with these substances is that the cost of importing them can be exorbitant for developing countries, given their limited access to foreign currency. The use of pyrethroid esters for malaria control, for instance, is several times pricier than that of DDT. Some studies indicate that pyrethroids cost nine times as much as DDT;[79] others suggest that DDT is three to five times cheaper.[80] Both calculations, despite the gap between them, indicate a substantial difference of price.

As noted before, human pesticide-related poisonings are usually related to the use of insecticides. Herbicides generally have low toxicity to warm blooded animals, including humans. However, some of them can be very toxic. This is the case of paraquat, one of the most widely used herbicides in developing countries. High acute exposure to paraquat can cause lung congestion, convulsions, incoordination, kidney failure, lung sores, liver injury, and death by respiratory failure. Continued exposure may cause nosebleed, skin blistering, ulceration or peeling, necrosis (cell death in skin tissue), temporary nail loss, blistering in scrotal areas (from leaking sprayers soaking trousers), blepharitis (eyelid inflammation), conjunctivitis, and ulcerations or keratosis (wart-like growth) of the

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[75] "World Resources 1998-1999," *supra* note 32 at 45. A seven-year epidemiological study conducted through the Long Island Breast Cancer Study Project found no evidence between organochlorines and the elevated rates of breast cancer in Long Island. However, the study states that it is possible that breast cancer risk in some individuals be associated with organochlorine exposures because of individual differences in metabolism and ability to repair DNA damage. See Cat Lazaroff, "U.S.A.: Study Finds No Link Between Organochlorines and Breast Cancer," *Environment News Service* (6 August 2002), online: <http://www.corpwatch.org/news/PND.jsp?articleid=3470>

[76] This is also valid for some organophosphates, carbamates and metal-based pesticides (e.g. mercury compounds). See "World Resources 1998-1999," *supra* note 32 at 45.

[77] See Dent, *supra* note 73 at 48.

[78] See Reigart & Roberts, *supra* note 68 at 87.

[79] See Ecobichon, *supra* note 50 at 28.

[80] Tom Carter, "DDT: Malaria's Answer in Africa?" *The Washington Times* (6 June 2002).

cornea.[81] Despite the problems it causes in developing countries,[82] paraquat is not subject to the PIC procedure, primarily because most serious paraquat-related poisonings are self-induced, and because most of the paraquat bans do not meet the criteria established first by the voluntary PIC system, and then by Annex II of the Rotterdam Convention-[83] e.g., governments did not carry out a complete risk evaluation.[84] The government of Switzerland, home of paraquat's principal manufacturer,[85] recently announced that it would support efforts to add the pesticide to Annex III of the Rotterdam Convention to protect developing countries from its harmful consequences.[86]

2.2.2.2. Impact of hazardous pesticides on the environment

Each year, an estimated 2.5 million tonnes of pesticides are applied to agricultural crops worldwide. From this amount, less than 0.3% is estimated to reach the intended target, and the remaining 99.7% goes into the environment. The environmental impact of pesticides depends on their toxicological properties and on the degree of the exposure. Once applied, they may runoff into surface water, leach into groundwater, volatilise into the air, be taken up by plants or soil organisms, or stay in the soil.[87] As portrayed by Rachel Carson in her renowned book "Silent Spring," residues of insecticides getting into bodies of water can be toxic to aquatic organisms. In addition, 'pollution of the groundwater is pollution of water everywhere,'[88] since except for what enters streams directly as rain or surface runoff, all the running water on the earth's surface was once groundwater. This is a serious concern if one bears in mind that groundwater is a major source of drinking water in many countries[89] and that one-tablespoon of concentrated pesticide may be enough to pollute the water supply of 200,000 people for a day.[90]

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[81] See Madeley, *supra* note 60 at 3-5.

[82] Besides being a cause of accidental poisoning, paraquat is extensively used in the South as an agent for suicides. See Jeyaratnam, *supra* note 52 at 140.

[83] For a review of the procedure for adding new hazardous chemicals or pesticides to the PIC list under the voluntary PIC system and under the Rotterdam Convention please see note 466.

[84] Information kindly provided by Mr. Achim Halpaap, Senior Programme Coordinator, United Nations Institute for Training and Research (UNITAR), and Ms. Barbara Dinham, Programme Director, Pesticide Action Network (PAN) U.K.

[85] Syngenta's Gramoxone (paraquat) sales were an estimated $430 million in 2001. Jon Cox "Swiss want big Syngenta chemical on UN control list" *Reuters News Service* (5 December 2002).

[86] See "Statement of the Federal Council," 11 November 2002 (answer to the Motion of MP Joseph Zisyadis), posted by the Berne Declaration (a Swiss environmental organization), online: <http://www.evb.ch/index.cfm?page_id=1832&archive=none>.

[87] See Hayo M.G. Van Der Werf, "Assessing the Impact of Pesticides in the Environment," (1996) 60 Agriculture Ecosystems & Environment 81 at 81-84.

[88] Rachel Carson, *Silent Spring,* (Boston, Houghton Mifflin, 1962) at 42.

[89] See Van Der Werf, *supra* note 87 at 82-83.

[90] *The Pesticides Trust Review* (December 1998) at 3, online: <http://www.pan-uk.org/Reviews/review98.pdf>. [The Pesticides Trust is now the Pesticide Action Network U.K.]

Pesticides can also pollute the soil, which they can enter through direct application when they drift after spraying, by atmospheric fallout, or from crop residues, leaf fall, or root deposits. Persistent pesticides such as organochlorines are especially problematic, as they may leach into water and harm long-term soil fertility or poison or affect the behaviour or reproduction of soil organisms, amongst others.[91] Pesticides may also contribute to air pollution, when they enter the atmosphere as a result of drift during application or subsequent volatilization into the air from soil, plants, surface waters, or by wind erosion. Volatilization can continue for several days or weeks after treatment, and even months in the case of particularly persistent pesticides (e.g. organochlorines).[92] Organochlorines such as aldrin, chlordane, DDT, dieldrin, heptachlor, mirex and toxaphene can travel long distances through cycles of evaporation and atmospheric cycling and deposition, and wind and water can carry them both regionally and globally. They are also volatile at warm temperatures and condense at cooler temperatures, reaching their highest concentrations in the cooler regions of the world (Northern latitudes and high altitudes).[93] This is why in Canada the highest concentrations of POPs are found in the Arctic, Great Lakes and St. Lawrence basin, and levels of certain POPs in breast milk have been found up to nine times higher in some Inuit women than in women who live in southern Canada.[94]

Since many organochlorines persist in the environment and accumulate in the food chain, they may also eventually disturb wildlife. DDT, for instance, causes eggshell thinning, reproductive disruption and mortality in predatory birds such as bald eagles and peregrine falcons, which may feed on fish that are at the end of a long chain in which DDT has accumulated over time.[95] Also, exposure to high amounts of aldrin and dieldrin[96] affects the nervous system of animals, and continuous oral exposure to lower levels of these substances could affect their liver and decrease their ability to fight infections.[97]

Organophosphates and carbamates, in turn, affect the nervous system of mammals and birds through the inhibition of the acetylchlorinate enzyme. Cases of bird mortality

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[91] See Hough, "The Global Politics of Pesticides" *supra* note 51 at 67-69.

[92] Volatilization is the physico-chemical process by which a compound is transferred to the gas phase. See Carole Bedos *et al.*, "Mass transfer of pesticides into the atmosphere by volatilization from soils and plants: overview," (2002) 22 Agronomie 21 at 22.

[93] See Resource Futures International, *supra* note 11.

[94] See Environment Canada, "The Green Lane: Taking Action on POPs," February 2002, online: <http://www.ec.gc.ca/pops/brochure_e.htm>.

[95] See Guruswamy & Hendricks, *supra* note 30 at 196-198.

[96] Because aldrin readily converts to dieldrin in plants and animals, aldrin residues are usually found in small amounts. See Resource Futures International, *supra* note 11.

[97] U.S., Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, "Toxic FAQs about Aldrin and Dieldrin" (September 2002), online: <http://www.atsdr.cdc.gov/tfacts1.html>.

involve the organophosphates diazinon, fenthion, parathion and phosphamidon (North America), carbophenothion, and chlorofenvinphos (Europe), monocrotophos and chlorpyrifos (Argentina). Among the carbamates, carbofuran has caused the most problems. The pesticide was involved in the death of 10,000 American robins on berry fields in Florida, and of 500 greylag geese in Scotland, where mortality was confirmed by direct counts. Yet, the problem could be more serious. According to a 1989 estimate by the US EPA, between 1 and 2 million birds die each year in the U.S. due to carbofuran alone.[98] Organophosphates may also have an effect on the immune system of mammals. Parathion, for instance, delays antibody production, while continuous exposure to malathion can depress different immune responses.[99]

Synthetic pyrethroids, the last major class of insecticides, have generally low mammalian toxicity. However, they can be very toxic to beneficial insects (e.g. bees), fish and aquatic arthropods (e.g. crabs and shrimp). They are also hazardous to the breeding habitat of waterfowl. A study in the Canadian prairies showed a substantial decrease in invertebrate species diversity due to synthetic pyrethroids, which impede ducks to obtain enough food to raise normal broods. As for herbicides, they have the ability to alter habitats and thereby to disrupt wildlife. Different studies in the U.K. suggest, for example, that the use of herbicides has contributed to the decline of different birds species (e.g. grey partridge, corn bunting, skylark).[100]

2.2.2.3. The circle of poison: a concern of the North

As explained earlier in this chapter, acute pesticide-related poisonings are a major problem for developing countries.[101] Although industrialised countries have largely controlled acute poisonings, poisonings may still occur, resulting from exposure to low levels of pesticides over a long period of time. That exposure usually arises from environmental pollution and from pesticide-contaminated food.[102] The phenomenon

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[98] See Emden & Peakall, *supra* note 2 at 18-19. For Argentina see Pía Iolster & Santiago Krapovickas "Los Plaguicidas en Uso en La Argentina: Riesgos para las Aves Silverstres," (1999) *Proyecto Pampas Argentinas*, 2 Temas de Naturaleza y Conservacion at 7. The study also blames carbofuran for bird mortality in Argentina.

[99] See "World Resources 1998-1999," *supra* note 32 at 45.

[100] For details see Emden & Peakall, *supra* note 2 at 20-21.

[101] This does not mean that long-term pesticide exposure should not also be a matter of concern for the South. For instance, organochlorine residues have been reported in various foodstuffs and human milk in developing countries, suggesting that nursing infants are often ingesting residues at levels many times greater than the acceptable daily intakes proposed by FAO. See G. Forget, T. Goodman & A. de Villiers eds., *Impact of pesticide use on health in developing countries: proceedings of a symposium held in Ottawa, Canada, September 17-20, 1990* (Ottawa: International Development Research Centre, 1993) at 8.

[102] See Jeyaratnam, *supra* note 52 at 139-140.

known as the 'circle of poison' greatly contributes to the second problem. In the circle of poison, pesticides that developed countries have banned or severely restricted for domestic use return to them as residues (at unacceptable levels) in agricultural products imported from the developing world.[103] In the last decade, for instance, there were more than 14,000 embargoes (for a value of around US $95 million) of products being exported from Latin America and the Caribbean to the U.S., due to excessive pesticides residues.[104] Similarly, in an analysis based on computerized records from the Food and Drug Administration's (FDA) pesticide monitoring program for the years 1992 and 1993, the Environmental Working Group (an environmental research institute) identified illegal residues on 5.6 percent of the 14,923 samples analyzed (both nationally grown and imported), and 7.4 per cent for imported food.[105] This problem may especially affect children, who can be at greater risk than adults because they often consume more per body weight of certain foods such as fruits, which are likely to contain pesticide residues, and because they are undergoing rapid tissue growth, allowing greater concentration of these substances in their systems.[106]

Because it would require testing practically all imported food, controlling the circle of poison at home is highly problematic. Even in the U.S., the Food and Drug Administration (FDA) tests only about one percent of all of the country's fresh food, whether grown nationally or imported, finding excessive residues in two to five percent of these samples.[107] In addition, according to the Environmental Working Group, since 1980 the

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[103] Many pesticides that developed countries have banned or severely restricted for use in their territory are accepted as residues in the products they import, provided that they are below certain levels. See *e.g.* EC, *Council Directive 76/895/EEC of 23 November 1976 related to the fixing of maximum levels for pesticide residues in and on fruit and vegetables* [1976] O.J.L. 340/26, EC, *Council Directive 86/362/EEC of 24 July 1986 on the fixing of maximum levels for pesticide residues in and on cereals* [1986] O.J.L. 221/37; and EC, *Council Directive 90/642/EEC of 27 November 1990 fixing the maximum levels for pesticide residues in and on certain products of plant origin, including fruit and vegetables* [1990] O.J.L. 350/71, in force within the EU, and the *Federal Food, Drug, and Cosmetic Act* (FFDCA), 21 U.S.C. Chapter 9 (1996) which limits pesticide residues on food in the United States, online: <http://www.fda.gov/cvm/index/ffdc_act/ffdcatoc.html>.

[104] See Lori Ann Thurp "Cultivos Nuevos, Dilemas Viejos: Oportunidades y Retos en la agroexportación no tradicional en Latinoamérica," based on "New Harvest, Old Problems: Feeding the Global Supermarket," (1994) 28:3 North American Congress on Latin America (NACLA) Report on the Americas online: <http://www.rimisp.cl/documentos/web/99/>.

[105] Illegal pesticides include: pesticides which have no tolerance for the crops on which they are detected (the pesticide was used illegally for that crop); pesticides found at levels exceeding legal limits (they were allowed for use on the crop but were found at levels exceeding the legal maximum level); banned pesticides that persist in the environment found at levels exceeding FDA-established limits (e.g. DDT, heptachlor, dieldrin and endrin); pesticides with no tolerance (not allowed in that crop) that are identified at levels too small to be quantified by FDA methods; and pesticides banned for use on some or all crops in the U.S. See Environmental Working Group, "Forbidden Fruit. Illegal Pesticides in the U.S. Food Supply" (February 1995), online: <http://www.ewg.org/reports/fruit/Contents.html> (in *Executive Summary*).

[106] See "World Resources 1998-1999," *supra* note 32 at 46.

[107] Robin L. Cowling, "Pic, Pops and the Mai Apocalypse: our Environmental Future as a Function of Investor's Rights and Chemical Management Initiatives" (1999) 21 Hous. J. Int'l L. 231 at 3.

U.S. General Accounting Office (GAO) has published 22 reports detailing the shortcomings of the FDA pesticide monitoring program.[108]

The circle of poison has motivated developed countries to regulate the export of toxic pesticides to developing countries.[109] However, because the circle of poison is primarily related to persistent pesticides such as organochlorines, the focus of action (e.g. environmental campaigns, embargoes of imported products, the signing of the Stockholm Convention on POPs) has been on such pesticides. This has led farmers in the South to use more organophosphates and carbamates, which are less likely to leave a residue but are more acutely toxic than organochlorines.[110]

As explained earlier in this chapter, organophosphates and carbamates decompose more quickly and thus retain lower levels of residue, but they present a much higher health risk to farmers than do organochlorines. The circle of poison, therefore, does not provide enough motivation for developed countries to control or prevent the export of pesticides they have banned or severely restricted for reasons of the environment or health to developing countries. What is more, it may provide an incentive for developed countries to promote the use of more acutely toxic pesticides in the South in order to prevent imported food from having pesticide residues at unacceptable levels. Thus, while the Stockholm Convention has strong controls on production and use of persistent pesticides such as DDT, aldrin, and chlordane, the Rotterdam Convention merely sets a prior consent system that ultimately validates double standards, i.e., the export by countries of chemicals banned or severely restricted for domestic use. Thus, one could affirm that the spirit of the Rotterdam Convention is consistent with the spirit of the laws that have allowed Northern agrochemical corporations to export hazardous chemicals to the South, which are presented in the next section.

2.3. Northern legislation regulating the export of hazardous chemicals

Developed countries have banned or severely restricted the use of many hazardous chemicals and pesticides because of the risks they pose to human health or the

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[108] See Environmental Working Group, *supra* note 105 (in *FDA Monitoring and Enforcement*).

[109] The U.S. Environmental Protection Agency, for example, refers to growing public concern about pesticide residues in imported foods as one of causes for revising its Pesticide Export Policy in 1993. See *EPA Final Pesticide Export Policy Statement Rule*, 58:31 Fed. Reg., 9062 (1993) at 9063. [hereinafter EPA Export Policy 1993].

[110] See James Colopy "Poisoning the Developing World: The Exportation of Unregistered and Severely Restricted Pesticides from the United States" (1995) 13 UCLA J. Envtl. L. & Pol'y 167 at 183.

environment. At the same time, they have allowed the export of those substances to other countries, putting other people's health and environment at risk. This section will focus on the export legislation of Western Europe and the U.S., where all the current agrochemical companies that control the global pesticides market are based.

2.3.1. The European Union

In the European Union, the export and import of hazardous chemicals is regulated by Regulation No. 304/2003,[111] which implements the text of the Rotterdam Convention and the interim PIC procedure as established in the Resolution on interim arrangements laid down in the Final Act of the Diplomatic Conference which adopted the convention. The new regulation replaces Council Regulation EEC No. 2455/92, which had made the voluntary PIC procedure of the FAO Code of Conduct and UNEP London Guidelines mandatory within the community.

The regulation has three basic functions: a) to establish an export notification scheme for chemicals banned or severely restricted within the Community; b) to implement the PIC procedure within the EC for those chemicals subject to it under the Rotterdam Convention or under the interim procedure (listed in Part 3 of Annex I), and those qualifying for PIC notification (listed in Part 2 of Annex I); and c) to guarantee that provisions on classification, packaging and labelling that apply within the community also be applied to hazardous substances exported to third countries (regardless of whether the importing country is a party to the Rotterdam Convention).[112]

In the case of chemicals that have been banned or severely restricted within the EC for health or environmental reasons, exports to third countries are allowed as long as the exporter notifies its own government's designated national authority (DNA) of the first export at least 30 days before it takes place. The exporter's DNA must then notify the export to the appropriate authorities of the importing country, at least 15 days prior to the export. Thereafter, the exporter must notify the first export of the chemical each calendar year to the DNA no later than 15 days prior to the export.[113] In the case of the substances included in the PIC procedure (and those that have been banned or severely

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[111] EC, *Regulation 304/2003 of the European Parliament and of the Council of 28 January 2003 concerning the export and import of dangerous chemicals* [2003] O.J. L. 063/1.
[112] See *Ibid.* Arts. 7, 13 and 16.
[113] *Ibid.* Art. 7.

restricted within the Community and qualify for PIC notification),[114] importing countries must have given their consent for the export to occur. If an importing country has not given a response to the import, the chemical should not be exported unless explicit consent of the importing country was sought and obtained by the exporter or, in the case of PIC chemicals, the latest circular issued by the Rotterdam Convention Secretariat (with information on decisions on imports) indicates that the importing country has given its consent to import that chemical. Notably, the new directive does not reproduce another exception that was included in Council Regulation EEC No. 2455/92: when the chemical is registered in the importing country or it has been used or imported in the past. This is a significant improvement because, as Chapter 4 explains, this exception guarantees that trade in hazardous chemicals will continue unless importing countries effectively participate in the PIC procedure. [115] Despite this improvement, EU legislation allows its members to export chemicals that are banned or severely restricted within the community to third countries, and although some members (i.e. Sweden and Denmark) have called for a ban on the export of chemicals banned in the country of production, the proposal has not succeeded.[116]

2.3.2. Switzerland

In Switzerland, there is no specific provision regulating the export of hazardous chemicals and pesticides to other countries. As a result, the export of substances that have been banned or severely restricted domestically to protect the environment or human health, or which have never been registered, is permitted. More importantly, there is no obligation on the part of the exporter to notify the importing government of such exports. Even so, the production of a number of substances is prohibited under the 1986 "Ordonnance sur les Substances Dangereuses pour l' Environnement" (Ordinance on substances dangerous to the environment), which means that they could not be exported to other countries.[117]

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[114] See *Ibid.* Art. 13

[115] Please see section 4.4.1. in Chapter 4, Council Regulation EEC No. 2455/92, *supra* note 3 Art. 5.5, and *Ibid.* Art. 13(6).

[116] See "Conference Focuses on International Trade in Dangerous Chemicals" *Pesticide Action Network North America Updates Service* (PANUPS) (21 July 1995).

[117] These substances include, amongst others: HCH, aldrin, dieldrin, endrin, chlordane, heptachlor, HCB (except Lindane, which can be manufactured), DDT, DDD, DDE, PCBs and PCTs. (Almost all of these substances are organochlorines, which are not acutely toxic to human health). See *Ordonnance Sur les Substances Dangereuses pour l'Environnement*, 9 June 1986, Bulletin Officiel (B.O.) 814.013, Art. 11 and Annexes 3 and 4, online: <http://www.admin.ch/ch/f/rs/814_013/index.html>.

Recognizing the need to harmonise its legislation with that of the EU and to implement the Rotterdam Convention in the future, the Swiss Parliament adopted the "Loi Fédérale sur la Protection contre les Substances et les Préparations Dangereuses" (Federal Law on protection against hazardous substances and formulations) in December 2000. This new law will replace the "Loi Fédérale sur le Commerce de Toxiques" (Federal law on the commerce of toxics), in force since 1969, which does not address the international trade in substances hazardous to health. Article 19 d) of the new law will give the Federal Council the power to regulate the export of substances hazardous to health by means of ordinance.[118]

2.3.3. The United States

In the United States, the export of industrial chemicals falls under the Toxic Substances Control Act (TSCA). Section 12 (b) of the TSCA requires an export notification of substances or mixtures in a number of cases. If testing of the substance or mixture has been required under sections 4 (the export presents an unreasonable health or environmental risk within the U.S., e.g. to workers), or 5(b) (it concerns a new chemical or a new use), the exporter must notify the EPA of its export or intent to export. The EPA must then notify the government of the importing country of the availability of the data received. In addition, the exporter must notify the EPA of an export or intent to export in the case of a chemical subject to regulatory order or action.[119] In all cases, the exporter can notify the EPA *after* the export has taken place. Thus, no prior consent from the importer is required.

As for pesticides, the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) allows the export of unregistered pesticides (i.e. banned or never registered) as long as some information is provided to the importer.[120] The act basically has three requirements: 1) the exporter must label its product in a particular manner, including a notice –if applicable- that the pesticide is not registered for use in the U.S.; 2) prior to shipping the pesticide, the exporter must notify the U.S. EPA that it has notified the foreign purchaser

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[118] See Assemblée fédérale de la Confédération suisse, *Loi fédérale du 21 mars 1969 sur le commerce des toxiques*, 21 March 1969, B.O. 813.0, online: <http://www.admin.ch/ch/f/rs/c813_0.html> and *Loi fédérale sur la protection contre les substances et les preparations dangereuses*, 15 December 2000, B.O. 99.090, online: <http://www.bag.admin.ch/chemikal/chemg/f/index.htm>.

[119] For further details see *Toxic Substances Control Act*, 15 U.S.C. § 2601 (1976) at § 2611 (exports). See also Ray M. Druley & Girard L. Ordway, *The Toxic Substances Control Act,* Rev ed. (Washington, D.C.: Bureau of National Affairs, 1981) at 396.

[120] See FIFRA, *supra* note 3 at § 136o.

that the products shipped are not registered for domestic use;[121] and 3) the U.S. government must notify the importing country when it makes a substantial change in its regulation of a certain pesticide.[122]

To sum up, EU, Swiss and U.S. law sanction the export of chemicals banned or never registered domestically for reasons of the environment or health. This has allowed the top six agrochemical corporations, based in Germany, Switzerland, and the United States, to export hazardous pesticides to developing countries, where many users are untrained and poorly educated, protective clothing is too expensive or uncomfortable, and rural communities have poor access to medical care, good washing facilities or safe storage areas.[123] It should therefore come as no surprise that about 99% of all poisonings occur in developing countries even though more than 80% of the world's pesticides are applied in industrialised countries.[124] In spite of this known fact, double standards are still in place, and the export of hazardous chemicals is still a common practice. The reasons regulators have provided to sustain them follow.

2.3.4. Justifications to maintain pesticide export double standards

In its 1993 Pesticide Export Policy (which clarifies the FIFRA), the U.S. Environmental Protection Agency (EPA) provided four arguments to justify the export of unregistered pesticides (banned or never registered) to other countries.[125] First, the U.S. is only one exporter in the market and its unilateral prohibition of certain exports will not stop the use of such products in other countries. Second, it may be more effective to concentrate on the safe management of all pesticides rather than on banning certain U.S. pesticides from international trade. Third, the fact that a pesticide is not registered in the U.S. may give little indication of whether it also would impose a serious health or environmental threat when used in other countries, as the EPA's regulatory decisions are based upon risk/benefit analysis specific to the U.S. Lastly, some pesticide producers may not want to

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[121] The foreign purchaser must sign a statement acknowledging that he understands that the pesticide is not registered for use in the U.S. and cannot be sold in the U.S. under the FIFRA. A copy of that statement has to be transmitted to an appropriate official of the government of the importing country. See FIFRA, *Ibid.*, § 136o. (a)(2).

[122] Michael Holley, "The EPA's Pesticide Export Policy: Why the United States Should Restrict the Export of Unregistered Pesticides to Developing Countries," (2001) 9 N.Y.U. Envtl. L.J. 340, at 3, and FIFRA, *supra* note 3.

[123] Pesticide Action Network UK, "Prior Informed Consent," Pest Management Notes No. 5 (November 1998) at 1, online: <http://www.pan-uk.org/internat/IPMinDC/pmn5.pdf>.

[124] "International Code on Pesticide Use Adopted in Rome," *supra* note 55.

[125] See EPA Export Policy 1993, *supra* note 109 at 9063.

register their product in the U.S. simply because it is meant to be used in other country and it would not be useful in the domestic market (e.g. it may control a pest that is not a problem in the U.S.).[126]

As pointed out by Michael Holley, these considerations would be reasonable if all countries had a similar capacity to evaluate the risks posed by a pesticide, and if there were alternatives (i.e. a less harmful or a non-chemical solution) to the substance being exported.[127] However, developing countries generally lack the capacity to make the comprehensive risk/analysis evaluations required and to ensure the safe use and disposal of the imported substances, and they often cannot afford safer alternatives. One should probably distinguish between pesticides that have been banned to protect human health and the environment, and pesticides that have never been registered for use in the exporting country. In the first case, export should not take place, as a matter of principle. If a substance is too hazardous to be used in the North, it is almost certain that it will be at least equally harmful when used in the South. The very fact that the great majority of pesticide poisonings occur in developing countries even though the greater users are in the North supports this assertion. Furthermore, substances that are not all that hazardous in the North may pose serious problems in the South. This is why only developing countries (and countries with economies in transition) can trigger the process of adding hazardous pesticide formulations to the PIC list, while developed countries cannot.[128]

In relation to pesticides never registered for use in the exporting country, one could accept that in some cases producers may not want to register their product simply because it is not useful domestically. However, this should not exempt the producer from the responsibility of properly testing its product so that it does not pose unreasonable risks to human health or the environment elsewhere. A complete risk analysis should be still carried out, taking into account the physical and environmental conditions of the country where the product will be used. This view is reflected in the FAO Code of Conduct, which requires pesticide manufacturers to

> "Ensure that each pesticide and pesticide product is adequately and effectively tested by well recognized procedures and test methods so as to fully evaluate its safety, efficacy and fate with regard to the various anticipated conditions in regions or countries of use."[129]

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[126] See *Ibid.* at 9064.

[127] For a further analysis of this issue see Holley, *supra* note 122 at 4-5.

[128] See Rotterdam Convention, *supra* note 16, Art. 6.

[129] See Chapter 3 and Code of Conduct, *supra* note 48 Art. 4.1.1)

Considering that six multinational corporations based in the North control the global pesticides market, and that all of them have several subsidiaries in the South, the requirement that they effectively test their products under the physical and environmental conditions of the regions or countries of use does not seem too onerous.

2.4. The Global Pesticides Market

In July 2001, seven agrochemical corporations controlled about 73% of the global pesticides market, valued at about US $29,880 million in 2000. In order of significance, these companies are Syngenta (Swiss/U.K.); Monsanto (U.S.); Aventis (German/French); Dow (U.S.); Bayer (German); Basf (German); and DuPont (U.S.).[130] With the acquisition of Aventis by Bayer in September 2001, the number has been reduced to six.[131]

Despite their advantageous position, these companies are facing a number of difficulties that could significantly diminish their profits. One of them is that pesticide technology has relied heavily on chlorine chemistry, which is a target of environmental campaigns because of its persistence and related hazards.[132] There is also little likelihood of a surge in novel products,[133] which has pushed agrochemical companies to shift towards genetic engineering in search of new avenues of profitability, and possibly also to ensure the continuous use of pesticides in agriculture.[134] The long-term and costly research that these two industries require explains the various mergers and takeovers in the agrochemical market.[135]

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[130] See Barbara Dinham "Corporate change" *Pesticides News* 53 (September 2001) 12 at 12-14, online: <http://www.pan-uk.org/pestnews/pn53/pn53p12.htm>.

[131] The agreement was signed in September 2001. Bayer, Press Release, "Bayer Acquires Aventis CropScience," (2 October 2001).

[132] See Dinham, "Corporate Change," *supra* note 130 at 12-14.

[133] After more than 50 years of research, most modern synthetic insecticides are still derived from three chemical classes, i.e., organophosphates, carbamates and pyrethroids. Pesticide Action Network UK, "Review of the Global Pesticide Market" *Pesticides News* 22 (December 1993) 11 at 11, online: <http://www.pan-uk.org/pestnews/pn22/pn22p11.htm>.

[134] Of the top seven (now six) agrochemical companies, four are among the top 10 seed corporations, and the other 2 (BASF and Bayer) have recently expanded into the sector. See Dinham, "Corporate Change," *supra* note 130 at 12-14. Although the issue of genetically engineered seeds exceeds the scope of this thesis, it is important to mention its role in promoting the use of pesticides. In 1999, nearly 20 years after agrochemical giants had entered the field, 78% of all the genetically engineered crops planted in the world were engineered for herbicide tolerance. These crops are designed to resist the broad-spectrum herbicides of the companies that make them. One example is Monsanto's 'Roundup' transgenic soybeans, which are resistant to its herbicide glyphosate and have pushed sales through the roof. By gaining control of the genetically engineered seed market, agrochemical corporations are linking the seed market inextricably to the pesticides market. See Devlin Kuyek, "Lords of Poison: The Pesticide Cartel," *Seedling* (Quarterly Newsletter of Genetic Resources Action International -GRAIN) (June 2000).

[135] To give a few examples, Syngenta resulted from the merge of Zeneca and Novartis, while Novartis is a merge between Ciba Ceigy and Sandoz (both Swiss). Aventis (now Bayer) was formed by the merge of Rhône-Poulenc (France) and AgrEvo, which in turn was a fusion between Hoechst (EU/German) and Schering (EU/German). Also, the crop protection business of Cyanamid (U.S.) was acquired by BASF.

Another difficulty these companies face is that regulations require them to develop new data on substances that are already in the market. This has created an incentive for them to drop many of their old substances, instead of finding sufficient evidence that they are safe to the environment and human health. Thus, while the EU Council Directive No 91/414 requires companies to submit new data on substances that are already on the market,[136] companies are dropping many of their registered products. Bayer, for instance, has indicated that it intends to drop two-thirds of its 60 active ingredients currently marketed in Europe, phasing out around 100 products, while Aventis (now Bayer) has been removing minor low profit products.[137] Similarly, in the United States, the FIFRA requires the EPA to reregister all pesticides registered for use prior to November 1st, 1984 to ensure that pesticide registrations are based on current scientific and legal standards. In 1988, U.S. Congress amended FIFRA to accelerate the process and established a series of deadlines, and the EPA divided the pesticides to be reregistered in four lists. The overall trend for all lists is a substantial reduction in the number of pesticides being supported for reregistration by pesticide companies. The number of cases considered for reregistration declined from about 600 in 1988 to about 400 in early 1991.[138] This means that some potentially hazardous chemicals are becoming 'unregistered' and could end up in the developing world, where appropriate risk analysis to protect the environment and human health are unlikely to be performed.

Pesticide companies are also facing stagnating markets in North America and Europe.[139] In response to that, they are seeking to increase the market for agrochemicals in developing countries, especially big markets such as Brazil, China and India.[140] This implies not only an increase in pesticide exports but also a transfer of production to the South. In 1996, while Novartis (now Syngenta) announced plans to phase out the use of monocrotophos in the North,[141] it opened a new plant in China capable of producing 5,000

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[136] See EC, *Council Directive 91/414/EEC of 15 July 1991 concerning the placing of plant protection products on the market* [1991] O.J.L. 230/1, Art. 8.

[137] See Dinham, "Corporate Change," *supra* note 130 at 12-14.

[138] See U.S., EPA, "Pesticide Registration 6/91," posted by the Pesticide Management Education Program, Cornell University (2001), online: <http://pmep.cce.cornell.edu/regulation/pcdregs-lib/pestic.reregistration.6.91.html>.

[139] See Barbara Dinham, "Merger Mania in World Agrochemicals Market" *Pesticides News* 49 (September 2000) 10 at 10, online: <http://www.pan-uk.org/pestnews/pn49/pn49p10.htm>.

[140] See Dinham, "Corporate change," *supra* note 130 at 12-14.

[141] Monocrotophos (which was on the PIC list only as a formulation) was added to the interim PIC procedure in October 2002, and it is not registered for use in Switzerland (In Office Fédéral de l'Agriculture, 'Produits Phytosanitaires 2002,' Berne, Suisse (CH), (last update 20.09.2002), online: <http://www.blw.admin.ch/pflanzenschutzverz/pb_home_f.html>. It is banned in Lybia, Australia, Laos, Vanuatu, Hungary, Kuwait and the U.S., and severely restricted in Sri Lanka. It is also prohibited in Belgium, Denmark, Ireland, Luxembourg, the Netherlands, Sweden, Iceland and Liechtenstein, in their national

tonnes of the pesticide every year. Shortly after, Zeneca (also now Syngenta) began construction of a plant to manufacture up to 6,000 tonnes per year of paraquat (banned for use in Switzerland)[142] in China.[143]

Lastly, the potential of Southern countries such as China, India and Brazil to become major centres of generic production is pushing big agrochemicals to get stronger in the sale of generics, which account for 53% of the global market. Aventis (now Bayer), for instance, bought 51% of Mitsu Industries of India, which had become a leading generic producer and exporter of pyrethroids.[144] BASF bought MicroFlo (U.S.), which is the second biggest crop protection generic company in the world; DuPont formed a joint venture with Griffin (U.S.),[145] and Dow AgroSciences with Cheminova (Denmark).[146] Generic producers are also acquiring companies in the South. Makhteshim-Agan Industries Ltd. (Israel), the world's leading generic manufacturer of crop protection products, has added Argentinean, Brazilian, and Colombian manufacturing facilities and formulation plants to its global marketing and distribution system. Among its products are dicofol –an organochlorine acaricide extremely toxic to aquatic organisms–,[147] and azynphos methyl, carbofuran, and methomyl, three pesticides classified as highly hazardous by the World Health Organization (WHO).[148]

2.4.1. Production of hazardous pesticides

Besides being exported to the South by Northern big agrochemical corporations, hazardous pesticides are produced or formulated in developing countries by foreign or domestic companies, or by a combination of the two (e.g. through joint ventures or

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legislation. See S. Orme and S. Kegley, *PAN Pesticides Database,* Pesticide Action Network, North America (San Francisco: CA., 2002), <http://www.pesticideinfo.org> (Hereinafter PAN Pesticides Database).

[142] Paraquat is not approved for use in Switzerland for toxicological reasons since 1989, which is equivalent to a ban of paraquat as defined by the Rotterdam Convention. See "Statement of the Federal Council," *supra* note 86.

[143] See Kuyek, *supra* note 134.

[144] See *Ibid.*

[145] Griffin L.L.C. has seven separate manufacturing and production facilities in the U.S, Central and South America (Mexico, Guatemala, Costa Rica, Colombia, Brazil). Among its products are methyl parathion (Ia) and paraquat. See Griffin L.L.C. overview online: <http://www.griffinllc.com/about/ab_ovr.htm>.

[146] See Dinham, "Merger Mania," *supra* note 139 at 10. Cheminova is a Danish company with Southern headquarters in Brazil, Argentina, India, Mexico and Taiwan. It produces mainly organophosphorous insecticides, including ethyl parathion and methyl parathion (two class Ia –extremely hazardous- pesticides).

[147] Dicofol is banned in Finland, the Netherlands, Norway and Belize, and severely restricted in Germany and Slovenia. It is not registered for use in Denmark, Hungary and Sweden. In Switzerland, its use is permitted for research purposes only, and the U.S. EPA has classified it as a possible human carcinogen. See PAN U.K., "Dicofol" *Pesticide News* No. 43 (March 1999) at 20-21, and PAN Pesticides Database, *supra* note 141.

[148] WHO classifications include 'extremely hazardous' (class Ia) 'highly hazardous' (class Ib), and 'moderately hazardous' (II) pesticides. These classifications are related to concentration levels and a weaker formulation moves an active ingredient into a lower hazard classification. See PAN U.K., "The List of Lists," *supra* note 72 at 3.

licensing agreements).[149] This section will focus on India, China and Brazil, which are the biggest Southern markets.[150] The next section will examine production of hazardous pesticides by transnational corporations. The classifications used are those of the WHO, according to which class Ia pesticides are extremely hazardous, class Ib are highly hazardous and class II are moderately hazardous. These classifications are related to concentration levels and thus a weaker formulation could move an active ingredient into a lower hazard classification.[151]

2.4.1.1. China

Although it accounts only for about 5% of global pesticide sales, China has been since 1990 the world's second largest agrochemical producer, with a predominantly national industry protected by the state.[152] Annual output of fertilizers and pesticides has increased at an average rate of 8 percent since 1994.[153] Chinese pesticide production jumped from an estimated 230,000 tons of active ingredients in 1995 to 424,000 tons in 1999 and remained at over 400,000 tons in 2000. In 1999, China exported 147,000 tons of pesticides, an increase of more than 35% over 1998.[154]

The national industry is largely into generics, which are less expensive to produce because patents no longer protect them. In addition, several companies produce and export hazardous pesticides. Hebei Long Age Pesticide Co., Ltd., for instance, has a production capacity of 8,000 tons of technical products per year and manufactures terbufos, ethoprophos, phorate (Ia), and dichlorvos (Ib).[155] Its products are exported to

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[149] While production implies synthesizing the 'active ingredient' [which controls the pest(s)], formulation refers to mixing that ingredient with other (inert) compounds to improve its properties for storage, handling, application, effectiveness, safety, etc. The final product is the 'formulation.' See "Glossary," *supra* note 33.

[150] Although there are other important markets (e.g. Argentina, Colombia, Mexico, Korea), transnational corporations are responsible for most of the pesticide production in those countries. Both Colombia and Mexico, for instance, have basically one single important national manufacturer, Proficol S.A. and Tekchem, respectively. Proficol was partly acquired by Makhteshim-Agan (Israel) in 1998, and one of its two manufacturing facilities is owned by Basf. Tekchem is formed by a 100% Mexican capital, but it exports a large part of its technical grade ingredients to multinational corporations located both in the South and in the North. This information was kindly provided by Mr. Pablo Ortiz, Deputy Director General of Tekchem, and Mr. Esmir Portela, International Sales Manager of Proficol. More information can be found online: Proficol <http://www.proficol.com.co>, and Techkem <http://www.tekchem.com.mx>.

[151] See PAN U.K., "The List of Lists," *supra* note 72 at 3.

[152] See "Insight on Booming Chinese Market" *Pesticides News* 39 (March 1998) 14 at 14, online: <http://www.pan-uk.org/pestnews/pn39/pn39p14a.htm>.

[153] See Gary Liu and Christopher Adams, "Fertile ground," (1998) 25:6 The China Business Review 40 at 41.

[154] See PANNA "China: Land of Vegetables and Pesticides" *Global Pesticide Campaigner* 11:3 (December 2001), online: <http://www.panna.org/resources/gpc/gpc_200112.11.3.05.dv.html>.

[155] The WHO classifies pesticides as classes Ia (extremely hazardous), Ib (highly hazardous), II (moderately hazardous), and III (slightly hazardous). These classifications are related to concentration levels. See "List of Lists," *supra* note 72.

Europe, South America, and Southeast Asia, amongst others.[156] Agro-Care Chemical Industry Group Ltd, a leading exporter of agrochemicals, produces methomyl, carbofuran, and dichlorvos (Ib), and the herbicide paraquat (II).[157] Hebei Huafeng Chemical Group manufactures phorate (Ia), methomyl, omethoate, and dichlorvos (all class Ib pesticides). Shandong Huayang Technology Co. Ltd. ranks first in the capacity of producing methyl parathion (Ia) in China, and is the sole producer of aldicarb (Ia) in Asia. It also produces methomyl (Ib) and carbofuran (Ib). Zhangjiagang Tianheng Chemical Co., Ltd. manufactures, formulates and exports monocrotophos (Ib) and endosulfan (II).[158] Epochem Co, Ltd, based in Shanghai, manufactures metamidophos (Ib),[159] and triazophos (Ib). Lastly, Zhejiang Yifan Chemical Co., Ltd., with an annual output of 8000 tons of agrochemicals, produces triazophos and fenamiphos, two class Ib pesticides.

2.4.1.2. India

Although its turnover constitutes hardly 1.5-2% of the world's market, the Indian pesticide industry is the fourth largest in the world and the second in the Asia-Pacific region after China. It is mainly into generics and insecticides,[160] which are exported to Africa, Southeast Asia, and West Asia.[161] The manufacturing capacity of the industry keeps expanding. In 1991, only 50 per cent of its capacity was used,[162] while in 2001, it was run at 70 per cent.[163] According to the Pesticides Manufacturers & Formulators Association of India, there are 55 basic producers –including 10 multinational companies– and 300 pesticide formulators.[164] Rallis India, United Phosphorus Ltd and Excel Industries are some of the indigenous producers, while Bayer India, Cyanamid Agro (now BASF India), Aventis CropScience (now Bayer), Monsanto, and Syngenta (former Novartis) are the major transnational corporations operating in India.[165]

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[156] See company introduction online: <http://www.shiji-pesticide.com/info.htm>

[157] See company's profile online: <http://www.agrocare.com.cn/profile.htm>

[158] Certain formulations of monocrotophos are included in Annex III of the Rotterdam Convention, and it was added as a pesticide in the interim procedure (in October 2002).

[159] Certain formulations of metamidophos are included in Annex III of the Rotterdam Convention and are thus subject to the PIC procedure. (See Rotterdam Convention, *supra* note 16, Annex III).

[160] See Ramnath Subbu, "Low Capacity Use Dogs Pesticide Units" *The Hindu* (28 July 2001).

[161] See Angus Wright "From Pesticide Trade to Production: New Reform Strategies" *Global Pesticide Campaigner* (June 1991).

[162] *Ibid.*

[163] See Subbu R., *supra* note 160.

[164] See *Ibid.* Note: While manufacturers produce the pesticide, formulators simply mix the active ingredient with inert materials to make a final commercial product (formulation).

[165] See *Ibid.*

Rallis India manufactures captafol (Ia), and monocrotophos (Ib).[166] It also distributes the products of a number of multinational corporations in India,[167] including carbofuran (Ib), produced by U.S. FMC, and methomyl and oxamyl (Ib), manufactured by U.S. DuPont. United Phosphorus Ltd. manufactures phorate, phosphamidon, terbufos,[168] (three class Ia pesticides), dichlorvos and monocrotophos (both class Ib). Excel Industries Limited manufactures zinc phosphide (Ib), endosulfan (II), cypermethrin (II), and 2-methoxyethyl mercury chloride.[169] Hindustan Insecticides Limited, a company owned by the Indian government, produces monocrotophos (Ib), DDT (II) and endosulfan (II).[170]

2.4.1.3. Brazil

In 1996, Brazil accounted for about 55% of pesticides sales in Latin America.[171] Although the presence of major agrochemical corporations and other foreign companies prevails,[172] the Brazilian pesticide industry should not be neglected. Milenia Agro Ciencias S.A. produces, amongst others, endosulfan (II), methidathion (Ib) and methamidophos (Ib)[173] for the domestic and international markets.[174] Nortox S.A., formed by a 100% Brazilian capital, is the only Brazilian company to produce glyphosate in the country. It also manufactures dichlorvos (Ib) and dicofol.[175] Agripec Quimica e Farmaceutica S.A., one of the biggest Brazilian formulating companies, formulates the pesticides parathion methyl (Ia), monocrothophos, methamidophos (both Ib),[176] dicofol, and endosulfan (II).[177] In some cases, it is not easy to determine if a product is being manufactured, formulated or just sold by a company (and if so, which company manufactures it). This is the case with Prentiss Quimica Ltda, which offers parathion methyl (Ia), Agricur Defensivos Agricolas, which sells carbofuran (Ib), methomyl (Ib) and endosulfan (II),[178] and Ferson Ind. E Com.

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[166] The Rotterdam Convention regulates both captafol and monocrotophos. See Rotterdam Convention, *supra* note 16, Annex III, and note 141.

[167] These companies are: FMC (U.S.); Monsanto (U.S.); Mitsui Chemicals (Japan); Nihon Nohyaku (Japan); and Du Pont (U.S.)

[168] Certain formulations of phosphamidon are regulated by Rotterdam (See Rotterdam Convention, *supra* note 16, Annex III).

[169] As a mercury compound, the pesticide is regulated by the Rotterdam Convention. See *Ibid.*

[170] Online:<http://indiapublicsector.com/hinl_s.htm>. Monocrotophos and DDT are subject to the PIC procedure. DDT is also regulated by the Stockholm Convention on POPs.

[171] See "Crop Protection in Latin America" *Agrow Reports* (1996), in Harris J., *supra* note 57 at 7.

[172] E.g. Stoller, Griffin, FMC (U.S.), Hokko, (Japan), Sumitomo (Japan) and Cheminova (Denmark).

[173] Certain formulations of metamidophos are regulated by the Rotterdam Convention. See Rotterdam Convention, *supra* note 16, Annex III.

[174] Online: <http://www.milenia.com.br>.

[175] Online: <http://www.nortox.com.br>. For reference on dicofol see *supra* note 147.

[176] See *supra* notes 158 and 159.

[177] Online: <http://www.agripec.com.br>.

[178] See Associação das Empresas Nacionais de Defensivos Agrícolas (AENDA). Complete catalogue of products available online: <http://www.aenda.org.br/index.htm> (last update 08/06/2001).

Ltda, which offers methamidophos (Ib), methidathion (Ib), endosulfan (II) and dicofol.[179] According to the Association of Crop Protection National Companies (Aenda), Fersol also sells carbofuran (Ib), and carbaryl (II).[180]

2.4.2. Northern Agrochemical Giants: Looking toward the South

Agrochemical corporations market hazardous pesticides in the South through their subsidiaries, joint ventures, and licensing agreements, amongst others. They also have production facilities in developing countries, particularly in those where the market is significant, such as China, India and Brazil. Taiwan, Malaysia, South Korea, Thailand, Mexico, Colombia and Argentina are other important markets. It is often difficult to confirm whether a plant is used for synthesis or formulation, and what substances are being produced in a specific facility. The cases that are known, however, are discouraging. Many involve the production of organophosphates, responsible for most human poisonings in the South, or active ingredients of products that have been banned or severely restricted in the North (e.g. parathion methyl, paraquat), which have shown to cause problems under conditions of use in the South (e.g. monocrotophos, phosphamidon, paraquat), or which are unregistered in the company's country of origin (e.g. anilophos).[181] The next section provides a brief profile of the six agrochemical corporations that control the pesticides market, including the hazardous pesticides they offer (and/or produce) in the South.

2.4.2.1. Bayer (Germany)

Bayer Cropscience is one of the four business segments of Bayer.[182] Based in Germany, the company is represented in 122 countries and has a workforce of 22,000 people. It has production facilities for agricultural products in India, China, Brazil, Argentina, the Philippines, Indonesia, Vietnam and Korea, amongst others. The Asia-Pacific region is one of Bayer's most important markets, and the company plans to invest by 2010 more than US$ 6 billion in new production and research facilities in the region, mostly in Japan, China and Southeast Asia.[183]

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[179] Online: < http://www.fersol.com.br/historia.html>.

[180] See AENDA, *supra* note 178.

[181] See Barbara Dinham "Pesticide Production in the South. Linking Production and Trade" *Pesticides News* 26 (December 1994) 7 at 7-10, online: <http://www.pan-uk.org/pestnews/pn26/pn26p7.htm>. [Dinham, "Pesticide Production in the South"].

[182] These are: healthcare, crop science, chemicals and polymers, online: <http://www.bayer.com>.

[183] Online: <http://www.bayer.com/en/tk/cropscience.php>.

Bayer produces a significant number of hazardous pesticides, which are exported to –and in some cases produced in- its Southern subsidiaries. These include paraquat, aldicarb (Ia),[184] parathion methyl (Ia),[185] fenamiphos (Ib),[186] methamidophos (Ib),[187] methiocarb (Ib), edifenphos (Ib),[188] oxydemethon methyl (Ib), and triazophos (Ib).[189] All or some of these products are offered by Bayer in Argentina, Brazil, Colombia, India, Peru, Korea, Costa Rica, El Salvador, Guatemala, Panama, the Philippines, Vietnam, Taiwan, just to mention a few. In addition, some cases of production of hazardous pesticides in the South are known. In its plant in Thane (India), Bayer manufactures parathion methyl, an extremely hazardous pesticide that has been banned or severely restricted in many countries.[190] It also manufactures anilophos (II),[191] an organophosphate that is not registered for use in Germany. About 300 tonnes of this pesticide are produced each year in India, to supply the rice-growing countries of the Asia Pacific region.[192]

2.4.2.2. Syngenta (Switzerland)

Syngenta is a world leading agribusiness, and it is based in Switzerland. The company ranks first in crop protection,[193] and third in the high-value commercial seeds market. It was created by the merger of Novartis Agribusiness and Zeneca Agrochemicals in November 2000, and has crop protection business divisions in the five continents. Although general information on production facilities is not readily available, it has manufacturing facilities in China, where it produces paraquat, a toxic herbicide banned for

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[184] In Germany, aldicarb is severely restricted for use as a plant protection product. See PAN Pesticides Database, *supra* note 141.

[185] Parathion methyl is not registered for use in Germany, the U.K. and Canada, amongst others. See PAN Pesticides Database, *supra* note 141 and note 190.

[186] Fenamiphos is not registered for use in Germany, Denmark, Finland, Hungary, the U.K. and Canada. See PAN Pesticides Database, *supra* note 141.

[187] Methamidophos is banned in Indonesia, Libya and Kuwait, and severely restricted in Sri Lanka. It is prohibited in Denmark, Ireland, Sweden, Iceland and Liechtenstein, and it is not registered for use in Finland, the U.K. and the Netherlands. In Switzerland, no products and formulations containing Metamidophos are authorized in the Index of Plant protection Products 1998. See PAN Pesticides Database, *supra* note 141.

[188] Edifenphos is not registered for use in Germany, the U.K., Canada, the U.S., etc. See *Ibid.*

[189] Triazophos is not registered for use in Canada, the U.K., the U.S. and Denmark, amongst others. PAN Pesticides Database, *supra* note 141.

[190] Parathion Methyl is banned in Belgium, Denmark, Finland, Ireland, Sweden, Iceland and Liechtenstein, and severely hazardous formulations are banned in the U.S. It is not registered for use in the U.K. and Denmark, among other countries. In Switzerland, no products or formulations containing methyl-parathion other than one specific Capsule suspension are authorized. See *Ibid.*.

[191] Anilophos is not registered for use in Germany (home of Bayer), the U.S., the U.K., Denmark, Finland, The Netherlands, amongst other countries. See *Ibid.*

[192] See Dinham, "Pesticide Production in the South," *supra* note 181 at 7-10. At that time the plant was operated by AgrEvo (now Bayer).

[193] This has probably changed with the recent acquisiton of Aventis Crop Science by Bayer.

use in Switzerland and other countries.[194] Syngenta sells the herbicide in over 100 countries under the trademark *gramoxone*,[195] with sales estimated at $430 million in 2001. In spite of evidence that paraquat is responsible for many poisonings in the South, Syngenta argues that the product can be handled safely, and that steps have been taken to prevent accidental ingestion or the use of paraquat in suicides.[196] Besides paraquat, Syngenta sells methidathion (Ib) and profenofos (II),[197] two hazardous pesticides not registered for use in several developed countries.[198]

2.4.2.3. BASF (Germany)

BASF is based in Germany and has production facilities in 38 countries, including Malaysia, Mexico, Brazil, China and Korea.[199] It also has production operations in more than 100 sites throughout the world. Its product line is very broad, and its Agricultural Products division, located in the U.S., is a leading supplier and marketer of herbicides, fungicides and insecticides, operating in 170 countries. Among its operations figure the acquisition of American Cyanamid in 2000, and of U.S. Micro Flo, a leading supplier of generic crop protection products.[200]

BASF has plants for synthesizing pesticide active ingredients in Germany, the U.S., Spain, Brazil (three sites), India and Puerto Rico. End products are formulated at several BASF facilities, which are usually located close to the market. Although information on production is not readily available to the public, among its products are monocrotophos (Ib),[201] terbufos (Ia),[202] and phorate (Ia) (not registered for use in Germany),[203] which

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[194] See Bio Suisse, Communiqué de Presse, "Agriculture Sans Toxiques Au Sud Comme au Nord" (16 Octobre 2002). Paraquat is also banned in Austria, Denmark, Finland, Slovenia, Sweden, and Kuwait, and severely restricted for use as plant protection product in Germany. It is not registered for use in the U.S. See PAN Pesticides Database, *supra* note 141.

[195] See PAN U.K., Press Release "Time to phase out paraquat –Syngenta's controversial pesticide" (22 April 2002), online: <http://www.pan-uk.org/press/paraquat.htm>.

[196] See Cox, *supra* note 85.

[197] Methidathion is a highly hazardous pesticide not registered for use in Denmark, Finland, the Netherlands and the U.K. See PAN Pesticides Database, *supra* note 141.

[198] Profenofos is not registered for use in Germany, the Netherlands, the U.K. and Canada, among other countries. See PAN Pesticides Database, *supra* note 141. Although the active ingredient still has an authorization in Switzerland, there is no product containing profenofos on the Swiss market. However, a reevaluation programme for organophosphates is expected to start in the near future, which will most probably result in the withdrawal of a number of these substances. Information kindly provided by Dr. Elisabeth Bosshard, Federal Office for Agriculture, Section Crop Protection Products, Switzerland.

[199] Information on which products are being manufactured in these facilities is not publicly available.

[200] Including, amongst others products, plastics, colorants, dispersions, coatings, and crop-protection products, online: <http://www.basf.de/en/corporate/overview/?id=V00-*a3.rMy**bsf700>.

[201] For details on monocrotophos please see *supra* note 141.

[202] Terbufos is a class Ia insecticide. It is not registered for use in Denmark, Finland, the Netherlands, Portugal and the U.K. It was expected to be withdrawn in the EU by July 2003. See *Ibid.*

[203] Phorate is a class Ia pesticide. It is not registered for use in Germany (home of Basf), Denmark, Finland,

are possibly synthesised in BASF's Southern facilities.

2.4.2.4. Dow Agrosciences (U.S.)

Dow AgroSciences LLC, based in the U.S.A., is a global leader in pest management and biotechnology products. It has worldwide sales of approximately U$3 billion, and operations in 140 countries, including Argentina, Mexico, Brazil, China and India. It also has 20 manufacturing sites in 15 countries.[204] In June of 2001, the company acquired Rohm and Haas's Agricultural Chemicals business. The acquisition included, amongst others, manufacturing sites in Jacarei (Brazil) and Barranquilla (Colombia), and the Rohm and Haas's share of a joint venture in Nantong (China).[205] In India, Dow formed a joint venture with NOCIL,[206] an Indian company that manufactures phosphamidon (Ia), dichlorvos (Ib),[207] and monocrotophos (Ib), an insecticide banned in the U.S. and other countries.[208] Other Dow products include carbofuran (Dow Brazil),[209] monocrotophos (Dow India), dicofol,[210] and atrazine.[211]

2.4.2.5. Monsanto (U.S.)

Monsanto Company, based in the U.S., is a leading global provider of agricultural products, including chemicals, seeds, and biotechnology. It has locations in the five continents and production facilities in Brazil, Argentina and Mexico, where it manufactures and/or formulates its Roundup herbicide (glyphosate). Monsanto's herbicide products include more than 90 glyphosate-based herbicides, including Roundup agricultural herbicides and Roundup branded turf and ornamental products. Glyphosate is a slightly

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Portugal and other European countries. See *Ibid.*

[204] Information on the location of these manufacturing sites is not available. See "Organization" online: <http://www.dowagro.com/specialtyeurope/organization/index.htm>.

[205] Dow News room (1 July 2001), online: <http://www.dowagro.com/newsroom/news/060101_en.htm>

[206] DE-NOCIL is a joint venture between Dow AgroSciences LLC (formerly Dow Elanco) and NOCIL (National Organic Chemical India, Ltd.), a petrochemical company that participates in global generic product development, and operates an agricultural chemicals plant in India.

[207] See Dinham, "Pesticide Production in the South," *supra* note 181, at 7-10.

[208] For additional information see PAN Pesticides Database, *supra* note 141.

[209] Carbofuran is banned in Lybia and severely restricted in the U.S. and Belize. It is not registered for use in Finland. See *Ibid.*

[210] See *supra* note 147.

[211] Atrazine has been identified as a possible human carcinogen by the U.S. EPA and as a possible endocrine disruptor by the EU and the U.K. Environment Agency. It is banned in Angola, Denmark, Germany, Norway and Sweden. It is not registered for use in Austria, Finland and Uganda, and it is severely restricted in Switzerland, where it can only be used as herbicide in corn, with one application per year. See PAN Pesticides Database, *supra* note 141, and "Interdiction de l' Atrazine," Réponse du Conseil Fédéral Suisse (Septembre 2002).

hazardous herbicide (class III), and it is registered in the U.S. and other countries. It is not registered for use in Finland, or India.[212]

2.4.2.6. DuPont (U.S.)

DuPont Crop Protection, based in the U.S., offers products for the grain and specialty crop sectors as well as forestry and vegetation management. It includes global herbicide, fungicide and insecticide products and services, with offices and operations in 40 countries around the world, including Argentina, Brazil, Colombia and Mexico. It also has joint ventures in Argentina, Mexico and Central America. Information about the location of its production facilities is not publicly available. Among its products are methomyl and oxamyl, two class Ib (highly hazardous) pesticides not registered for use in several countries.[213]

2.5. Conclusion

This chapter has considered three elements that are essential to understand the need for a convention regulating trade in hazardous chemicals: first, it explained why certain pesticides and chemicals are considered hazardous to the environment and human health. Then, it provided an overview of the laws that have allowed big agrochemical companies to export hazardous chemicals to developing countries. Lastly, the chapter examined the global pesticides market, controlled by a very small number of Northern corporations. Given the nature of the chemicals being traded and the negative effects they have in developing countries, one could think that a solution may be to prevent states from exporting chemicals they have banned or severely restricted for reasons of the environment or health to other countries. The analysis of the pesticides market reveals, however, that eliminating export double standards could be counterproductive. Since the Rotterdam Convention deals only with the international trade of hazardous chemicals, an export ban could increase production *in* the South both by foreign and national manufacturers if no regulation on production of hazardous chemicals were introduced. The problem would thus be displaced, rather than being addressed. These practical difficulties, however, do not justify the existence of double standards, especially because of the context in which the transfer of hazardous chemicals occurs.

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[212] See PAN Pesticides Database, *supra* note 141.

[213] Methomyl is banned in Lybia and Kuwait, and it is not registered for use in Finland, Germany, the U.K. and several African countries. Oxamyl is not registered for use in India, Denmark, Finland, Germany and the Netherlands. See PAN Pesticides Database, *supra* note 141.

Chapter Three

The North, the South, and Trade in Hazardous Chemicals: Ethical Dilemmas

3.1. Introduction

Probably because of the great publicity surrounding and the moral outrage at toxic waste dumps discovered in a number of developing countries during the 1970s and 1980s,[214] the North-South transfer of hazardous wastes has been largely regarded as an ethical question. Many considered it morally unacceptable that companies in industrialised countries would export their toxic waste to the countries of the South in order to avoid the high costs of disposal of the North, taking advantage of the difficult situation of many poor countries (e.g. their desperate need for hard currencies; a lack of awareness regarding the nature of the wastes; the need for cheap raw materials; governmental corruption). Consequently, the adoption of the Basel Convention on hazardous wastes and of a subsequent amendment banning the export of hazardous waste from industrialised countries to the developing world was to a large extent triggered by a sense of moral injustice.[215]

Even though the export of domestically banned or severely restricted pesticides is still a common practice, and despite the fact that millions of farmers get poisoned every year as a result, the North-South transfer of hazardous chemicals and pesticides has received less attention than that of wastes, and it was hardly put forward as a moral issue during the Rotterdam Convention negotiations.[216] This chapter argues, however, that the decision of a developed country to allow the export of banned or severely restricted chemicals to the South is primarily an ethical question, because of the disadvantageous position of importing countries, and because of the nature of the substances being exported and the

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[214] During the 1970s and 1980s, several scandals involving the shipment of hazardous wastes from the North being dumped in the South were revealed. Toxic wastes dumps were discovered in Africa and the Caribbean. Two of the most famous cases are the 'Khian Sea,' in which a ship with toxic ash from Philadelphia was dumped part of its load into the beach of Haiti (after trying to dump its waste in several countries), and the rest apparently into the Indian ocean, and the 'Koko case,' in which an Italian businessmen shipped toxic waste of several Italian industries to Nigeria for storage in the backyard of a Nigerian businessman. See Clapp, "Toxic Exports," *supra* note 8 at 31-36; and Hilz, *supra* note 15, at 12-37.

[215] Largely due to the pressure exerted by environmental NGOs and developing countries, a decision banning all transboundary movements of hazardous wastes from Annex VII countries (OECD members, EU members and Liechtenstein) to non-Annex VII countries was adopted during the Third conference of the parties (COP) to the Basel Convention. The ban (not yet in force) is immediate for wastes bound for final disposal and it was expected to take effect at the beginning of 1998 for wastes destined for recycling or recovery operations. See Jim Puckett & Cathy Fogel "A Victory for Environment and Justice: The Basel Ban and How it Happened," Greenpeace International (1994), online: <http://www.ban.org/about_basel_ban/a_victory.html>, and section 3.4.3. in Chapter 4.

[216] See section 3.4.3. in this chapter.

negative effects they have on health and the environment in the recipient countries. It contends that the issue of transfer of hazardous chemicals, like that of wastes, cannot be considered in isolation from the context in which it takes place, nor can the problem be seriously tackled unless moral considerations take an important part in the debate.

Like the transfer of hazardous waste, the transfer of hazardous chemicals and pesticides from developed to developing countries does not take place in the vacuum. There are at least two conditions or arrangements that facilitate and arguably promote these transfers, which are considered in this chapter. The first one is the economic and technological gap that exists between developed and developing countries, which translates not only into different capacities to manage hazardous substances, but also into different levels of economic and political power to make decisions that are environmentally desirable. Thus, the chapter shows that even if developing countries are genuinely concerned about the environmental and health implications of importing hazardous chemicals and wastes that they will not be able to handle in a safe manner, they are constrained by more pressing economic and social problems. These problems go beyond the short-term economic pressures borne by every Northern government in its pursuit of environmental protection. The export of hazardous waste illustrates this point. In 1989, Guinea-Bissau, one of the poorest countries in Africa, signed a five-year contract with two British companies to receive 15 million tons of hazardous waste for a payment of $600 million, which represented four times its Gross National Product.[217] To justify the agreement, the former Minister of Trade and Tourism simply stated 'we need the money.'[218]

The second arrangement that facilitates and arguably encourages the North-South transfer of hazardous chemicals and wastes is the multilateral trading system, which upholds and defends the liberal economic paradigm (e.g. free market, economic efficiency, trade liberalisation) at a global level. To show the ways in which these principles have promoted the transfer of hazardous substances from North to South, the chapter looks at the Bretton Woods institutions (i.e. the World Bank and the International Monetary Fund) and at the World Trade Organisation (WTO), as they are the major international economic institutions that promote trade liberalisation at a global scale. The chapter explains how, according to the liberal economic paradigm, it is perfectly reasonable that hazardous substances generated or produced in an industrialised country

[217] See Peter Montague, "Dumping on the Developing World," *Rachel Hazardous Waste News* 126 (25 April 1989). The wastes would have come from American and European firms, but the contract was cancelled due to unfavourable publicity.
[218] Jim Puckett, "The Basel Ban: A Triumph over Business-as-Usual," Basel Action Network (October 1997), online: <http://www.ban.org/about_basel_ban/jims_article.html>.

be exported to countries with less stringent regulations and/or very limited capacity to enforce regulations that do exist, as it is more efficient than to deal with them (or they cannot be sold) at home. As stated in the well-known 1991 memorandum of the World Bank Chief Economist Lawrence Summers, "[t]he economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable and... under-populated countries in Africa are vastly under-polluted."[219]

This chapter argues that even the 'economic logic' referred by Mr. Summers has an ethical component. This is because when one considers the circumstances in which the transfer of hazardous chemicals and wastes takes place, even the decision by a state or by a company to disregard moral considerations when exporting hazardous chemicals to the South is an ethical choice. Thus, when a government decides to protect its own citizens from a toxic substance but deliberately sends it to others –who additionally happen to be more vulnerable–, it is arguably making an immoral decision. For that reason, the question of what are the moral principles that apply to this issue, and to what extent have states recognised them in the international environmental arena, is of fundamental importance. This is what the last part of Chapter 3 endeavours to investigate. The chapter looks at the principle of state responsibility for transboundary harm, and at the principle of international environmental equity and the rules that derive from it, in particular the principle of common but differentiated responsibilities. Finding that they are implicitly or explicitly included in the Basel, Rotterdam and Stockholm conventions, and that they have been recognised by the majority of states within the international environmental arena, the chapter looks then at the implications of putting these principles into operation in the treaties dealing with the international trade of hazardous chemicals and wastes.

3.2. North-South disparities: hazardous substances trade in a divided world

This chapter argues that the first condition that facilitates the North-South transfer of hazardous chemicals and wastes is what is often referred to as the 'North-South divide.' While the word 'North' encompasses the industrialized nations of Europe, Japan, North America and Australasia, the word 'South'[220] refers to the developing and less developed

[219] World Bank, Office memorandum, Lawrence M. Summers, Ext. 33774, Subject: GEP, the World Bank/IFC/MIGA (12 December 1991). Later on, Mr. Summers said that this memo was only intended to generate discussion.

[220] The term was first used by Independent Commission on International Development Issues (known as the Brandt Commission due to its Chair, Willy Brandt, ex-chancellor of the former Federal Republic of Germany).

countries of Africa, Asia and Latin America.[221] Although it is true that the countries of the South are very diverse, they are in a similar situation in relation to the developed North. Most of them were colonies of European powers sometime between 1400 and 1945, and those that were never under formal European government were part of the colonial influence, or victims of unequal trade treaties with European countries that they were in no position to counter.[222] The domination of these countries by Europe was therefore primarily economic, and it would be later perpetuated by the former settler colonies of North America and Australasia.[223]

By the end of World War II, the United States emerged as a dominant western power and with Britain took the lead in shaping new institutions to provide the framework for world finance and trade. While committed to intervention in their home economies, industrialised countries were determined to avoid protectionist policies abroad by creating a strong free-trade system. As put by the Brandt Commission, it was "Keynes at home, and Adam Smith abroad."[224] In 1944, they met at Bretton Woods, New Hampshire and established two central instruments for international financial and monetary cooperation: the International Bank for Reconstruction and Development (known as the World Bank) to provide loans to assist the reconstruction of Europe and Japan and to support the developing world, and the International Monetary Fund (IMF) to regulate currencies, promote stable exchange rates and provide liquidity for the freer flow of trade.[225] Three years later, the General Agreement on Tariffs and Trade (GATT) –predecessor of the WTO- was signed with the aim of preventing the discriminatory measures and retaliatory tariffs that trading nations adopted during the great depression of the 1930s.[226]

It has been suggested that these organisations contributed to deepening the disparities between the North and the South, because they adopted rules that neglected the actual

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See Neil Middleton, Phil O'keefe & Sam Moyo, *The Tears of the Crocodile. From Rio to Reality in the Developing World* (London; Boulder, CO: Pluto Press, 1993) at 13.

[221] See Colin Sage, "The Scope for North-South Cooperation," in *Environmental Problems as Conflicts of Interest*, Andrew Blowers & Peter Glasbergen eds. (London: Arnold; New York: Halsted Press, 1996) at 167.

[222] Only parts of Arabia, Iran, Afghanistan, Liberia, China, Thailand and Ethiopia were never formal colonial ruling. For further details see J.P. Dickenson *et al.*, *A Geography of the Third World* (London; New York: Methuen, 1983) at 22-36.

[223] Unlike the colonies in Latin America, Asia and Africa, in the North American and Australasian colonies there existed only weak and small native populations spread out over vast territories, which were easier to exterminate or displaced, and wholly European settlements were established. See Nassau Adams, *Worlds Apart. The North-South divide and the International System* (Atlantic Highlands, N.J.: Zed Books, 1993) at 6 and *Ibid.* at 36-37.

[224] Independent Commission on International Development Issues (Willy Brandt Chairman), *North-South: A Programme for Survival. Report of the Independent Commission on International Development Issues* (London: Pan Books, 1980) at 36 [hereinafter Brandt Report].

[225] See Brandt Report, *supra* note 224 at 36.

[226] See Middleton *et al.*, *supra* note 220 at 97.

shape of the world, believing the problem of under-development in the South would be settled with aid flows and loans that were not always well-managed by the recipient governments.[227] This downfall was implicitly recognised in the Brandt report, which stressed that development based on simple considerations of economic growth had failed to secure 'human dignity, security, justice and equity' for much of the world, while advocating for structural changes in the international economic system.[228] Similarly, the Charter of Economic Rights and Duties of States adopted by the UN General Assembly in 1974 explicitly claims for social justice in international economic relations affecting the Third World,[229] calling upon developed states to extend and improve an enlarged system of generalized nonreciprocal and non-discriminatory tariff preferences to the developing countries (art 18). As stressed by Robert Jackson, underlying this demand is the idea that strict adherence to universality and reciprocity in economic relations neglects the widespread problem of underdevelopment in the South, and that since developing countries are in no position to bargain with the North on a basis of reciprocity, new norms of preferential treatment should be established to compensate for their material disadvantaged position in the international economy.[230] Given their enormous influence in shaping the global economy and thereby North-South relations (including the transfer of hazardous chemicals and wastes), the next section gives a general overview of the WTO, the World Bank and the IMF, and the ways in which they might have contributed to deepening the divide between developed and developing countries.

3.2.1. The World Trade Organisation

Under the GATT/WTO system lies the idea that all countries will benefit from a system of free trade that encourages its participants to concentrate on those manufacturing processes and services in which they are most efficient or where they have comparative advantages (principle of specialisation), and this will remove the need for protection of costly or inefficient industries by means of subsidy or tariff barriers. In a divided world, however, this theory is unlikely to work. To have comparative advantages in agricultural commodities and raw materials has been precisely one of the major problems of developing countries, since the prices of their export products fluctuate enormously while

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[227] See, for instance, Middleton *et al.*, *supra* note 220 at 92-107, and Adams N., *supra* note 223 at 19-45.
[228] See Peter Calvert & Susan Calvert, *The South, the North and the Environment* (London; New York, N.Y.: Pinter, 1999) at 184-185.
[229] See Robert H. Jackson, *Quasi-states: Sovereignty, International Relations and the Third World* (Cambridge [England]; New York, NY, USA: Cambridge University Press, 1990) at 118.
[230] See *Ibid.* at 118-119.

they depend on imports that are ever more expensive to purchase.[231] As stressed by Middleton *et al*, "the principle [of specialization] takes no account of major inequalities between nations and by this failure immediately puts poorer countries at a disadvantage."[232] Furthermore, it has been argued that while proclaiming free trade as its major theme, the international trading system is not free, as tariffs and non-tariff barriers imposed by the North have impeded the South to export, e.g., processed agricultural and textile manufactured products.[233]

There has been some recognition of this situation within the WTO-GATT system. It has been conceded, for instance, that the original GATT had serious loopholes in relation to agriculture, since it allowed countries to use subsidies and non-tariff measures such as import quotas, making the sector become highly distorted.[234] As a result, in 1995 WTO members signed the *Agreement on Agriculture*, by which all of them, with the exception of least-developed countries, committed to limit agricultural subsidies, tariffs and other protectionist measures to make the agricultural sector 'less distorted.'[235] Similarly, the *Agreement on Textiles and Clothing* established the reduction of restraints and the phase out of the Multi-Fibre Arrangement over a period of ten years, to improve the situation of exporters (mostly from the South) that had been subject to bilaterally 'agreed' quantitative restraints or unilaterally imposed restrictions on imports, which were applied both to products and aggregates.[236] The South also succeeded in getting preferential tariff agreements built into the GATT. However, they are seen as mere exceptions and they are

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[231] In the late 1940s, the UN Economic Commission for Latin America (ECLA) was created to elaborate an analysis of the causes of economic stagnation in Latin America and the ways of overcoming it. The analysis demonstrated deterioration on the terms of trade for Latin America's raw materials exports against the import of manufactured goods from the North. These results flew in the face of theories of comparative advantage. For further details see Sage, *supra* note 221 at 172.

[232] See Middleton *et al.*, *supra* note 220 at 97.

[233] See Brandt Report, *supra* note 224 at 8, 19 and 42, and Middleton *et al.*, *supra* note 220 at 98-100.

[234] Essentially, trade is distorted if prices, quantities produced, bought, and sold are higher or lower than normal. Import barriers and domestic subsidies can raise crop prices in a country's internal market, and higher prices can encourage over-production. If the surplus is to be exported, where prices are lower, then export subsidies have to be paid. Governments give three reasons for applying measures that distort agricultural trade: a) To make sure that enough food is produced to meet the country's needs; b) To shield farmers from the effects of the weather and swings in world prices; and c) To preserve rural society. This has arguably put developing countries at a disadvantage, as they have less economic capacity to apply subsidies.

[235] The Agreement on Agriculture established reductions on tariffs, subsidies and other measures implemented over a six-year period (10 years for developing countries, except least developed countries) that began in 1995. Further negotiations are now underway to continue the reforms. See WTO, "Trading into the Future: The Introduction to the WTO. The Agreements. Agriculture: fairer markets for farmers." Online: <http://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm3_e.htm>.

[236] The MFA (1973) groups eight "importers," (mainly developed countries) among which six apply restrictions to "exporters" (mainly developing countries.) See WTO, Committee on Trade and Development, 77th session, November 21-25, 1994, "Developing Countries and the Uruguay Round: An Overview," note by the Secretariat, online: <http://www.wto.org/english/docs_e/legal_e/ldc2_512.htm>.

usually temporary and non-contractual.[237] More recently, the Chiefs of the World Bank, the IMF and the WTO issued a joint communiqué warning the OECD Council that "increased protectionism in the world's leading economies would undermine developing countries' efforts to reform through more open economies," drawing particular attention to the need of modifying agricultural support policies and textiles regimes, and calling for interventions that are less damaging to the economic opportunities of the poor.[238]

These adjustments represent some progress, but they reinforce the idea that free trade is the solution to the problems of the South, and a necessarily constructive goal. Thus, according to this view, the export of hazardous wastes could be justified under the argument that developing countries may have a comparative advantage in recycling such materials,[239] regardless of the significant risks for the environment and human health in those countries, or of the fact that the recycling of hazardous substances may not be environmentally desirable.[240]

3.2.2. Financial Institutions: the World Bank and the International Monetary Fund

The disparities that exist in the context of the International Monetary Fund and the World Bank are in some way similar to those of the GATT, and are even more problematic given the virtually absolute control of these organisations by the North (notably the U.S.)[241] The Bank was set up to mobilize and lend funds at market rates of interest to enable countries to pay for capital goods imports. However, what developing countries needed was capital

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[237] The agreement on *Generalised Scheme of Preferences*, for instance, seeks to give developing countries a chance to compete on an equal footing with producers in developed importing markets. Yet, preference schemes frequently place *a priori* restrictions and criteria on the granting of preferences, and in many instances tariff preferences are temporary and non-contractual, and thus not legally binding. See *Ibid.*

[238] See WTO, News Release, "WTO, World Bank, and IMF chiefs warn against rich-country protectionism" (16 May 2002). (The statement refers to the Doha and Monterrey negotiations, before a new WTO Round).

[239] This view is supported, for example, by William Schneider "The Basel Convention Ban on Hazardous Waste Exports: Paradigm of Efficacity or Exercise in Futility?" (1996) 20 Suffolk Transnat'l L. Rev. 247 at 261 and 268; Jason Gudofsky "Transboundary Shipments of Hazardous Waste for Recycling and Recovery Operations," (1998) 34 Stan. J Int'l L. 219 at 283-285; and D. Kofi Asante-Duah & Imre V. Nagy, *International Trade in Hazardous Waste* (London; New York: E & FN Spon, 1998) at 5-6 and 110.

[240] For details on the recycling of hazardous wastes in the South see Clapp, "Toxic Exports," *supra* note 8 at 61. See also Basel Action Network, "Comments on Decision IV/8: Regarding Annex VII" (12 April 1999), online: <http://www.ban.org/subsidiary/comments.html>. The report argues that the recycling of hazardous wastes poses in many cases greater risks to the environment and to human health than final disposal. (See *Hazardous Waste Recycling -- A Closer Look*). In addition, the recycling of some hazardous wastes is a source of several POPs (PCDD, PCDF, HCH and PCBs). See Stockholm Convention, *supra* note 13, Annex C Part II.

[241] In the World Bank, each member has 250 votes, and one additional vote for each share of stock held. The main shareholders are the U.S., Japan, the U.K., Germany, and France. In the IMF, decisions are taken according to the number of quotas. The largest shareholders are the U.S., Japan Germany, France, and the U.K. The WTO is in theory democratically governed, but in practice it is dominated by developed countries, as its negotiations are formed by private discussions between the Group of Seven G-7 (now G-8, which includes: Japan, the U.S., the U.K., Germany, France, Canada and Italy). See Middleton *et al.*, *supra* note 220 at 95-96.

to build the human, physical, and administrative infrastructure for development, and the benefits of such investments were far in the future and they were not self-liquidating. Thus, they could not earn the foreign exchange required to repay conventional loans in convertible currencies.[242] The Fund, for its part, was aimed at providing temporary liquidity to assist countries in adjusting disequilibrium in their balance of payments. This goal was supposed to be attained with as little economic disruption as possible,[243] keeping in mind its mission of contributing to the promotion and maintenance of high levels of employment and real income of *all* members.[244] Yet drastic policy measures –in the form of structural adjustment programmes (SAPs)-[245] were imposed on developing countries facing a financial crisis in the early 1980s.[246] While these measures served the purpose of confronting Third World's debt crisis and to the maintenance of the world economic system,[247] they resulted in sharp cutbacks in incomes and imports, massive unemployment, social deprivation and widespread deterioration in capital stocks and in productive capacity in the South.[248]

Similar programs are now operated by the World Bank, which expanded its role of financing individual projects to Structural Adjustment Loans (SALs).[249] In relation to individual projects, the bank was criticized for financing only the foreign exchange costs of the approved projects, which resulted in the distortion of investment planning and development priorities and favoured growing import dependence. The narrow focus of Bank lending on physical infrastructure was also criticized, since social investments in

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[242] See Chandra Hardy "Debt negotiations and the North-South dialogue. 1974-1980," in William I. Zartman, ed., *Positive Sum: Improving North-South Negotiations* (New Brunswick, N.J.: Transaction Books, 1987) at 260.

[243] According to art I [v] of the IMF's Articles of Agreement, one of the purposes of the IMF is to provide members "with the opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity." (Emphasis added). See *Articles of Agreement of the International Monetary Fund*, 22 July 1944 60 Stat. 140, T.I.A.S. No. 1501, 2 U.N.T.S. 39 (entered into force 27 December 1945), online: <http://www.imf.org/external/pubs/ft/aa/>.

[244] See *Ibid.* Art. I [ii] (Purposes).

[245] Without getting into details, SAPs generally include: exchange rate devaluation, restraints on government spending, controls on wages, liberalisation of trade and the encouragement of export-oriented activity. See Sage, *supra* note 221 at 177.

[246] Efforts focused on major debtors such as Argentina, Brazil and Mexico. These countries owed U$31 billion to nine banks whose capital totalled U$29 billion. See Adams, *supra* note 223 at 153-154.

[247] In 1979, a rise in oil prices (after a four-fold rise in the mid 1970s) and the increase of interest rates in the U.K. and the U.S. plugged the world economy into a deep recession, and demand for raw materials fell and by 1982 they were at their lowest price since 1945. All of these factors (economic recession, oil prices increase and high rates on heavy borrowings) resulted in the ballooning of the Third World debt: in 1980 it amounted around $500 billion, and by the end of the decade it was almost $1.3 trillion. For details see Adams N., *supra* note 223 at 158, Sage, *supra* note 221 at 177, and Robert Weismann, "Corporate Plundering of Third World Resources," in Richard Hofrichter, ed., *Toxic Struggles. The Theory and Practice of Environmental Justice* (Philadelphia: New Society Publishers, 1993) at 187.

[248] See Adams, *supra* note 223 at 158.

[249] Over the last two decades, the Bank's lending for structural adjustment has doubled, reaching in 1999 over 50% of its lending portfolio earmarked for structural adjustment loans (SALs). See Christine Lee, "All Pain, No Gain: How Structural Adjustment Hurts Farmers and the Environment" *Global Pesticide Campaigner* 11:1 (April 2001) at 1, and Adams, *supra* note 223 at 35-36.

areas such as education, health services, water and sanitation facilities, were not eligible for bank financing.[250] It was also claimed that developing countries needed grants and soft loans and not the hard commercial loans provided by the bank. This prompted the creation of the International Development Agency (IDA),[251] but its resources were restricted to low-income countries and even so they met only a small part of their needs.[252] Some reforms were also undertaken in the Bank itself, and in 1970 new guidelines were promulgated widening its scope for programme lending, in conjunction with a more diverse distribution of the loans by sector, with investments in education and agriculture. However, as put by Nassau Adams, "the basic character and philosophy of the Bank has remained unchanged over the years, and it is still much more a bank than a development agency."[253]

Because the following paragraph captures the very heart of North-South disparities and summarizes what has been said up to now, it is worth citing at length:

> "The essence of the conflict between North and South is that the two parts are at different stages of development, so that the South only produces the ingredients for the industry of the North and it sells them at uncertain and fluctuating rates to buy the more expensive finished products. There is an interdependence that locks the two parties into their unequal roles and when the South seeks to share in the industrial role of the North it enters an arena where both the conditions of technology and the rules of competition put it at disadvantage. Thus, there is neither equality of present status nor equality of opportunity for the future and the inequality of condition is mirrored and magnified by the inequality of capability to change it. Not only have the norms and practices of postcolonial international relations trained the new nations to expect something different from their status of economic political subjugation, but the problems of economic inferiority within the international economic order keep coming back to the doorstep of the rich, who must keep their debtors alive enough to continue to service their debt, stable enough to continue to export their raw materials and even prosperous enough to continue to buy the exports of the rich. But kept alive to that degree, the South calls for more, demanding the equality that humanitarian norms promise to human beings and that the norms of the United Nations –as part of the current international political order– promise to states. Hence, it is a conflict not only of relations but also of perspectives, for it is primarily seen by both sides in zero-sum terms"[254]

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[250] See Adams, *supra* note 223 at 33-34.

[251] The International Development Agency is the World Bank's concessional lending window, online: <http://www.worldbank.org/>

[252] See Hardy, in Zartman W., *supra* note 242 at 261.

[253] Adams, *supra* note 223 at 35.

[254] See William Zartman I. "Introduction: explaining North-South Negotiations" in Zartman, *supra* note 242 at 3.

3.3. International trade, environmental protection and hazardous substances

This chapter argues that, besides the gap that exists between developed and developing countries, there is another powerful force facilitating and arguably encouraging the transfer of hazardous chemicals and wastes from the North to the South: the multilateral trading system and the liberal economic paradigm that it upholds. The relationship between free trade and environmental protection has been subject to much debate, particularly since the last decade.[255] Thus, one would expect the trade and environment literature to study extensively the issue of North-South transfer of hazardous substances (i.e. hazardous chemicals and wastes), and the ways in which trade liberalisation could be promoting this transfer. It is, however, surprisingly difficult to find such analysis.[256] In a judicious study of the global transfer of hazardous waste, Jennifer Clapp notes that there are three specific inquiries in the trade and environment debate that have direct relevance to the problem of hazard transfer. The first one is the debate around the impact of environmental regulations on countries' trade competitiveness, that is, whether lower environmental standards have an impact in the export of hazardous substances to developing countries. A second aspect is the role environmental regulations might play in industrial location, i.e., whether lower environmental standards in developing countries partly determine the transfer of industrial activity from the North to the South. Lastly, there is the issue of compatibility between trade rules and the trade measures incorporated in multilateral environmental agreements, which inquires whether trade can be legitimately restricted in the name of environmental protection.[257]

In the context of the first analysis, Clapp notes that the literature has focused almost exclusively on the impact of domestic environmental regulations on countries' exports, and not on the impact of weak domestic regulations on the import of hazards such as toxic wastes and pesticides. In other terms, the analysis has considered primarily whether

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[255] For a review of the emergence of the debate and the main issues discussed see Marc Williams "International Trade and the Environment: Issues, Perspectives and Challenges," in Caroline Thomas, ed., *Rio. Unravelling the Consequences* (London; Portland, Oregon: Frank Cass, 1994) at 80-97, and Annie Taylor "The Trade and Environment Debate," in Annie Taylor and Caroline Thomas eds., *Global Trade and Global Social Issues* (London; New York: Routledge, 1999) at 72-90.

[256] For a fairly extensive economic literature review see Ravishankar Jayadevappa & Sumedha Chhatre "International trade and environmental quality: a survey," (2000) 32:2 Ecological Economics 175 at 175-194. A notable exception is Marc Williams, *supra* note 255 at 87-96, who recognises that free trade of hazardous substances causes environmental degradation and that the liberal economic perspective conflicts with the environmental perspective. See also Daniel C. Esty, *Greening the GATT. Trade, Environment and the Future* (Washington, DC: Institute for International Economics, 1994) at 186-187. Although the author does not challenge the liberal economic perspective, he addresses the issue of North-South transfer of domestically banned or dangerous products (e.g. pesticides, waste), and mentions export bans as a possible solution to this problem.

[257] See Clapp, "Toxic Exports," *supra* note 8 at 6-12.

stringent environmental standards in industrialised countries have affected their competitiveness in the international market, rather than what is the impact of lower environmental standards in developing countries.[258] The export of hazardous wastes to the South in order to avoid the costs of disposing of such materials in the North, however, is a clear example of the direct influence that lower environmental standards have had in the transfer of waste. These transfers have affected the environment and health in the importing countries, since they have very limited capacity to manage them safely.[259] Similarly, domestic Northern regulations banning the use of a pesticide or chemical but allowing its exportation are clearly an invitation to transfer hazardous chemicals to developing countries because of their lower environmental standards. As in the case of wastes, hazardous chemicals have negatively affected the environment and human health in the recipient countries, and in some cases also the global environment (e.g. persistent pesticides may travel long distances or return to the North as residues in agricultural products and foods imported from the developing world).[260]

The second question within the trade and environment debate that is relevant to the transfer of chemicals and wastes inquires whether free trade and investment are creating 'pollution havens,' i.e., whether Northern firms are relocating to developing countries to take advantage of their relatively lower environmental standards. Regarding this issue, Clapp notes that while most of the trade and environment literature recognises that a transfer of the most hazardous industries from rich to poor countries has occurred as a response to stringent environmental regulations in developed countries, this phenomenon is regarded as an exception to the rule, which asserts that firms generally do not relocate for environmental reasons.[261] There is, however, evidence of industrial relocation in the case of hazardous chemicals and wastes. One of them is U.S.-based Waste Management Inc., which set up facilities in Hong Kong, Indonesia and Thailand in the 1990s,[262] or Swiss-based Syngenta, which opened a plant to manufacture paraquat (banned for use in

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[258] See Clapp, "Toxic Exports," *supra* note 8 at 9. A notable exception is Marc Williams, who claims that the liberal economic perspective does not provide an adequate model for dealing with environmental degradation, because it abstracts from power relations in the global political economy. Thus, it allows for hazardous waste to be dumped in a poor country because it is economically 'efficient.' See Williams M., *supra* note 255 at 96.

[259] See Clapp, "Toxic Exports," *supra* note 8 at 26-38.

[260] Legislation on hazardous chemicals and the effects of these substances on health and the environment are considered in Chapter 1.

[261] See Clapp, "Toxic Exports," *supra* note 8 at 9. In a subsequent article, Clapp argues that the pollution havens debate has been dominated by economic analysis that use very narrow definitions of 'dirty industry' and 'environmental cost,' making pollution havens merely impossible to identify. For instance, the hazardous waste recycling industry, which can be highly polluting, is excluded from the definition of 'dirty industry.' See Jennifer Clapp "What the Pollution Haven Debate Overlooks," (2002) 2:2 Global Environmental Politics 9 at 12-16. [Hereinafter Clapp, "Pollution Havens"].

[262] See Clapp, "Pollution Havens," *Ibid.* at 12-13.

Switzerland since 1989), and another one to produce monocrotophos (not registered for use in Switzerland) in China.[263] As explained in Chapter 2, the capacity of big agrochemical corporations to transfer their production operations to the South, where they have numerous subsidiaries and some of them are already producing hazardous pesticides, stresses the dangers of an outright ban on the export of hazardous pesticides to developing countries if no regulations on production are introduced.

The last issue of the trade and environment literature that should be considered is the study of the compatibility between trade agreements and environmental agreements. In this regard, as noted by Clapp, the literature has focused mainly on legal aspects, rather than on the role that the global liberal trade order might play in the hazard transfer problem.[264] The next section attempts to undertake that analysis. Besides considering some general legal aspects (in particular within the context of the WTO) that apply to the transfer of hazardous chemicals and wastes, it looks at some of the ways in which the major global economic organisations (i.e. the World Bank, the International Monetary Fund-IMF and the World Trade Organisation–WTO) have promoted the export of hazardous chemicals and pesticides from developed to developing countries.

3.3.1. Hazardous Chemicals and the World Trade Organisation

The WTO promotes trade in hazardous chemicals in at least two ways. The first one is through the promotion of free trade as its central objective, limiting the legal ability of member states to protect the environment through trade-restrictive measures. Because this is a very general issue, this section considers some general aspects of international trade and environmental law, including not only the Rotterdam Convention on hazardous chemicals and pesticides, but also the Basel Convention on hazardous wastes, and the Stockholm Convention on Persistent Organic Pollutants. The second question considered is more specific, and it refers to the ways in which the WTO has promoted the transfer of hazardous pesticides to the South by fostering industrial agriculture, which relies heavily on chemical pesticides.[265] As major exporters of agricultural commodities, developing countries have been urged to import chemical pesticides, while they are not necessarily capable of managing them safely. Furthermore, because of their limited access to foreign currency, the countries of the South have tended to use older (and more toxic)

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[263] See notes 141 (monocrotophos) and 142 (paraquat).
[264] See Clapp, "Toxic Exports," *supra* note 8 at 10.
[265] See Skip Spitzer, "the WTO and Pesticide Reform" *Global Pesticide Campaigner* 10:1 (April 2000) at 3.

pesticides, as they are less expensive to purchase because patents no longer protect them.

3.3.1.1. The Multilateral Trading System and Environmental Protection

At the heart of the multilateral trading system, centralised and enforced by the World Trade Organisation, lies the principle of non-discrimination. According to this norm, WTO member states cannot treat a product of another member more favourably than like products[266] of other members (most-favoured-nation principle),[267] and they must treat goods that have entered their market no less favourably than equivalent domestically produced goods (principle of national treatment).[268] This limits the ability of countries to restrict international trade for environmental reasons, especially if data on the import, export or domestic production of a particular substance are not available or are unclear. Article 10 (9) of the Rotterdam Convention, for instance, is consistent with the principle on non-discrimination. It provides that in order to be able to prohibit the importation of a hazardous chemical, a state must ensure that the substance is not being imported from other source(s), or produced domestically. This might be problematic because such data may not be easily accessible and thus a state could not ban the import of a substance until such information is available.

Despite the restrictions imposed by the principle of non-discrimination, several key WTO agreements include the possibility for member states to adopt trade-restrictive measures for the protection of the environment. Article XX of the *General Agreement on Tariffs and Trade* (GATT),[269] cornerstone of trade relations in the area of goods and basis of rules on tariffs,[270] allows WTO members to adopt trade-restrictive measures necessary to protect human, animal or plant life or health (par. b), or to conserve exhaustible natural resources if there are equal restrictions on domestic production or consumption (par. g). These measures are only allowed, however, if they are not applied in a manner that constitutes a means of arbitrary or unjustifiable discrimination between countries where

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[266] Term used to describe the same or equivalent products, which should be treated equally under the principles of "national treatment" and "most-favoured-nation" treatment.

[267] See *General Agreement on Tariffs and Trade*, 30 October 1947, 58 U.N.T.S. 187 (entered into force 1 January 1948) [Hereinafter GATT 1947] Art. I, online: <http://pacific.commerce.ubc.ca/trade/GATT.html>.

[268] See *Ibid.*, Art. III.

[269] As of April 2003, the WTO had 146 member states. The WTO is an institutional framework that includes the GATT and all the agreements and legal instruments negotiated in the Uruguay Round (1986–94), which are binding upon all members, online: <http://www.wto.org>.

[270] Tariffs are national taxes on imported goods that obstruct international commerce. Art I of GATT refers to 'customs duties and charges of any kind imposed on or in connection with importation or exportation'.

the same conditions prevail, or a veiled restriction on international trade.[271] Similarly, the *Agreement on the Application of Sanitary and Phytosanitary Measures* (SPM agreement) allows WTO members to take this type of measures when it is necessary for the protection of human, animal or plant life or health, given certain conditions.[272] Lastly, according to art 2.2 of the *Agreement on Technical Barriers to Trade*, members can adopt technical regulations necessary to protect "human health or safety, animal or plant life or health, or the environment."[273] However, these regulations cannot create unnecessary obstacles to international trade, and they cannot be more trade-restrictive than necessary to fulfill their objective.

While these rules seem to allow environmental protection within the context of trade, they have been interpreted in a restrictive manner by international trade tribunals. In the *Beef-Hormone case*, the WTO Appellate Body rejected the proposition that a ban on sale of beef from cattle that had been fed growth hormones (applied evenly to domestic and foreign livestock) was justified under the SPM agreement, or was a necessary precautionary measure.[274] Similarly, in the *Tuna-Dolphin I* and *II*[275] and *Shrimp-Turtle* decisions,[276] trade tribunals concluded that the measures taken by the U.S. to protect dolphins and sea turtles, respectively, were inconsistent with the GATT and did not qualify for Article XX's general exceptions.[277] In the case involving sea turtles, however, a recent decision (2001) by an arbitration panel of the WTO Dispute Settlement Mechanism ruled

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[271] See GATT 1947, *supra* note 267, Article XX.

[272] See *Agreement on the Application of Sanitary and Phytosanitary Measures*, Apr. 15, 1994, WTO Agreement, Annex 1A, Legal Instruments - Results of the Uruguay Round vol. 27 (1994), Online: <http://www.wto.org/english/docs_e/legal_e/15-sps.pdf> [hereinafter SPS Agreement], Arts. 2(1), 2(2), 2(3) and 5(7).

[273] See *Agreement on Technical Barriers to Trade*, Apr. 15, 1994, WTO Agreement, Annex 1A, Legal Instruments - Results of the Uruguay Round vol. 27 (1994), Online: <http://www.wto.org/english/docs_e/legal_e/17-tbt.pdf> [hereinafter TBT Agreement], Art. 2(2).

[274] For further details of this case see Dale Arthur Oesterle "The WTO Reaches Out to the Environmentalists: Is It Too Little, Too Late?" (1999) Colo. J. Int'l Envtl. L. & Pol'y Y.B. 1 at 4.

[275] In *Tuna/Dolphin I*, Mexico challenged the Marine Mammal Protection Act, which allowed the U.S. to unilaterally impose trade sanctions on imported tuna to protect dolphins threatened by foreign fishing practices. A 1991 GATT dispute resolution panel decision declared the Act to be in violation of GATT, and stated that the measures in the Act were not "necessary" to the protection of animal life within the reservation of Article XX(b) In *Tuna/Dolphin II*, the act was challenged again by the European Union, and the panel held against the U.S., finding that the import embargoes in the Act did not qualify as "necessary" under Article XX(b) For further details see *Ibid.* at 3-4.

[276] In the *Shrimp/Turtle* 1998 decision, a WTO panel invalidated a US ban on imports of shrimp harvested with devices that trapped and suffocated endangered sea turtles. The panel found that the US import restrictions were inconsistent with the GATT (art XI), and were not justified under Art. XX. The Appellate Body partially reversed the panel's decision stating that the rule was a permissible measure under art XX (g), but it concluded that U.S. implementation of the Section was discriminatory, and therefore violated GATT Art. XX's chapeau. See *Ibid.* at 3-4, and *United States –Import Prohibition of Certain Shrimp and Shrimp Products (Appeal by the United States)* (1998), WTO Doc. WT/DS58/AB/R (Appellate Body Report), online: <http://www.wto.org/english/tratop_e/dispu_e/dispu_subjects_index_e.htm#list> [Hereinafter "Shrimp-Turtle Decision"].

[277] See Sanford E. Gaines, "Processes and Production Methods: How to Produce Sound Policy for Environmental PPM-Based Trade Measures?" (2002) 27 Colum. J. of Envt'l L. 383 at 385-6.

in favour of the U.S. because it considered that the application of the measure protecting the turtles was no longer discriminatory.[278] The ruling was consistent with the 1998 panel decision, which stated that the U.S. law to protect sea turtles was a permissible measure under Art. XX, but was inconsistent with its chapeau.[279] Similarly, in a 2001 decision, the WTO Appellate Body upheld a policy by France which blocked imports from Canada that contained asbestos.[280] This is the first time that the WTO approves the use of a trade restrictive measure in order to protect human health.[281]

Although these two decisions suggest that there is some room for environmental protection within the WTO context, it is unclear whether trade-restrictive measures of environmental agreements such as the Basel, Rotterdam and Stockholm conventions are permissible within the WTO system. As noted by the WTO's Committee on Trade and Environment, a possible source of conflict between environmental treaties and GATT rules is that several of the trade aspects they contain violate the principle of non-discrimination, since they envisage trade in a product with some countries but not with others (which contradicts the most-favoured-nation clause), or they permit discrimination between domestic and imported products (which contradicts the national treatment rule).[282] The Basel Convention, for example, requires parties to apply more restrictive trade measures to non-parties to the treaty,[283] and an amendment adopted in 1995 bans the export of hazardous wastes from certain states to others.[284] Both rules violate the principle of non-discrimination, and WTO members could challenge their application by another member in trade panels.[285]

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[278] Elizabeth R. DeSombre & J. Samuel Barkin "Turtles and Trade: The WTO's Acceptance of Environmental Trade Restrictions," (2002) 2:1 Global Environmental Politics 12 at 14-17.

[279] See *Ibid.* and "Shrimp-Turtle Decision," *supra* note 276 at 46-76.

[280] For details on asbestos see section 2.2.1. in Chapter 2.

[281] See Michael Weinstein & Steve Charnovitz, "The Greening of the WTO" *Foreign Affairs* 80:6 (November/December 2001) 147, and Raj Bhala & David A. Gantz, "WTO Case Review 2001" (2001) 19 Ariz. J. Int'l & Comp. L. 457 at 505-517.

[282] See WTO, Committee on Trade and Environment, Agenda Part I, "CTE on: Trade Rules, Environmental Agreements and Disputes," online: <http://www.wto.org/english/tratop_e/envir_e/cte01_e.htm>.

[283] According to Art. 11 of the Basel Convention, parties can only trade hazardous substances with non-parties under certain circumstances, and if a particular agreement has been previously celebrated. See *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal,* 22 March 1989, UN Doc. I.G.80/3 (22 March 1989), 28 I.L.M. 649 (entered into force 5 June 1992) [Hereinafter Basel Convention], online: <http://www.basel.int/text/con-e.htm>.

[284] Decision III/1, known as the Basel Ban, proscribes the export of hazardous wastes from the countries of Annex VII (EU members, OECD members and Liechtenstein), to Non-Annex VII countries. It is an amendment to the Basel Convention and as of August 2003 it had not entered into force. Up-to-date information can be found at: <http://www.basel.int/ratif/ratif.html#ban>.

[285] Since so far there have been no disputes between WTO rules and trade provisions of a multilateral environmental agreement, it is still unclear which one would prevail in case of a conflict.

The potential legal conflict between trade agreements and the Rotterdam, Basel and Stockholm conventions could potentially be solved with the inclusion of a trade provision explicitly allowing those trade-restrictive measures that are supported by a multilateral environmental treaty. At the same time, it does not seem desirable that trade tribunals interpret WTO's general environmental rules more loosely. As argued by Weinstein and Charnovitz, the WTO must find a balance between attacking too strongly the use of environmental trade restrictions, which invites environmental damage, and excessive leniency in imposing sanctions, which would invite pressure on poorer countries to adopt standards that are ill-suited to their strained economies.[286] Differently put, to allow protectionist-motivated environmental restrictions within the context of international trade could potentially widen South-North disparities, making it even harder for the South to develop the economic and technological capacity to enforce environmental regulations.

3.3.1.2. How the WTO Promotes Trade in Hazardous Pesticides

In addition to restricting the ability of member states to ban or restrict the importation of hazardous chemicals, the WTO promotes trade in hazardous chemicals by fostering the industrial agricultural system. Industrial farming tends toward large-scale, capital-intensive farms specializing in single crops. These monocultures usually have minimal or no crop rotations; they preclude beneficial crop interactions; they lead to the loss of soil organisms and beneficial insects; and they disrupt other complimentary relationships on the farm, such as the production of manure by livestock. These factors make crops especially vulnerable to insects, weeds and disease, creating the need for high levels of pesticide use. In addition, industrial agricultural systems may cause accelerated development of pesticide resistance,[287] requiring the use of more or stronger pesticides.[288]

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[286] See Weinstein & Charnovitz, *supra* note 281 at 2.

[287] Pesticide resistance is a genetically based phenomenon. It occurs when a pest population (e.g. an insect, a weed) is exposed to a pesticide, and some individuals are resistant to the pesticide. If the pesticide is continually applied to the population of the pest, only resistant individuals will survive, breed and multiply, increasing the number of individuals resistant to that pesticide. The more a population is exposed to a pesticide, the more quickly resistance will develop. Because many generations of some pests can develop in a single year, resistance can develop very quickly. Recent studies indicate that more than 500 species of insects and mites are resistant to pesticides, and at least 17 species of insect species are resistant to all major classes of insecticides. Over 270 weed species, over 150 plant pathogens and about half a dozen of rats are resistant to pesticides that once controlled them. See Robert G. Bellinger, "Pesticide Resistance to Pesticides," Clemson University, SC, U.S.A. (March 1996), online: <http://www.google.ca/search?q=cache:27rqxbPROMcJ:ipm.ncsu.edu/safety/factsheets/resistan.pdf+pest+resistance+to+pesticides&hl=en&ie=UTF-8 >.

[288] See Spitzer, *supra* note 265 at 3.

WTO agreements promote this type of agriculture by eliminating trade restrictions in this sector, which is devastating to small-scale producers, who are potentially the least pesticide-dependent. Thus, agreements that reduce or eliminate tariffs, import controls, price and family farm support programs, etc, result in opening markets to cheap exports with which small farmers cannot compete. They are thus forced to get bigger, and to use increasing chemical inputs to control pests. At the same time, trade rules allow subsidies of exports and foreign investment practices which greatly foster larger-scale, highly pesticide-dependent agriculture.[289]

Again, one could think that the solution to this problem is to allow protectionist measures in the agricultural sector. There are, however, two sides of liberalising agricultural trade. As it was explained in the previous section (on North-South disparities), most developing countries largely depend on exports of agricultural commodities, and their situation has worsened due to protectionist measures by the North that have distorted the agricultural market. Therefore, one of the advances in the WTO is the attempt to liberalise the sector so that producers in the third world obtain a fair price for what they produce. However, this means that developing countries will also be unable to protect their farmers, and given their lack of resources will have further incentives to use chemical pesticides in order to be competitive in the international market. This is aggravated by the fact that international financial institutions, which are examined next, usually condition their lending to structural reforms that limit the role of the State to improve the condition of farmers, and the possibility of promoting the use of mor7e environmentally friendly techniques to control pests. Thus, while making the agricultural sector less distorted is essential to developing countries, it is equally important to enhance their ability to promote safer ways to control pests (e.g. integrated pest management (IPM) techniques)[290] and to safely manage chemical pesticides in those cases in which they must be used.

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[289] See *Ibid.* at 3-4.

[290] The FAO Code of Conduct defines IPM as "a pest management system that, in the context of the associated environment and the population dynamics of the pest species, utilizes all suitable techniques and methods in as compatible a manner as possible and maintains the pest population levels below those causing economically unacceptable damage or loss." From this definition follows that IPM seeks to maintain the targeted pest at a level where damage to the crop is not economically unacceptable, rather than to eliminate it. IPM control methods include: biological control, the use of pest-resistant crops, non-fatal chemical controls, and cultural controls. Biological control entails mobilizing the natural predators of a pest in order to control it, which usually involves introducing a natural enemy (such as insects or microbes) where it does not naturally occur. The use of pest resistant crops entails breeding strains of crops that are inherently resistant to their normal predators. Much of the research in this field has concentrated on isolating the genetic traits responsible for resistance, to breed them into other non-resistant plants (e.g. a strain of tomato inter-bred with a gene from the bacterium *bacillus thuringiensis*). The non-fatal chemical method entails the use of chemicals that are less toxic and fall short of directly killing the pest (e.g., sex pheromones to disrupt the mating of insects). Lastly, cultural controls,

3.3.2. Financial Institutions and Trade in Hazardous Chemicals

International financial institutions support trade in hazardous chemicals mainly through the promotion of pesticide use in their financing programs. Structural adjustment plans imposed by institutions such as the World Bank and the IMF have boosted pesticide sales and use in developing countries, by emphasizing agricultural exports as the key to economic development in these countries.[291] As pointed out by the FAO, outbreak budgets, direct and indirect subsidies and certain extension policies are all typical pesticide policies that contribute to overuse and abuse of pesticides, and they are usually implemented by national or local governments, often influenced by development banks.[292] Structural adjustment loans by the World Bank, for example, may include conditions such as: national commitments to generate foreign-exchange earnings through production of cash crops and non-traditional export crops; liberalisation of agricultural trade; provision of incentives and subsidies for export-oriented agriculture; reduction in availability of credit to local farmers; and cuts in staff and resources in agricultural departments and government services.[293]

Apart from the negative impacts on small sized farmers, who suffer massive cuts in social services and financial support,[294] these programs can damage the environment, because non-traditional crop production and cash crops are often more susceptible to disease and pests, requiring large volumes of toxic chemicals.[295] Perhaps recognising its influence on pesticide use in developing countries, the World Bank approved in 1998 Operational Policy 4.09 (OP 4.09), which applies to all projects involving pest management and supports a strategy that promotes the use of biological or environmental control methods and

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usually based on techniques employed by farmers, seek to limit pests by affecting their habitats. They include: crop rotation, practically abandoned in favour of the monocultures promoted by the 1960s green revolution; physical traps (e.g. yellow boards covered in glue to trap whiteflies); and the destruction of crop residues after harvesting (so as to remove any remaining pest habitat and eggs). For further details on IPM see Hough, "The Global Politics of Pesticides" *supra* note 51 at 127-131, and Code of Conduct, *supra* note 48 Art. 2.

[291] See Crain, *supra* note 49 at 10.

[292] See Global IPM Facility, "Four essential Elements of IPM Programmes," Online: <http://www.fao.org/WAICENT/FAOINFO/AGRICULT/AGP/AGPP/IPM/gipmf/02_programmes/02b.htm>.

[293] See Lee, *supra* note 249 at 1-2.

[294] As explained by Christine Lee, most cash crops require substantial initial capital investments far beyond the reach of small farmers, such as: complex irrigation systems, sophisticated marketing systems, and information on topics ranging from cultivation techniques to international market dynamics, which only foreign corporations and local elites can afford. Additionally, small farmers rarely have access to the financial capital or technical expertise to make the shift from local food to export crops. See *Ibid.* at 2.

[295] As explained before, the shift from a variety of crops to monocropping systems exacerbates the need for agricultural inputs, depletes the soil of essential minerals and nutrients, and decreases biological diversity (including beneficial insects that eliminate pests.) See *Ibid.* at 4.

reduces reliance on synthetic chemical pesticides.[296] In agricultural projects, the policy promotes farmer-driven, ecologically based integrated pest management (IPM).[297] According to OP 4.09, the Bank can only finance the acquisition of pesticides when their use is justified under an IPM approach;[298] it cannot finance highly hazardous formulated pesticide products belonging to World Health Organization (WHO) Classes Ia, Ib, and II[299] if they are likely to be used by persons without adequate training, equipment and facilities;[300] and when supplying pesticides to farmers, bank staff must follow the standards set forth by the FAO.[301] In reality, however, many poorly designed projects promote increased use of pesticides, bank staff tends to overlook the inability of farmers to follow FAO guidelines (i.e., they often cannot afford protective equipment or extreme tropical heat makes its use impractical),[302] and the pesticides used often contain active ingredients that are listed as Classes Ia, Ib or II.[303] In addition, projects with good pest management design frequently fail to achieve their goals due to inadequate project monitoring and control by Bank staff.[304] Pesticide Action Network North America (PANNA) reviewed documents for all World Bank projects approved between 1997 and 2000 and found that few of them even mention IPM.[305] In a different study, PANNA found that implementation of OP 4.09 is generally weak and real progress toward ecologically based agricultural systems and pesticide use reduction has been limited.[306] Thus, despite the good intentions expressed in its Pest Management Operation Policy, the World Bank still promotes the use of pesticides in developing countries.

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[296] World Bank, Operational Policy O.P. 4.09 (December 1998) [Hereinafter O.P. 4.09] Art. 1, online: <http://wbln0018.worldbank.org/Institutional/Manuals/OpManual.nsf/0/665DA6CA847982168525672C007D07A3?OpenDocument>. [The policy replaced a previous version dated 1996].

[297] World Bank OP 4.09 defines IPM as "a mix of farmer-driven, ecologically based pest control practices that seeks to reduce reliance on synthetic chemical pesticides." See *Ibid.* at footnote 4.

[298] See *Ibid.* Art. 4.

[299] These are: extremely hazardous (Ia), highly hazardous (Ib), and moderately hazardous (II). Please see *supra* note 72.

[300] See O.P. 4.09, *supra* note 296 Arts. 6, 7(a) and 7(b).

[301] See *Ibid.* Art. 7.

[302] See Marcia Ishii-Eiteman *et al.*, "Monitoring the World Bank's Pest Management Policy: A Guide for Communities," Pesticide Action Network North America (PANNA) (May 2001), online: <http://www.panna.org/resources/documents/monitoringWB.dv.html> and Global IPM Facility, *supra* note 292.

[303] See Ishii-Eiteman *et al.*, *Ibid.* at 10.

[304] See *Ibid.* at 3-4.

[305] See Ned Tozun "New Policy, Old Patterns: A Survey of IPM in World Bank Projects" *Global Pesticide Campaigner* 11:1 (April 2001) at 1, online: <http://www.panna.org/resources/gpc/gpc_200104.11.1.02.dv.html>.

[306] Although projects in Sub-Saharan Africa and Asia were most likely to aggravate pesticide problems, projects in Latin America, Europe, and Central Asia showed some promise for ecological alternatives. See *Ibid.* at 1.

Up to now, Chapter 3 has sought to investigate the context in which the North-South transfer of hazardous chemicals and pesticides takes place, taking into account the North-South transfer of hazardous wastes, which occurs under similar circumstances. The next section argues that when the context is considered, it becomes evident that the transfer of hazardous chemicals and wastes from developed to developing countries is primarily an ethical question. As a result, it studies the legal and moral principles that apply to this issue, and the relevance that states have given to these rules in the international environmental arena.

3.4. The North-South Transfer of Hazardous Substances: Ethical Dilemmas

The North-South transfer of hazardous chemicals and wastes entails a dilemma for both parties. For a Northern company, the option is between gaining profits or saving money by means of exporting hazardous chemicals and wastes to countries that have lower environmental standards, and facing the possibility of losing competitiveness or, in the worst case, going bankrupt. For the South, the choice is more difficult. The most dramatic case is that of least developed countries, which receive noxious materials to obtain resources that are indispensable to overcome poverty and to fulfill their populations' most basic needs. In this case, the dilemma is between environmental protection and *survival*, and therefore it is less of a choice. The situation of other developing countries is also problematic: while part of their industry has become dependent on hazardous substances (i.e. wastes used as raw materials, pesticides to sustain export agriculture) to be viable in the international and domestic markets, governments are facing an enduring social, economic and often political crisis that prevents them from making decisions that would immediately deepen that crisis. The option is between long-term environmental protection, the benefits of which are far in the future, and more pressing economic and social problems. Although the North also confronts this kind of predicament, it is significantly more onerous for the South, with less economic and technological resources to overcome the negative social and economic impacts that result from applying drastic environmental measures, and less power to enforce environmental regulations. This is one of the reasons why although all countries are responsible to protect the environment from the negative effects of hazardous substances (i.e. chemicals and wastes), the North has a greater responsibility to do so, since it has more freedom to choose and better resources to do what is *right*. As put by Robert Jackson "there is no escape from

responsibility although it falls more heavily on the shoulders of those with the greatest power and authority to shape events."[307]

There are, therefore, two questions to consider. The first one is whether the export of hazardous chemicals and wastes by industrialised countries to the countries of the South is justified under international morality and international law, considering that the North has more power to do what is right and that it wants to protect its own citizens and environment from those substances because of the risks they entail. The second issue is whether North-South disparities should be addressed for a kind of environmental protection that does not undermine human's basic needs or the South's sustainable development,[308] or they should simply be *formally* acknowledged, as they appear in the Basel and Rotterdam conventions. In order to answer these questions, the next section studies the legal and moral international environmental principles that have direct application to the issue of hazard transfer. These principles apply not only because they are included either explicitly or implicitly in the treaties dealing with hazardous chemicals and wastes, but also because they have been recognised by the great majority of states in the international environmental arena.

3.4.1. The principle of State responsibility for transboundary harm

The principle of State responsibility for transboundary harm is rooted in principle 21 of the Stockholm Declaration (1972) and principle 2 of the Rio Declaration (1992). Both declarations affirm that states have the responsibility to "ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction." As formulated in the two instruments, the rule has been widely accepted as a statement of customary international law. As explicitly recognised by the International Law Commission of the United Nations (hereinafter ILC)[309] in its commentary to the Draft articles on Prevention of

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[307] See Jackson, *supra* note 229 at 4.

[308] By sustainable development I mean a kind of development that seeks to provide human beings a better standard of living by fulfilling their basic needs while respecting the environment and the rights of present and future generations to enjoy a healthy environment. This implies, of course, a change of the consumption patterns both in the North and by the 'elites' in the South.

[309] The ILC was established by the General Assembly of the United Nations in 1947. Its main objective is the promotion of the progressive development of international law and its codification. Although its statute makes a distinction between progressive development and codification, in practice codification embraces also progressive development. See Shabtai Rosenne, ed., *The International Law Commission's Draft Articles on State Responsibility. Part 1, Articles 1-35* (Dordrecht; Boston: M. Nijhoff; Norwell, MA, U.S.A.: Kluwer Academic, 1991) at 18.

Transboundary Harm from Hazardous Activities,[310] the principle entails an obligation to *prevent* transboundary harm:[311]

> "The prevention of transboundary harm arising from hazardous activities is an objective well emphasized by principle 2 of the Rio Declaration and recognised by the International Court of Justice in its advisory opinion of 8 July 1996 on the *Legality of the Use by a State of Nuclear Weapons in Armed Conflict* as now forming part of the corpus of international law"[312] (Emphasis in original).

Although international jurisprudence has also amply referred to this principle,[313] there are some uncertainties as to what preventive actions it entails, and what kind of damage is to be prevented.[314] The ILC Draft Articles define the rule as an obligation to "take all appropriate measures to prevent significant transboundary harm or at any event minimize the risk thereof"[315] when carrying out lawful activities. Several conclusions can be drawn from this provision: first, the obligation is one of due diligence, which means that states are not obliged to guarantee that significant transboundary harm is prevented, but to take all the necessary measures of which they are capable -financially and technologically- to prevent such harm.[316] Second, the harm to be prevented must be significant, that is, more than detectable but not necessarily 'serious' or 'substantial,' and it must lead to a real detrimental effect, susceptible of being measured by factual and objective standards (e.g. real detrimental effect on human health, the environment or agriculture in other State).[317] Lastly, the risk is defined in terms of a high probability of

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[310] See International Law Commission, *Draft Articles on Prevention of Transboundary Harm from Hazardous Activities*, UN GAOR, 56th sess., Suppl. No. 10 (A/56/10), chp.V.E.1 [hereinafter ILC Draft Articles], online: <http://www.un.org/law/ilc/texts/prevention/prevention_articles(e).pdf> at 366-436.

[311] See Gregg Anthony Cervi, "War wrecks and the Environment: Who's Responsible for the Legacy of War? A Case Study: Solomon Islands and the U.S." (1999) 14 J. Envtl. L. & Litig. 351 at 377 and 380; Philippe Sands, *Principles of International Environmental Law I: Frameworks, Standards and Implementations* (Manchester; New York: Manchester University Press, 1995) [Sands, "Principles of IEL"] at 190-191; Patricia Birnie & Alan E. Boyle, *International Law and The Environment* (Oxford: Clarendon Press; New York: Oxford University Press, 1992) at 90-92; André Nollkaemper, *The Legal Regime for Transboundary Water Pollution: Between Discretion and Constraint* (Dordrecht; Boston: M. Nijhoff/Graham & Trotman; Norwell, MA: Kluwer, 1993) at 30; and Restatement (Third) of the Foreign Relations Law of the United States §§ 601 (1987).

[312] See International Law Commission, *Commentaries to the Draft Articles on Prevention of Transboundary Harm from Hazardous Activities*, UN GAOR, 56th sess., Suppl. No. 10 (A/56/10), chp.V.E.2) [Hereinafter ILC Commentaries] at 378, online: <http://www.un.org/law/ilc/texts/prevention/preventionfra.htm>.

[313] See, for instance, *Trail Smelter* Arbitration (U.S. v. Canada) [1941] 3 U.N.R.I.A.A 1938 (1949), *Corfu Channel Case* (Merits) (U.K. vs. Albania) [1949] I.C.J. Rep. 4, *Lake Lanoux Arbitration* (Spain vs. France) 12 U.N.R.I.A.A 281 [1957], and *Case Concerning the Gabcikovo-Nagymaros Project* (Hungary vs. Slovakia) [1997] I.C.J. Rep. 7.

[314] See Nollkaemper, *supra* note 311 at 31.

[315] See ILC Draft Articles, *supra* note 310 Art. 3.

[316] See Nollkaemper, *supra* note 311 at 40-41. The ILC Draft Articles refer to taking steps such as: requiring prior authorization for the activity (Art. 6); making an environmental impact assessment (Art. 7); notifying states likely to be affected (Art. 8); and enter into consultations with those states (Art. 9).

[317] See ILC Commentaries, *supra* note 312 at 388.

causing significant transboundary harm, or a low probability of causing disastrous transboundary harm (e.g. nuclear disaster).[318]

The relevance of the principle of state responsibility to the treaties dealing with hazardous substances lies in the fact that states could be violating this rule when exporting hazardous chemicals or wastes if significant harm were likely to occur. Given conditions of use in the South, one could contend that significant harm is precisely what should be expected whenever a substance that a developed country has banned or severely restricted for environmental or health reasons is exported to a developing country. This is because if the substance is considered too hazardous to be used in an industrialised country, with ample resources and capacity to manage this type of materials, it will in all probability present equal or greater problems in the importing state, with less capacity to manage it safely. The export of hazardous chemicals and wastes to the South could thus be violating the obligation upon states to take all practicable steps to prevent significant transboundary harm.

The application of this rule to the issue of trade in hazardous chemicals and wastes resides also in the fact that the preambles of the Basel, Rotterdam and Stockholm conventions include it either implicitly or explicitly it in their preambles. The Basel Convention on hazardous wastes (adopted prior to the adoption of the Rio Declaration, which reiterates principle 21 of the Stockholm Declaration in principle 2) not only recognises the application of the Stockholm Declaration but also affirms that "States are responsible for the fulfilment of their international obligations concerning the protection of human health and protection and preservation of the environment, and are liable in accordance with international law." The Stockholm Convention on persistent organic pollutants quotes the principle in full length, as formulated in the Stockholm and Rio Declarations. Lastly, the Rotterdam Convention recalls the "pertinent provisions of the Rio Declaration," while the London Guidelines for the Exchange of Information on Chemicals in International Trade, on which the treaty was based, explicitly include principle 21 of the Stockholm Declaration in the list of general principles to be applied (Art. 2):

> "In their activities with regard to chemicals, States should act, in so far as applicable, in accordance with principle 21 of the Declaration of the United Nations Conference on the Human Environment" [i.e., the 1972 Stockholm Declaration].

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[318] See ILC Draft Articles, *supra* note 310 Art 2(a) and *Ibid.* at 381.

3.4.2. The principle of international environmental equity

The principle of environmental equity dictates the necessity of taking steps to ensure that the rich and powerful do not insulate themselves from environmental harm by displacing problems on to the poor and the weak.[319] It refers to distributive justice, to the fairness or rightness of distributing benefits and burdens within communities.[320] As argued by the environmental justice movement in the U.S. and parallel movements in other countries, minority communities and socially disadvantaged persons are often burdened disproportionately by environmental hazards such as toxic waste dumps and pesticide exposure, and a similar pattern of uneven exposure to environmental hazards is apparent worldwide.[321] Internationally, therefore, the principle of environmental equity refers to matters such as the export of hazardous wastes and pesticides from developed to developing countries.[322]

International equity was at the core of the debate at the Earth Summit, where world leaders discussed how to allocate future responsibilities for environmental protection among states at different levels of development, with different levels of contribution to particular problems, and with different environmental and developmental needs and priorities.[323] This does not mean, however, that there is only one definition of the principle. Just as domestic society has competing definitions of what is fair and equitable, dissimilar and even conflicting views of equity are possible internationally. However, a characterisation that captures most of the interpretations used in the international context defines international environmental equity as "a fair and just distribution among countries of benefits, burdens, and decision-making authority that is associated with international environmental relations"[324]. Paul Harris describes six versions of international environmental equity that have been present in environmental negotiations.

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[319] See Oran R. Young, "Environmental Ethics in International Society," in Jean-Marc Coicaud & Daniel Warner, eds., *Ethics and International Affairs: Extents and Limits* (Tokyo; New York: United Nations University Press, 2001) at 167.

[320] See Paul G. Harris, *International Equity and Global Environmental Politics: Powers and Principles in U.S. Foreign Policy* (Aldershot: Ashgate, 2001) at 27-28.

[321] See Steven S. Coughlin, "Environmental justice: the role of epidemiology in protecting unempowered communities from environmental hazards" (1996) 184:1-2 The Science of the Total Environment 67 at 67-69, and Marianne Lavelle & Marcia A. Coyle, "Unequal Protection: The Racial Divide in Environmental Law," in Richard Hofrichter, ed., *Toxic Struggles. The Theory and Practice of Environmental Justice* (Philadelphia: New Society Publishers, 1993) at 136-143.

[322] For example, chemicals banned or restricted in the U.S. such as DDT and paraquat are widely used in Central America and other less developed areas of the world. See Coughlin, *Ibid.* at 70.

[323] See Philippe Sands "International Law in the Field of Sustainable Development. Emerging Legal Principles," in Winfried Lang, ed., *Sustainable Development and International Law* (London; Boston: Graham & Trotman/M. Nijhoff, 1995) at 60.

[324] See Harris P., *supra* note 320 at 25-27.

The next section elaborates on four of these versions, as they apply to the issue of transfer of hazardous chemicals and wastes. They are promoting human rights; treating others as ends (Kantian ethics); maximizing human happiness (utilitarianism) and righting past wrongs (common but differentiated responsibilities). While the first two indicate that states have a duty not to export harmful chemicals and wastes to other countries (especially if they are more vulnerable and have very limited capacity to manage them safely), the last two suggest that industrialised countries have an obligation of *at least* a moral nature to finance part of the safe management of hazardous chemicals and wastes in the South.

3.4.2.1. Promoting human rights

According to the human rights approach, individuals have inherent rights simply because they are human beings. At the very least, individuals need to have their security and subsistence rights (however defined) protected, for without those rights all others cannot be fulfilled. Thus, when human-induced pollution denies communities the capacity to achieve those rights, states –as the most important duty-bearers by virtue of their capacities- should actively try to stop polluting activities from within their jurisdictions or which are under their control.[325] In a thorough analysis of the link between the export of banned pesticides and human rights law, Beth Gammie argues that the export of banned, unregistered, and restricted use pesticides may violate the rights to life (the most fundamental of human rights, since it is essential for the enjoyment of all other rights), health (which pertains to the right to conditions necessary for good health to occur, and is essential for enjoyment of the right to life),[326] and family or reproduction (i.e. the right to conceive and bear children, which could be affected by pesticides that sterilise men or women). Along these lines, the dumping of hazardous wastes that results in the deaths or poisoning of people implicates, respectively, their right to life and to health.[327] Similarly,

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[325] This is consistent with the principle of state responsibility transboundary harm, and with Principle 14 of the Rio Declaration (*supra* note 341). See last section of Kantian ethics in this chapter and Harris, *Ibid.* at 32-33.

[326] See *International Covenant on Economic, Social and Cultural Rights,* 16 December 1966, 993 U.N.T.S. 3 (entered into force 3 January 1976), Art. 12, online: <http://193.194.138.190/html/menu3/b/a_cescr.htm>.

[327] See UN, *Vienna Declaration and Programme of Action*, UN Doc. A/CONF.157/23 (1993), adopted by the World Conference on Human Rights on 25 June 1993, which explicitly recognises that "illicit dumping of toxic and dangerous substances and waste potentially constitutes a serious threat to the human rights to life and health of everyone." (Art. 11), online: <http://www.unhchr.ch/huridocda/huridoca.nsf/(Symbol)/A.CONF.157.23.En?OpenDocument>. In 1995, the UN Economic and Social Council called for appointment of a special rapporteur to study and report on the issue (Decision 1995/288). In her 2001 report, the Rapporteur noted that both the Rotterdam and Stockholm conventions "contain lacunae which prevent effective action to combat clandestine transfers... [which] themselves may open the way to the "legal" transfer of products which may prove dangerous for humans and the environment and which must accordingly be considered to constitute unlawful transfers in the context of human-rights and environmental standards." The term 'illegal,' thus, refers to a transfer of toxic or dangerous

the export of pesticides banned in the exporting country violates the right to life of people in the importing country if those people die from acute poisoning or terminal diseases induced by those substances, or if the pesticides eliminate survival requirements, such as clean water and food supplies.[328]

In addition to the rights to life, health and family, there is considerable international support for the right to a healthy environment in the context of human rights law. This is evidenced by the practice of states, and by declarations, resolutions and other official acts of organs of the United Nations, and research by international legal scholars. The human right to a healthy environment is explicitly recognised in art 11 of the Protocol of San Salvador, additional to the American Convention on Human Rights, and it has been incorporated in several environmental agreements and in a variety of draft international legal principles and instruments.[329] It has also been included in the national constitutions of more than 60 countries, and in the constitution of several States within the United States.[330] As argued by Maggio and Lynch, all these instruments suggest the existence of a normative, if not legal, right to the environment, which despite its stylistic variations has an identifiable core: each person has a right to an environment that supports his/her physical and spiritual well-being and development which would proscribe, amongst others, "the dumping of toxic wastes in areas inhabited and utilized by local populations."[331]

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substances that violate human rights in the recipient country, regardless of whether they are legally "permitted" (e.g. under a treaty). The Commission adopted a resolution (Res. 2002/27), where, *inter alia*: it affirmed that the illicit movement and dumping of toxic and dangerous wastes and products are a serious threat to the rights to life and physical health, particularly in developing countries that do not have the technologies to process them; it urged all governments to ban the export of toxic and dangerous products, substances, chemicals, pesticides and persistent organic pollutants that are banned or severely restricted in their own countries; and it invited the Rapporteur to include in her next report "the ambiguities in international instruments that allow illegal movement and dumping of toxic and dangerous products and wastes, and any gaps in the effectiveness of the international regulatory mechanisms." See UN ESC, Commission on Human Rights, 58th session, Economic Social and Cultural Rights, *Adverse effects of the illicit movement and dumping of toxic and dangerous products and wastes on the enjoyment of human rights*, Report by Ms. Fatma-Zohra Ouhachi-Vesely, Special Rapporteur on toxic wastes, UN doc. E/CN.4/2002/61 (21 January 2002).

[328] For a detailed analysis of the status and scope of these rights see Beth Gammie, "Human Rights Implications of the Export of Banned Pesticides" (1994) 25 Seton Hall L. Rev. 558.

[329] See, for example, the 1989 Hague Declaration, the 1994 Final Report on Human Rights and the Environment of the Commission on Human Rights Sub-commission on Prevention of Discrimination and Protection of Minorities ("Ksentini Report"), the 1986 draft legal principles of the Experts Group of the World Commission on Environment and Development, UNEP's 1993 Proposal for a Basic Law on Environmental Protection and the Promotion of Sustainable Development, Article 24 of the African Charter of Human and Peoples' Rights, and the International Union for the Conservation of Nature and Natural Resources (IUCN) draft International Covenant on Environment and Development. In Greg Maggio & Owen J. Lynch, "Human Rights, Environment, and Economic Development: Existing and Emerging Standards in International Law and Global Society," Center for Int'l Envtl. L. (15 November 1997), online: <http://www.ciel.org/Publications/olpaper3.html> and Neil A.F. Popovic, "In Pursuit of Environmental Human Rights: Commentary on the Draft Declaration of Principles on Human Rights and the Environment" (1996) 27 Colum. H.R.L. Rev. 487 at 505-506.

[330] See Popovic, *Ibid.* at 505-509.

[331] See Maggio & Lynch, *supra* note 329.

The difficulty of the human rights approach is that it is not always easy to calculate who caused how much pollution and to what extent it affected whose essential rights.[332] In the case of trade in hazardous chemicals and wastes, however, it might be possible to identify those elements. Furthermore, the solution might be as simple as to prohibit the export of hazardous waste or of banned or unregistered pesticides to countries where people are unable to manage them safely and in consequence will likely get poisoned with them.

3.4.2.2. Treating others as ends: Kant's Categorical Imperative

This view of equity responds to Immanuel Kant's *Categorical Imperative*, a guide for action that requires us not to treat others as a means to our own ends, but as ends in themselves.[333] We use others as mere means if we act on maxims that they *could not* consent as rational and free agents (or *moral* agents), or if we act on maxims that we could not want at the same time to be *universal* laws –that is, laws that any other moral agent could adopt.[334] Kantian maxims are useful to test the moral rightness of exporting hazardous chemicals and wastes. The export of hazardous chemicals that are domestically banned to other countries could arguably reflect the following maxim: "People shall export chemicals that are banned domestically for health and environmental reasons to other countries." This maxim could not be wished to be a universal law for two reasons: first, its universalisation would imply that everyone seeks to export its own hazardous chemicals, instead of importing them: therefore, no one would be able to export them as dictated by the rule, which would become *unfeasible*. Secondly, seeking to protect one's own health from certain substances by giving them to others entails using them as means, since it would impede that they protect themselves by acting the way we do –that is, by not using those substances. From both perspectives, therefore, the export of hazardous substances is morally unacceptable.

Although there has been no explicit international recognition of this version of equity, one could argue that it is reflected in statements rejecting double standards, such as the declaration by a developing country during the Rotterdam negotiations that "an exporting country that has banned or severely restricted a chemical should not have the moral right

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[332] See Harris P., *supra* note 320 at 32-33.

[333] Since Kantian principles apply whenever there is interaction between actors, they can be used to assess obligations of people in different countries toward one another. See *Ibid.* at 33.

[334] For a detailed analysis of Kant's categorical imperative see Onora O'Neill, *Constructions of Reason. Explorations of Kant's Practical Philosophy* (Cambridge [England]; New York: Cambridge University Press, 1989) at 131-140.

to sell it to others,"[335] or the view defended by most developing countries at the Basel negotiations that waste exports from rich to poor countries was simply an unjust practice and should be banned.[336] In addition, Principle 14 of the Rio Declaration (signed by more than 170 states at the Earth Summit or UNCED),[337] declares that "States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health." Although this rule does not explicitly condemn double standards, it is consistent with the duty to treat others as ends, and with the human rights approach (most notably the human right to health).

3.4.2.3. Maximizing human happiness

Utilitarianism dictates that any distribution of resources should be justified based on the total amount of happiness (or utility) it produces, measured by the aggregation of the happiness experienced by individuals (not only citizens of a particular State, but humankind).[338] Two main charges have been raised against this theory: first, it might require imposing great harm on a few in order to confer a small benefit to many; and second, it provides no method for comparing levels of satisfaction between different individuals to measure utility.[339] The first argument might lose its relevance in the context of potentially severe global environmental damage, where some suffering (e.g. changing wasteful cultural practices) imposed on a few could be seen as fair if it is needed to save the planet on which we all depend. Similarly, the fact that utility cannot be easily measured does not exclude the possibility of seeing sustainable development as utility. From this perspective, wealthy countries should aid poor countries to achieve sustainable development because that would reduce human suffering (and thus increase overall 'utility') and diminish environmental destruction, which could minimize happiness in the future.[340]

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[335] Statement made by the delegation of Panama. See "Report of the Third Session of the Intergovernmental Negotiating Committee for an International Legally Binding Instrument for the Application of the PIC Procedure for Certain Hazardous Chemicals and Pesticides in International Trade" *Earth Negotiations Bulletin* 15:2 (2 June 1997) [hereinafter ENB Report INC-3 PIC] at 7, online: <http://www.iisd.ca/linkages/download/pdf/enb1502e.pdf>.

[336] See Clapp, "Toxic Exports," *supra* note 8 at 40.

[337] United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, June 3-14, 1992. Also known as the "Rio Summit" or the "Earth Summit" [hereinafter UNCED].

[338] Classical utilitarians such as Jeremy Bentham believed that people are simultaneously citizens of their own nations and of the world, with duties to the humankind in general. See Harris P., *supra* note 320 at 30.

[339] See H. Peyton Young, *Equity in Theory and Practice* (Princeton, N.J.: Princeton University Press, 1994) at 10.

[340] See Harris P., *supra* note 320 at 30-31.

At UNCED, the North acknowledged that it would have to make some sacrifices to achieve environmental sustainability. This is reflected, for instance, in its vow to "reduce and eliminate unsustainable consumption and production patterns."[341] International equity as utilitarianism was also invoked when developed countries made a commitment to reach the target of 0.7% of their GNP to official development aid (ODA) for implementing Agenda 21 in the South because it would "serve the common interests of developed and developing countries and of humankind in general, including future generations."[342] Consequently, each chapter of Agenda 21 (the global plan for action agreed upon at UNCED)[343] specified the annual costs of implementation, and it was agreed that some twenty percent of the total costs of implementing the agenda in developing countries would have to come from the international community, namely the North.[344] As Agenda 21 contains a chapter on hazardous chemicals and another one on hazardous wastes, one could reasonably argue that the North has accepted a duty to partly finance the environmentally sound management of hazardous chemicals and wastes in the South.[345]

3.4.2.4. Common but differentiated responsibilities

This rule evolved from the principle of environmental equity and from the recognition that the special needs of developing countries must be taken into account in the development, application and interpretation of rules of international environmental law.[346] As formulated in the Rio Declaration, the norm reads as follows:

> "States shall co-operate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have **common but differentiated responsibilities**. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command"[347] (emphasis added)

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[341] See *Rio Declaration on Environment and Development,* 14 June 1992, U.N. doc. A/CONF.151/26/Rev.1 (Vol. I) Annex I, [Hereinafter Rio Declaration], Principle 8, online: <http://www.unep.org/Documents/Default.asp?DocumentID=78&ArticleID=1163>.

[342] See *Agenda 21,* 14 June 1992, U.N. doc. A/CONF.151/26/Rev.1 (Vol. I) Annex II [Hereinafter Agenda 21], Chapter 33, para. 3, online: <http://www.unep.org/Documents/Default.asp?DocumentID=52>.

[343] See *supra* note 337. Agenda 21 is a comprehensive plan of action to be taken globally, nationally and locally by organizations of the U.N. system, governments, and major groups in several areas in which humans have an impact on the environment. More information online: <http://www.un.org/esa/sustdev/documents/agenda21/index.htm>.

[344] See Richard N. Gardner, *Negotiating Survival. Four Priorities After Rio* (New York; Council on Foreign Relations Press, 1992) at 26, and Agenda 21, *supra* note 342 Chapter 33 para. 18.

[345] See Agenda 21, *Ibid.* Chapter 19 (chemicals) para. 18 and Chapter 20 (wastes) para. 25.

[346] See Sands, "Principles of IEL," *supra* note 311 at 217-218, and Young O., *supra* note 319 at 168-169.

[347] See Rio Declaration, *supra* note 341, Principle 7.

Two ideas are integrated in this principle. The first one is that all states are affected by global environmental problems and therefore have shared obligations towards the protection and restoration of the environment. The second is that the situation of individual countries differs markedly, both in relation to the contribution to the problem and to the economic and technical capacity to confront it.[348] Consequently, different obligations and duties may apply. As pointed out by Philippe Sands, the differentiated responsibility of states for the protection of the environment is widely accepted in treaty and other practice of states,[349] which suggests that there is a general sense of obligation in relation to this rule. Examples of this are principle 23 of the Stockholm Declaration,[350] principles 2 and 6 of the Rio Declaration,[351] and numerous global treaties that identify the necessity of taking into account the special needs of developing countries.[352] Furthermore, the rule was explicitly included in the United Nations Framework Convention on Climate Change (1992), and in the Stockholm Convention on Persistent Organic Pollutants (2001).

However, as stressed by Karin Mickelson, the principle of common but differentiated responsibilities can reflect totally different views of the respective roles of South and North in addressing environmental degradation. On one hand, it can reflect a pragmatic acceptance of different financial and technological realities amongst countries in different economic situations, and of the fact that the North currently puts a heavier burden on the environment (as a result of the impact of a higher per capita consumption and pollution

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[348] See Young O., *supra* note 319 at 68-169.

[349] See Sands, "Principles of IEL," *supra* note at 219.

[350] According to this principle 'the applicability of standards which are valid for the most advanced countries... may be inappropriate and of unwarranted social cost for developing countries'. See Rio Declaration, *supra* note 341 Principle 3.

[351] Principle 2 states that "environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply." Principle 6 stresses the need to take into account the special situation of developing countries, particularly the least developed among them. See Rio Declaration, *supra* note 341 Principles 2 and 6.

[352] See, for example, *United Nations Convention on the Law of the Sea*, 10 December 1982, 21 I.L.M. 1261 (entered into force 16 November 1994), Arts. 148, 202 and 203, online: <http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf>; *International Tropical Timber Agreement*, 26 January 1994, 33 I.L.M. 1014 (entered into force 1 January 1997) Pmbl. para. 7, online: <http://sedac.ciesin.org/pidb/texts/ITTA.1994.txt.html>; *Convention on Biological Diversity*, 5 June 1992, 31 I.L.M. 818 (entered into force 29 December 1993) Pmbl. para. 17 and Arts. 12, 17, 20 and 21, online: <http://www.biodiv.org/convention/articles.asp>; *Vienna Convention for the Protection of the ozone Layer*, 22 March 1985, 26 I.L.M. 1516 (entered into force 22 September 1988), Pmbl. para. 3 and Art. 4(2), online: <http://www.unep.ch/ozone/vienna.shtml> and its *Montreal Protocol on Substances That Deplete the Ozone Layer*, 16 September 1987, 26 I.L.M. 1541 (entered into force 1 January 1989) [hereinafter Montreal Protocol], Pmbl. para. 7 and Arts. 5, 10 and 10A, online: <http://www.unep.ch/ozone/montreal.shtml>, *U.N. Framework Convention on Climate Change*, 9 May June 1992, 31 I.L.M. 849 (entered into force 21 March 1994) [hereinafter UNFCCC], Pmbl. para. 6, 10, 20, 21 and 22, and Arts. 3(1), (2) and (5), 4(3), (7), (8), (9) and (10), online: <http://unfccc.int/resource/docs/convkp/conveng.pdf>; and *Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa*, 17 June 1994, 33 I.L.M. 1328 (entered into force 26 December 1996), Pmbl para. 18 and Arts. 3(d), 4(3) and 6(b), (c) and (e), online: <http://www.unccd.int/convention/text/pdf/conv-eng.pdf>.

generation); on the other, it can indicate a recognition of the historic, moral and even legal responsibility of the North to shoulder the burdens of environmental protection, just as it enjoyed the benefits of economic and industrial development largely unconstrained by environmental concerns.[353] At UNCED, that was precisely the discussion between the North and the South: while the latter considered the text of principle 7 inadequate insofar as it did not directly blame developed countries for the current environmental problems, the former objected to the language that described its special role. The most radical interpretation was articulated by the U.S. delegation, which did not even accept a special responsibility upon developed countries given the *current* pressure they put on the environment: "the United States understands and accepts that Principle 7 highlights the special leadership role of the developed countries, based on our industrial development, our experience with environmental protection policies and actions, and our wealth, technical expertise and capacities."[354]

The United States' strong opposition to a special duty to burden a larger share for the protection of the environment cannot be extended, however, to all industrialised countries. At UNCED, many industrialised states understood the commitment to provide additional funds for developing countries to carry out their obligations under Agenda 21 as a consequence of their special responsibility towards the South, and not only as a necessary step to achieve overall sustainable development.[355] The President of the Commission of the European Community, for example, stressed the need for "most industrialized countries [to] recognize that they have *special responsibilities* towards the developing countries," hoping that UNCED would be the starting point towards a "more *equitable* world."[356] Luxembourg acknowledged the "specific *responsibility* [of industrialized countries] for *damage to the* human and natural *environment;*"[357] The Holy See qualified the gap between the North and the South as "unacceptable and *unjust,*" and stated that "it should be considered quite normal for an advanced country to devote a part of its production to meet the needs of the developing nations."[358] Consequently, industrialised states "reaffirm[ed] their commitments to meet the accepted United

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[353] See Karin Mickelson, "South, North, International Environmental Law and International Environmental Lawyers," (2000) 11 Y.B. Int'l Envtl. L. 52 at 70.
[354] See Ved P. Nanda, *International Environmental Law and Policy* (Irvington, N.Y.: Transnational Publishers, 1995) at 107-108.
[355] Agenda 21 is a comprehensive plan of action for sustainable development, adopted by some 178 Governments at United Nations Convention on Environment and Development (UNCED).
[356] See *Statements Made By Heads of State or Government at the Summit Segment of the Conference*, Rio de Janeiro, 3-14 June 1992, U.N. doc. A/CONF.151/26/Rev.1 (Vol. III) at 218. (Emphasis added.)
[357] *Ibid.* at 246. (Emphasis added).
[358] *Ibid.* at 197. (Emphasis added.)

Nations target of 0.7 per cent of GNP for ODA and ... agree[d] to augment their aid programs in order to reach that target as soon as possible and to ensure prompt and effective implementation of Agenda 21."[359] Nearly all countries, including Japan and the members of the European Community, understood this provision as a duty to provide new and additional ODA, and they all rejected the U.S. interpretation that any increased ODA for sustainable development would have to come from a reduction of ODA for other purposes.[360] Nevertheless, contributions by most developed states have been very disappointing, and only a few developed states have attained or surpassed the 0.7% target. In 2000, the combined effort of industrialised countries was the same of 1989: a mere 0.32%.[361] This highlights the magnitude of the gap between the ideal and the real in the field of the environment but, as noted by Oran Young, it does not call into question the validity of the principle of common but differentiated responsibilities.[362]

Some contend, however, that there is absolutely no obligation by the North to provide part of the funds and technology that are required for sustainable development in the South. Richard Gardner,[363] for instance, argues that Southern demands such as a 'Green Fund' for sustainable development reveal a philosophy of "one-way sovereignty, according to which the poor countries would have the right to share in the wealth and technology of the rich, but should not be asked to undertake any commitments whatsoever with respect to the management of their own affairs."[364] According to this view, special provisions for the South would not be a matter of equity but of mere convenience: since populous Southern such as India or China could offset the efforts of the North to improve the environment, the North would need to secure their participation in various treaties by providing them with financial and technical resources to implement their commitments and, at least for an initial period, with less stringent obligations.[365]

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[359] See Agenda 21, *supra* note 342 Chapter 33 para. 13. This commitment is *at least* of moral nature.

[360] See Gardner, *supra* note 344 at 24-26.

[361] In 2001, only Denmark, Luxembourg, the Netherlands, Norway and Sweden complied with the 0.7% target, and only Denmark (with 1.03%) attained the goal of 1% proposed by the Brandt Commission in 1980. Meanwhile, the U.K. contributed 0.32% of its GNP, Japan 0.28%, and the U.S 0.11% (less than in 1989, when it contributed 0.15%.) See Middleton *et al.*, *supra* note 220 at 14 (for 1989 data) and OECD, *Net Official Development Assistance Flows from DAC Countries to Developing Countries and Multilateral Organisations* (from 1985 to 2001), online: <http://www.oecd.org/dataoecd/43/26/1894401.xls>.

[362] See Young O., *supra* note 319 at 70.

[363] Richard Gardner, former U.S. Ambassador to Italy and Deputy Assistant Secretary of State for International Organization Affairs was as a Special Advisor to the UN at the Earth Summit in 1992, as he was in 1972 at the Stockholm Conference on Human Environment.

[364] See Gardner, *supra* note 344 at 7.

[365] See *Ibid.* at 34-35.

International environmental relations reveal that this view is at best simplistic, as morality has played a significant role in the negotiation and outcome of many multilateral agreements. A representative example is the ozone regime. Under the Montreal Protocol, developing countries were given a ten-year grace period to comply with their obligations, and a multilateral fund was created to assist them in meeting the incremental costs of implementing the control measures of the treaty.[366] As Richard Benedick (chief negotiator for the U.S.) explains, these concessions responded to irrefutable facts. At the moment of the Protocol's negotiation, and with less than 25% of the world's population, industrialised nations were consuming an estimated 88% of Chlorofluorocarbons (CFCs –main ozone depleting substance).[367] The use of CFCs had for decades contributed to the well-being of industrialised countries, and the problem was largely of their making. Thus, they were in no position to deny the moral grounds of the concerns expressed by Southern delegations, which sought assurances that their populations would not be deprived of the benefits of the controlled substances, and that they would not have to assume the additional costs of alternative products and technologies.[368]

Although participation of populous developing countries was crucial to achieve global progress and special provisions were conceded partly because of that,[369] moral considerations played an important role in the debate. During the second meeting of the parties to the Montreal Protocol,[370] the Prime Minister of the United Kingdom stressed that developing countries had "understandable concerns about adverse effects on their economic growth," and that it was "the *duty* of industrialized countries to help them with substitute technologies and with financing the additional costs involved."[371] Likewise, the Executive Director of the UNEP noted that the ozone regime would "show that the nations of the industrialized North were serious about *tackling the inequity* in the global economy, which was the underlying reason for the destruction of the human environment."[372] The

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[366] The treaty was adopted in 1987 within the framework of the 1985 Vienna Convention for the Protection of the Ozone Layer (see *supra* note 352). The term incremental cost is defined as "the additional cost that the GEF funds between the cost of an alternative project that a country would have implemented in the absence of global environmental concerns and a project undertaken with global objectives in mind." Global Environment Facility, Glossary, online <http://www.gefweb.org/gefgloss.doc> (last visited 24 August 2003).

[367] In China, for example, the per capita consumption was about one-fortieth (1/40) than that of the European Community and the United States. See Richard E. Benedick, *Ozone Diplomacy. New Directions in Safeguarding the Planet* (Cambridge, Mass.: Harvard University Press, 1991) at 149.

[368] See *Ibid.* at 148-149 and 153.

[369] Gary C. Bryner "Implementing Global Environmental Agreements in the Developing World," (1997) Colo. J. Int'l. Envtl. L & Pol'y Y.B. 1 at 3.

[370] It was in the second meeting of the parties where the multilateral fund was created, through the London Amendment.

[371] UNEP, *Report of the Second Meeting of the Parties to the Montreal Protocol*, doc. UNEP/OzL.Pro.2/3, London (29 June 1990) at 2 para. 6 (Emphasis added).

[372] *Ibid.*, at 6 para. 18 (Emphasis added).

United States agreed to the Multilateral Fund, but it had a very restrictive interpretation of the term 'additionality,' arguing that a reassessment of projects and priorities in the World Bank lending programs could come up with the sums initially required for an ozone fund. Domestic reaction was immediate and critical to the U.S. announcement, and doubts were expressed about its reliability as a negotiating partner.[373] This evidences the importance of morality -both internationally and domestically- in international environmental politics. As expressed by the U.S. chief negotiator "the administration had evidently misgauged the intensity of international feeling over this issue: developing countries as well as other donor governments all regarded aid additionality in the case of the ozone layer as a matter of *equity*."[374]

Equity considerations were also at the core of the climate change negotiations. After much controversy, parties agreed to include the principle of common but differentiated responsibilities in the Framework Convention on Climate Change, which declares that states have different responsibilities towards the problem of global warming, given different *historical* contributions and capabilities for addressing it.[375] Developing countries generally maintained that since developed countries were largely responsible for climate change, it was their responsibility to take measures for a solution. Yet, they were prepared to accept commitments if such measures were conditional upon 'new and additional' financial resources to cover the full incremental costs of implementing them. With the exception of the US, developed countries generally accepted the need to provide additional funds to the South. However, with a few exceptions (e.g. Norway), they avoided specific commitments to the net increase of financial flows.[376] As a result, the convention collapsed into placing basically no obligations –even conditional on external funding- upon developing countries.[377] Nevertheless, equity provisions are spread throughout the treaty.[378]

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[373] See Benedick, *supra* note 367 at 158.
[374] See *Ibid.* at 161. (Emphasis added).
[375] See Matthew Paterson, *Global Warming and Global Politics* (London; New York: Routledge, 1996) at 74-76, and UNFCCC, *supra* note 352, Pmbl., paras. 3 and 6.
[376] See Dasgupta Chandrashekhar "The Climate Change Negotiations," in Irving Mintzer & Amber Leonard, eds., *Negotiation Climate Change: The Inside Story of the Rio Convention* (Cambridge; New York: Cambridge University Press, 1994) at 133-135.
[377] See Paterson, *supra* note 375 at 74-76.
[378] See UNFCCC, *supra* note 352 Pmbl. paras. 3, 6 and 22, and Arts. 3(2), 4(3), (5), and (7), 5(c), and 6(b)[ii].

3.4.3. Implications of the principles of state responsibility and environmental equity for the treaties dealing with hazardous chemicals and wastes

The full implementation of the principles of State responsibility for transboundary harm and international environmental equity would have at least two implications for the treaties dealing with hazardous chemicals and wastes, which refer to the two questions that were asked in the introduction to this section.[379] First, it would require that developed countries stop exporting hazardous substances they do not want to use themselves to the countries of the South, because by doing so they are violating their obligation to prevent significant transboundary harm, they are preventing developing countries from protecting their populations and environment, and they are affecting basic rights of the people in those countries. Second, it would require developed countries to provide financial resources, technical assistance and technology so that developing countries develop the capacity to manage hazardous chemicals (including the use of safer alternatives) and to dispose of their own hazardous waste in ways that protect human health and the environment.

The view that it is morally reprehensible to allow the transfer of hazardous substances from industrialised countries to the South was expressed, to different degrees, in the negotiations of the Basel, Rotterdam and Stockholm conventions. As noted before, the Basel negotiations were largely triggered by the moral indignation produced by scandals of hazardous wastes being dumped in the South in the 1970s and 1980s, and the issue of including a total ban on exports of hazardous waste from rich to poor countries was at the centre of the discussion from the very beginning. Although the ban was not initially included in the Basel Convention, it was unanimously adopted as an amendment to the treaty during the third Conference of the Parties (COP).[380] At COP 3, it was not only admitted that developed countries should not export their hazardous waste to the South, but that those with the capacity to do so should effectively contribute to the sustainable

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[379] That is, whether the export of hazardous chemicals and wastes by industrialised countries to the countries of the South is justified under international morality and law, and whether North-South disparities should be addressed for a kind of environmental protection that does not undermine human's basic needs or the South's sustainable development.

[380] Denmark endorsed it at COP1. Eastern and Central European countries, Nordic states and at a later stage the EU supported it at COP2. It was adopted by the parties at COP 3, as Decision III/1. (Previous decisions I/10 and II/12, which also included a ban, were rejected because they did not amend the treaty). Decision III/1 stipulates a full ban on all transboundary movements of hazardous wastes from Annex VII countries (OECD members, EU members and Liechtenstein) to non-Annex VII countries. It is immediate for wastes bound for final disposal and it was expected to take effect at the beginning of 1998 for wastes destined for recycling or recovery operations. See Puckett & Fogel *supra* note 215.

management of the hazardous waste generated in the South. Following the adoption of the amendment, Australia stated that the ban would strengthen the treaty and provide "greater protection to those countries vulnerable to unwanted hazardous wastes," and recognised that the ban is "by no means the answer to the problems vulnerable countries face –it does not deal with domestic disposal needs, waste minimization or capacity building. Nor does it address the *legitimate* developmental needs of developing countries. It is, in essence, a half measure –and it cannot work without the commitment of efforts and resources ... we will not shirk that *responsibility*."[381]

In contrast, no big scandals preceded the Rotterdam negotiations, and the issue of eliminating export double standards was practically left out of the discussion when negotiators decided to limit their mandate to converting a voluntary system of information exchange and prior consent into a legally binding treaty.[382] Consequently, the claim by a developing country delegation that an exporting country that has banned or severely restricted a chemical should not have the moral right to sell it to others[383] did not encourage negotiators to proscribe those exports, or to further discuss the issue. As for the Stockholm negotiations, while two delegations claimed that industrialised countries should stop exporting POPs to developing countries, it was stressed that an exception was needed in the case of DDT, used in the South to fight malaria.[384] Although the treaty did not go as far as banning all exports, it was determined that POPs would be exported only for environmentally sound disposal or for permitted uses by the importing party.[385]

The general recognition of the principle that developed countries should contribute to the safe management of hazardous substances in developing countries is less controversial than that of eliminating double standards. Although the Basel, Rotterdam and Stockholm conventions offer different responses to the needs of developing countries, they all include the idea of differentiated responsibilities and capacities in their preambles: besides quoting the principle of common but differentiated responsibilities as formulated

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[381] Statement made by Australia following the Adoption of the Amendment by Consensus in September 1995. See UNEP, *Report of the Third Meeting of the COP to the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal*, Geneva (18-22 September 1995) Doc. UNEP/CWH.3/34 (Emphasis added).

[382] For a survey of the Rotterdam negotiations see section 4.3. in Chapter 4.

[383] Statement made by the delegation of Panama. See ENB Report INC-3 PIC, *supra* note 335 at 7.

[384] See "Report of the Third Session of the INC for an International Legally Binding Instrument for Implementing International Action on certain POPs" *Earth Negotiations Bulletin* 15:27 (13 September 1999) at 3-4, online: <http://www.iisd.ca/linkages/download/pdf/enb1527e.pdf>.

[385] See Stockholm Convention, *supra* note 13 Articles 3(2)[a] and 3(2)[b].

in the Rio Declaration (par. 13) the Stockholm Convention recognises the special needs of developing countries (par. 11). Likewise, the Basel Convention acknowledges the limited capabilities of developing countries to manage hazardous wastes and the need of transferring technology to the South (par. 20 and 21), and so does the Rotterdam Convention, which acknowledges the special needs of developing countries and the need to strengthen their capacity for the management of chemicals, including transfer of technology and financial and technical assistance (par. 4). For that reason, it is not really a question of explicitly including the principle of common but differentiated responsibilities into the Basel and Rotterdam treaties as it is formulated in Stockholm, but of putting the rule into operation with concrete obligations to provide assistance to the South, and adequate mechanisms to finance such assistance.

Eliminating double standards, in contrast, can be problematic in practice. As explained earlier in this chapter, developing countries are not in a position to maintain a moral posture if that would prevent them from receiving substances they require to solve more pressing economic needs. Thus, while initially developing countries strongly advocated the adoption of a ban on the export of hazardous wastes from developed to developing countries, some of them have found that ratification is difficult because a ban would mean that part of their industry would not be able to import hazardous wastes that are used as raw materials.[386] In the case of hazardous chemicals and pesticides, there are two additional issues to consider. First, developing countries genuinely depend on chemical pesticides to sustain export agriculture and to combat vector-borne disease. Thus, unless affordable alternatives are available, the option of a ban on the import of certain hazardous pesticides is not really an option. This is why the promotion of safer alternatives such as integrated pest management techniques is of paramount importance. Second, as explained in Chapter 2, the elimination of double standards could create an incentive to increase production in the South by multinational corporations and by a few indigenous manufacturers. This emphasises the need to deal not only with the international trade of hazardous chemicals and pesticides, but also with the production of these substances.

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[386] This is the case, for instance, of Colombia. While the Colombian government fully supported the adoption of Decision III/1 at COP 3, ratification of the Basel ban amendment has proven more difficult. The Colombian government supported the adoption of Decision III/1. However, ratification of the ban requires a stricter analysis, as it would turn the ban into a legally binding provision. Thus, while in the process of considering ratification the Ministry of Environment continues to support the ban, the Ministry of Commerce has expressed its concerns in relation to the negative impacts of the ban on the national industries that depend on hazardous wastes, within the context of an economic crisis. Consequently, it has suggested that a study on the impacts of the ban be carried on *before* ratification is considered. Letter dated February 12, 2001 from the former Minister of Commerce, Mrs. Martha Lucía Ramírez, to the former Minister of Environment, Mr. Juan Mayr.

This chapter has endeavoured to put the Rotterdam Convention in context, so as to provide the necessary background to review the treaty. First, it looked at the conditions that have facilitated and promoted the transfer of hazardous chemicals and pesticides from developed to developing countries. Then, it looked at the problem from the perspective of international ethics, arguing that because of the conditions in which it takes place and because of the nature of the substances involved, the North-South transfer of hazardous chemicals and pesticides is ultimately an ethical question. Consequently, the chapter studied the moral and legal principles that are relevant to the issue of hazard transfer. Having considered these important antecedents, the purpose of next chapter is to evaluate the Rotterdam Convention in a critical manner.

Chapter Four

The Rotterdam Convention: A Modest Starting Point

4.1. Introduction

The main purpose of this thesis is to undertake a critical evaluation of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. Before embarking on that analysis, it was necessary to understand the nature of the problem, and to put it in context. This is what the two previous chapters have attempted to do. While Chapter 2 described the characteristics of the substances regulated by the convention and the reasons why the treaty was necessary, Chapter 3 set the stage in which the North-South transfer of hazardous chemicals takes place, considering the conditions that have facilitated and promoted that transfer.

This chapter reviews the Rotterdam Convention and the voluntary system that served as its base. First, it describes the FAO Code of Conduct and the UNEP London Guidelines, which were the initial international response to the North-South transfer of hazardous chemicals. These voluntary instruments launched a system of information exchange on hazardous chemicals. In 1989, they were amended to introduce the prior informed consent (PIC) procedure, so as to allow importing countries to communicate whether or not they would want to receive certain chemicals in the future. Because the Rotterdam Convention essentially reproduced the voluntary system, the PIC procedure is described in detail. Then, a survey of the Rotterdam Convention negotiations is presented. A brief description of the treaty's main provisions follows, taking into account the corresponding provisions of the voluntary PIC system. Lastly, the chapter considers whether the Rotterdam Convention improved the voluntary PIC system in any meaningful way. Considering the experience gained with the implementation of the voluntary procedure, the chapter concludes that no significant improvements were introduced and thus no substantial improvements are likely to occur. Furthermore, it argues that, even by its own standards (considering its objective) the Rotterdam Convention is fundamentally flawed. This is because it does not adequately address the lack of capacity of developing countries to effectively implement its provisions, and because it does not promote participation of all relevant players, which is one of the reasons why a binding convention on PIC was adopted.

4.2. The voluntary PIC system: the Code of Conduct and the London Guidelines

The global response to the international trade of hazardous chemicals started with the adoption of two voluntary instruments within the United Nations system: the International Code of Conduct on the Distribution and Use of Pesticides (hereinafter the Code of Conduct), adopted in 1985 by FAO, and the London Guidelines for the Exchange of Information on Chemicals in International Trade (hereinafter the London Guidelines), adopted in 1987 by UNEP.

Although the London Guidelines cover the broad category of hazardous chemicals (i.e. industrial chemicals and pesticides),[387] they were adopted primarily, like the Code of Conduct, to address pesticide-related problems. Pesticides were a main focus of concern since the mid-1970s, primarily for two reasons. First, there was moral outrage at evidence that pesticides banned in the North and exported to the South (mostly via multinational corporations) were contributing to fatalities and environmental degradation in developing countries. Second, developed countries had an interest in preventing those substances from returning to them as residues in imported food.[388] The adoption of the London Guidelines was possibly also connected to several chemical disasters that occurred in the 1970s and 1980s,[389] which increased international awareness of the necessity of improving chemical safety throughout the globe through, amongst other measures, information exchange.[390]

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[387] The London Guidelines apply to chemicals in international trade (e.g. pesticides, industrial chemicals), except pharmaceuticals, radioactive materials, food additives and others. See *London Guidelines for the Exchange of Information on Chemicals in International Trade*, UN Doc. UNEP/GC.15/9/Add.2/Supp. 3 and Corr.1, Appendix (as *amended* by UNEP Governing Council Decision 15/30, UN Doc. UNEP/GC. 15/12 (Annex II) (1989) [hereinafter London Guidelines], Art. 3, online: <http://www.pestlaw.com/x/international/UNEP-19890500A.html>.

[388] For the Code of Conduct see Peter Hough "Institutions for Controlling the Global Trade in Hazardous Chemicals: The 1998 Rotterdam Convention" (2000) 10:2 Global Environmental Change 161 at 161. [Hough, "Institutions for Controlling Global Trade"]. For both instruments see David G. Victor "Learning by Doing in the Nonbinding International Regime to Manage Trade in Hazardous Chemicals and Pesticides," in David G. Victor *et al.*, eds., *The Implementation and Effectiveness of International Environmental Commitments. Theory and Practice* (Laxenburg, Austria: International Institute for Applied Systems Analysis; Cambridge, Mass.: MIT Press, 1998) at 234.

[389] In 1976, an explosion occurred in Meda (Italy) at a chemical plant owned by a subsidiary of a Swiss company. A thick toxic cloud containing dioxin was released into the atmosphere. The accident was named after Seveso, one of the towns most seriously affected. In 1984, toxic gas escaped from a storage tank at the Union Carbide chemical plant in Bhopal (India), and leaked into the atmosphere. The disaster caused the direct death of over 1,600 people and injured more than 200,000. Two years later, in Basel (Switzerland), efforts to put out a fire at a chemical storage warehouse of Sandoz resulted in a huge discharge of toxic chemicals into the Rhine. The ecological disaster also affected France, Germany and the Netherlands. For details of these disasters see Gunter Handl & Robert E. Lutz, *Transferring Hazardous Technology and Substances. The International Legal Challenge* (London: Graham & Trotman, 1989) at 2-19.

[390] The London Guidelines seek to increase chemical safety in all countries through the exchange of scientific, technical, economic and legal information on potentially harmful chemicals in international trade. See Peter H. Sand, ed., *The Effectiveness of International Environmental Agreements. A Survey of Existing Legal Instruments* (Cambridge, Eng.: Grotius, 1992) at 326.

The problem of trade in hazardous substances was on UNEP's agenda since the mid-1970s, with environmental groups and developing countries seeking to highlight injustices in the world trading system. Much of the early discussion focused on the export of substances banned or severely restricted in the North to the less regulated markets of the South. In 1976, UNEP established the International Register for Potentially Toxic Chemicals (IRPTC), with the task of compiling and circulating information on chemical hazards.[391] In 1977, in response to a speech by the Kenyan government denouncing the 'dumping' of banned hazardous chemicals in developing countries, the Governing Council of UNEP adopted a resolution affirming the principle that such chemicals should not be "permitted to be exported without the knowledge and consent of appropriate authorities in the importing country."[392] In 1978, the UNEP Governing Council asked IRPTC (now UNEP Chemicals) to focus on giving information on limitations, bans and regulations enacted in exporting countries.

Developing countries pushed the same agenda in the UN General Assembly.[393] Every year, starting in 1979, the UN General Assembly adopted a stronger resolution advocating limits on exports of products banned or severely restricted in the North and greater information exchange on hazardous chemicals.[394] These efforts culminated in a resolution on "Protection Against Products Harmful to Health and the Environment," adopted in 1982 and based on a proposal by Venezuela.[395] The resolution asserted that products banned from domestic use and/or sale because of the risks they posed to health and the environment should be sold only when a request for such products was received from an importing country, or when the consumption of such products was officially permitted in the importing country. It also stated that "all countries that have severely restricted or have not approved the domestic consumption and/or sale of specific products, in particular pharmaceuticals and pesticides, should make available full information on these products with a view to safeguarding the health and environment of the importing

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[391] See Victor, *supra* note 388 at 231-232.
[392] See UNEP, GC, 5th session, Decision 85(V), UN Doc. A/32/25 (15 May 1977). In Mark Pallemaerts, "Developments in International Pesticide Regulation" (1988) 18:3 Environmental Policy and Law 62 at 65.
[393] See Victor, *supra* note 388 at 231-232.
[394] See *Ibid.* at 232.
[395] See Pallemaerts, *supra* note 392 at 65.

country."[396] Consequently, it provided for the creation of a consolidated list of products whose consumption and/or sale had been banned, withdrawn, or severely restricted.[397]

Faced with the political declarations in favour of the principle of prior consent at the UN, the major pesticide-exporting countries took the lead within the framework of the OECD (to which they were all members) in elaborating their own guidelines on information exchange as a strategy to prevent the development of more stringent regulations.[398] In response to the 1977 UNEP resolution, and at the initiative of the U.S. and Canada, the OECD set up in 1980 a special group to prepare guidelines on information exchange on the export of chemicals.[399] Four years later, the Council adopted a recommendation 'Concerning Information Exchange related to the Export of Banned or Severely Restricted Chemicals.' Reiterating the responsibility of OECD member countries to "safeguard and improve the quality of the environment, both nationally and in the global context,"[400] the recommendation invites member countries that have taken a control action to ban or severely restrict a chemical to make relevant information available to importing countries. However, it emphasizes that importing countries have "the primary responsibility for protection of health and the environment from risks associated with imports of chemicals which have been banned or severely restricted for use in exporting countries."[401] In addition, it is not required that the notification be prior to the export (although it is the recommendation's 'intention'), and it is specifically noted that the procedures of the exporting country "should not be such as to delay or control the export." [402]

As probably expected by exporting countries, the OECD recommendation (ready in draft since 1982) had a strong influence on the subsequent regulatory efforts of UNEP and the FAO. In 1982, UNEP decided to convene a group of experts to elaborate guidelines on

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[396] UNGA Res. 37/137 (1982), *Protection against products harmful to health and the environment*, UN Doc. A/37/51 (1982) at 112-113. The list was regarded with suspicion by many developed countries. The U.S., for example, opposed the very concept of a list, arguing that it was an unscientific "blacklist" detrimental to the legitimate interests of industry. See Pallemaerts, *supra* note 392 at 64.

[397] Including chemicals and pesticides (the resolution referred also to pharmaceuticals and other products). For further details see UNGA Res. 37/137 (1982), *Ibid.* Art. 3.

[398] See Pallemaerts, *supra* note 392 at 65.

[399] *Ibid.* The initial work of the OECD was focused on harmonising national legislation on hazardous chemicals (testing, pre-market data requisites, information exchange, etc) to facilitate trade in chemicals and elimionate trade barriers. See Victor, *supra* note 388 at 224-225 and Robert A. Wynman "Control of Toxic Substances: the Attempt to Harmonise the Notification Requirements of the U.S. TSCA and the EC Sixth Amendment," (1980) 20 Virginia J. of Int'l L. 417 at 417-458.

[400] OECD, Council, *Recommendation Concerning Information Exchange related to Export of Banned or Severely Restricted Chemicals*, 4 April 1984, C(84)37/Final, Pmbl. online: <http://webdomino1.oecd.org/horizontal/oecdacts.nsf/Display/64F5748FC50D6FFCC1256D8E006F4E01?OpenDocument>.

[401] See *Ibid.* Art. 1.

[402] See *Ibid.* Art. 5.

exchange of information on potentially harmful chemicals. At first, the group failed to agree on draft guidelines because while developing countries insisted on trade regulation, experts from pesticide-exporting countries rejected even the weakest form of export notification. In the end, a "Provisional Notification Scheme," proposed by Britain and largely modeled on the guiding principles contained in the OECD's recommendation, was adopted.[403] Under that scheme, the IRPTC would develop and manage a database of control actions, i.e. decisions by countries to ban or severely restrict a chemical, and circulate the data of these decisions to all UN members. Information exchange would supposedly increase awareness of controls on hazardous substances.[404] Shortly after the Provisional Scheme was adopted, UNEP reconvened the working group to create a more permanent system. This was achieved in 1987 with the adoption of the London Guidelines, which essentially replicated the provisional scheme and added some general commitments to promote the sound management of chemicals.[405]

Since pesticides were the main focus of attention, the issue of information exchange was also addressed by the FAO, the main UN organisation carrying out activities related to pesticides. Given its role in the food production system, the FAO had extensive experience implementing agricultural projects in developing countries and, after a decade of attracting criticism for promoting overconsumption of pesticides in the 1970s, it began implementing pesticides management programmes.[406] In 1985, the FAO adopted its International Code of Conduct on the Distribution and Use of Pesticides. Initial drafts of the Code included a provision on prior informed consent. However, the provision was finally removed from the Code, due to the pressure of industry and OECD countries, which did not officially request its deletion but insisted on the need of consistency between the standards adopted by the FAO and those recommended by other international organisations such as UNEP and the OECD. The efforts of the South to reinstate the PIC provision merely resulted in the deletion of the clause stating that "the procedures of the country of export should not be such as to delay or control the export," which had been copied from the OECD recommendation.[407]

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[403] See Pallamaerts *supra* note 392 at 65-66.

[404] See *Provisional Notification Scheme for Banned and Severely Restricted Chemicals*, UN Doc. UNEP/WG.96/5, Annex (1984), adopted by UNEP Governing Council Decision 12/14, UN Doc. UNEP/GC.12/19 (1984), Annex I.

[405] See Victor, *supra* note 388 at 232-233, and London Guidelines, *supra* note 387 Arts. 13, 14 and 15.

[406] See Victor, *Ibid.* at 231 and 234.

[407] See Hough, "Institutions for Controlling Global Trade," *supra* note 388 at 161-164, and Pallemaerts, *supra* note 392 at 65.

To summarise, neither the Code of Conduct nor the London Guidelines initially provided for a procedure giving importing countries the opportunity to prohibit future imports of certain hazardous chemicals and pesticides, and no prior consent by importing governments was required for the export to occur.[408] However, due to the insistence of developing countries and of a group of non-governmental organisations,[409] the PIC procedure was integrated into both instruments in 1989.[410] Chemical manufacturers (represented by GIFAP)[411] had strongly opposed PIC, but they came to accept it for fear of stronger alternatives such as a total ban on the export of certain hazardous chemicals.[412]

According to the PIC procedure, operated jointly by the FAO and UNEP,[413] governments should notify any control action banning or severely restricting a chemical for reasons of the environment or human health to the designated body of FAO or UNEP.[414] That body would in turn disseminate the information to the designated national authorities (DNAs) of other participating states,[415] so that they could assess the risks associated with the chemical and decide on its future importation. Circulating a compilation of notified control actions was intended to create awareness among competent authorities of the regulatory actions in other participating countries and of the reasoning behind those actions, and to serve as the primary way to identify chemicals for inclusion in the PIC procedure. Regarding the substances covered by PIC,[416] each participating country would inform the

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[408] Interestingly, PIC appeared in seven out of eight drafts of the Code of Conduct, but it was removed from the final draft when the instrument was adopted in 1985, apparently in the face of British and American persuasion. See Hough, *Ibid.* at 162.

[409] Notably, the group of 77 (the largest coalition of developing countries) and the NGOs Pesticides Action Network and Greenpeace. See *Ibid.* at 162, and Victor, *supra* note 388 at 235.

[410] PIC was included in the London Guidelines in May 1989 and in the Code of Conduct in November 1989. See Hough Peter, "Institutions for Controlling Global Trade," *supra* note 388 at 162.

[411] Groupement International des Associations de Fabricants de Produits Agrochimiques (GIFAP). In 1996, GIFAP became the Global Crop Protection Federation, and in 2000-2001 it evolved into Croplife International, which broadened its scope to include agricultural biotechnology. For more information visit their web site, online: <http://www.gcpf.org/website/pages/background.aspx>.

[412] The U.S., Germany and Britain were openly against the inclusion of PIC in the London Guidelines. See Hough, "Institutions for Controlling Global Trade," *supra* note 388 at 162.

[413] UNEP and FAO shared operational responsibility for the implementation of the PIC procedure and other common aspects. The Plant Protection Service of FAO was the lead office for pesticides, and the Chemicals Unit of UNEP was the lead office for industrial and consumer chemicals. See London Guidelines, *supra* note 387 Art. 5.2.

[414] The International Register of Potentially Toxic Chemicals (IRPTC) in the case of the London Guidelines (London Guidelines, *supra* note 387 Arts. 6 and 7) and the FAO in the case of the Code of Conduct (Code of Conduct, *supra* note 48 Art. 9).

[415] According to the London Guidelines and the Code of Conduct, each state had to designate one or more national authorities to perform the administrative functions related to information exchange and the PIC procedure. See Code of Conduct, *supra* note 48 Art. 9.9 and London Guidelines, *supra* note 387 Art. 5.4.

[416] Any substance banned or severely restricted by any single state through a final regulatory action would be subject to PIC, provided that the implementing body issued a decision guidance document ensuring conformity of the control action with the definitions of banned and severely restricted of the Code or the Guidelines.

implementing body whether or not it would accept future imports of a chemical, and exporters would have to respect that decision. For a better understanding of the voluntary system, a more detailed overview of the Code of Conduct and of the London Guidelines follows.

4.2.1. UNEP London Guidelines (as Amended in 1989)

The London Guidelines seek to enhance the sound management of chemicals through the exchange of scientific, technical, economic and legal information. To prevent overlaps with the Code of Conduct, the preamble refers to the Code as "the primary guidance for the management of pesticides internationally."

The Guidelines distinguish between three different measures: information exchange; export notification in the case of banned or severely restricted chemicals; and the PIC procedure, which is optional.[417] In relation to information exchange, states that have taken a control action to ban or severely restrict a chemical must notify the IRPTC,[418] which then disseminates the notifications to other participating countries to give them the opportunity to assess the risks associated with that chemical (Art. 6). To the extent practicable, the DNA issuing the notification should provide information concerning alternative measures, such as integrated pest management techniques, non-chemical alternatives and mitigation measures (art 6.d). If an export of a chemical that is domestically banned or severely restricted occurs, the State of export should ensure that steps are taken to provide the importing country's DNA with relevant information about the chemical to be exported or being exported (it does not need to be prior to the export) (Art. 8). Lastly, the PIC procedure gives participating countries the chance to record their decisions regarding future imports of banned or severely restricted chemicals in a formal way, and exporting countries should respect those decisions (Art. 7.1). According to Annex II, those chemicals banned or severely restricted by 10 or more states would automatically be subject to the procedure, while chemicals banned or severely restricted by 5 or more states would be submitted to informal consultation to determine if they met the definition of banned or severely restricted for human health or environmental

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However, the London Guidelines established that for the initial PIC list, a minimum number of five notifications would be required for a substance to be included in the list. See London Guidelines, *supra* note 387 Annex II.

[417] Countries may participate in the information exchange procedures without participating in the PIC procedure. However, all exporting countries are expected to participate in the PIC procedure by respecting the decisions of importing countries. See London Guidelines, *supra* note 387 Art. 7(1) (a) and (b).

[418] International Register of Potentially Toxic Chemicals (IRPTC), now UNEP Chemicals.

reasons.[419] Since January 1992, a control action by any single state could invoke the PIC system.[420]

4.2.2. The FAO Code of Conduct (as amended in 1989)

The aim of the code is to set forth responsibilities and voluntary standards of conduct for all entities engaged in the distribution and use of pesticides (Art. 1.1). It seeks, amongst others, to promote practices that encourage the safe and efficient use of pesticides, including minimising adverse effects on humans and the environment and preventing accidental poisoning from improper handling (Art. 1.5).

Like the London Guidelines, the Code refers to information exchange, export notification and the PIC procedure as three separate matters. Regarding information exchange, the government of any country that takes action to ban or severely restrict the use of handling of a pesticide to protect health or the environment should notify the FAO of the action taken. The FAO then notifies the designated national authorities (DNAs) in other countries of that action (Art. 9.1) In relation to export notification, if the export of a pesticide banned or severely restricted in the country of export occurs, the country of export should ensure that necessary steps are taken to provide the DNA of the country of import with relevant information (Art. 9.3). Provision of information regarding exports should take place at the time of the first export following the control action, and should recur in the case of any significant development of new information or condition surrounding the control action. As in the London Guidelines, it is only *intended* that the export notification be prior to the exportation (Art. 9.5). Lastly, pesticides that are banned or severely restricted for reasons of health or the environment are subject to the PIC procedure (Art. 9.7),[421] and governments of pesticide exporting countries should take suitable measures to ensure that exports do not occur contrary to the decisions of participating importing countries (Art. 9.11.2).

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[419] The inclusion of a new chemical in the PIC list would require, however, that a group of experts confirm that the action taken responds to the definition of "severely restricted" or "banned." According to the London Guidelines, a banned chemical is "a chemical which has, for health or environmental reasons, been prohibited for all uses by final governmental regulatory actions," and a severely restricted chemical is "a chemical for which, for health or environmental reasons, virtually all uses have been prohibited by final governmental regulatory actions, but for which certain specific uses remain authorized." See London Guidelines, *supra* note 387 Art. 1.

[420] See FAO and UNEP, *Report of the Third FAO/UNEP Joint Meeting on PIC* (Rome, Italy 3-7 June 1991) at 17.

[421] From article 9.8 of the Code of Conduct follows that the PIC procedure applies to those chemicals for which the FAO has issued a guidance document, having ensured conformity of the control action with the definitions of banned and severely restricted given in article 2. See Code of Conduct, *supra* note 48 Art. 9.8.

Unlike the London Guidelines, the FAO Code goes beyond information exchange. It provides, for instance, that pesticides whose handling and application require the use of uncomfortable and expensive protective clothing and equipment should be avoided, especially in the case of small scale users in tropical climates (Art. 3.5); that concerted efforts should be made by governments and pesticide industries to develop and promote integrated pest management systems and the use of safe, efficient, cost-effective application methods (Art. 3.8); that exporting governments and international organizations must play an active role in assisting developing countries in training personnel in the interpretation and evaluation of test data (Art. 4.4); and that pesticide manufacturers should ensure that each pesticide and pesticide product is adequately and effectively tested by well recognized procedures and test methods so as to fully evaluate its safety, efficacy and fate with regard to the anticipated conditions in regions or countries of use (Art. 4.1.1). It also asks industry to make every reasonable effort to reduce hazards by, amongst others, making less toxic formulations available (Art. 5.2.2.1), and to halt sale and recall products when safe use does not seem possible under any use, directions or restrictions (Art. 5.2.3).

Despite their enormous potential for the achievement of real progress in the field of hazardous chemicals and pesticides, these and other provisions were not even considered when the voluntary PIC scheme was transformed into a legally binding instrument. This is mainly due to the fact that the mandate of the negotiating committee was very narrowly interpreted, as the next section explains.

4.3. The Rotterdam Negotiations

4.3.1. Antecedents

Not long after the PIC procedure was introduced into the Code of Conduct and the London Guidelines, developing countries, some European states (notably Belgium and the Netherlands), the EC and public interest groups started to claim that a binding PIC procedure would be more effective than a voluntary one.[422] Developing countries had supported PIC since the late 1970s, when they started pushing for resolutions within the United Nations system to reject imports of banned and severely restricted chemicals that

[422] Support by the EC was mainly due to the leadership of the Dutch and Belgian governments. See Victor, *supra* note at 257 and 277.

were not expressly consented to by the importing country.[423] This culminated, as explained before, with the introduction of PIC into the London Guidelines and the Code of Conduct in 1989. Thus, although the term 'PIC' was not always used and there was not much debate on the legal status of possible commitments before the 1990s –a voluntary system was hard enough to achieve– one could contend that the South supported a binding PIC since the late 1970s.[424]

The interest of the EC in making the PIC procedure binding was prominent since June 1986, when the Commission of the European Communities put before the EC Council of Ministers a proposal for an EEC regulation on exports of certain dangerous chemicals.[425] The proposal was prompted by a 1983 resolution of the European Parliament that called for prior informed consent to be introduced in Community legislation, and by the government of the Netherlands, which held the presidency of the EC in the first half of 1986 and had national legislation providing for PIC since 1985.[426] Although the Commission did not go that far, it stated that "dangerous chemicals should be exported only to states which have previously agreed to allow their importation,"[427] and included a diluted version of PIC called the *prior informed choice.* According to this provision, export permits would not be granted if the government of the importing country informed the Commission that it objected to the import within 60 days of the date of export notification. In other terms, importing countries could prevent the export if they wished to do so, but their consent would be presumed if they failed to respond within the signalled period of time.[428] Even though this was a weak version of PIC, it was strongly opposed by Germany, the U.K. and France, three major EC chemical exporters that advocated a

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[423] See, for instance, UNEP, GC, Decision 85(V), *supra* note 392 and UNGA Res. 34/173 (1979) *Exchange of information on banned hazardous chemicals and unsafe pharmaceutical products*, UN Doc. A/RES/34/173 (17 December 1979), Res. 35/186 (1980) *Exchange of Information on Banned Hazardous Chemical and Unsafe Pharmaceutical Products*, UN Doc. A/RES/35/186 (15 December 1980), and Res. 36/166 (1981) *Exchange of information on banned hazardous chemicals and unsafe pharmaceutical products*, UN Doc. A/RES/36/166 (16 December 1981).

[424] See Victor, *supra* note 388 at 277, and Hough, "Institutions for Controlling Global Trade," *supra* note 388 at 162.

[425] The European Community (EC) was established by the Treaty of Maastricht (amended by later agreements), which in 1993 created the European Union to replace the former European Economic Community. Among its tasks is to develop a common policy in the sphere of the environment. See *Treaty on European Union*, 7 February 1992, O.J. (C 224) 1 (1992), 31 I.L.M. 247 (1992), Title II Art. G), online: <http://www.uni-mannheim.de/users/ddz/edz/doku/vertrag/engl/m_engl.html>.

[426] Pallemaerts, *supra* note 392 at 67 and Victor, *supra* note 388 at 229. Under the 1985 Dutch "Bill on Voluntary Regulation of Exports under the Chemicals Act," in order to export certain banned or severely restricted chemicals the exporter would have to certify that the importing country did not forbid the chemical from entering its market, *and* that its DNA approved the import. Although voluntary, it was expected that industry would comply with these and other provisions. For details see Cyrus Mehri "PIC: an Emerging Compromise for Hazardous Exports," (1988) 21 Cornell Int'l L.J. 365 at 379-380.

[427] See Mehri, *Ibid.* at 382.

[428] The proposal also included restrictions on the export of certain chemicals (including 14 organochlorine and mercury-based pesticides). Pallemaerts, *supra* note 392 at 67.

scheme along the lines of the OECD and UNEP guidelines and succeeded in weakening the Commission's proposal.[429] The resulting instrument, Council Regulation (EEC) No. 1734/88, included provisions on notification and information exchange similar to those of the original London Guidelines, with no reference to PIC. Nevertheless, the preamble incorporated a statement that the Council would consider, before July 1990, the possibility of introducing the principle of "prior informed choice" into the regulation.[430]

In the 1980s, then, only a few European countries favoured the principle of prior informed consent. However, once the procedure became mandatory for EC members with Council Regulation 2455/92, it was in the interest of all members, particularly the major chemicals exporters who initially opposed PIC (i.e. Germany, France, and the U.K.), that the procedure be transformed into a binding treaty. In that way, non-EC chemicals exporters would also have to comply with PIC's onerous provisions. The coalition between developing countries, the EC and some European countries led UNEP's Governing Council to adopt a decision in 1991 to explore the possible use of a legally binding instrument for PIC. This was reaffirmed at the 1992 Earth Summit (UNCED), where states set as an objective in the field of toxic chemicals "to achieve by the year 2000, as feasible, full participation in and implementation of the PIC procedure, including possible mandatory applications through legally binding instruments contained in the Amended London Guidelines and in the FAO International Code of Conduct, taking into account the experience gained with the PIC procedure."[431] The formal decision to negotiate a convention was made by the FAO Council at its 107th meeting in 1994, where it was decided that the FAO Secretariat should, together with UNEP and as part of the FAO/UNEP Programme on PIC, develop a draft PIC Convention. Likewise, in 1995, the UNEP Governing Council at its 18th session authorized the Executive Director to prepare and convene,[432] together with the FAO, an intergovernmental negotiating committee with a mandate to prepare an international legally binding instrument on PIC, to be completed and adopted before the end of 1997.[433] In 1996, the Joint Programme of FAO and UNEP initiated the negotiations, and in March 1998, 95 governments finalized the text of the

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[429] See *Ibid.*

[430] See EC, *Council Regulation 1734/88 of 16 June 1988 concerning export from and import into the Community of certain dangerous chemicals* [1988] O.J. L 155/2 (no longer in force), Pmbl. PIC was introduced in the EU with Council Regulation 2455/92 (see *supra* note 3).

[431] See Agenda 21, *supra* note 342 Chapter 19 para. 38(b).

[432] See Victor, *supra* note 388 at 257, and UNEP, GC, 18th sess., *Development of a Legally Binding Instrument for the Application of the PIC Procedure for Certain Hazardous Chemicals in International Trade*, UN Doc. UNEP/GC.18/7 27 (February 1995).

[433] See Katharina Kummer "Prior Informed Consent in International Trade: the 1998 Rotterdam Convention," (1999) 8:3 RECIEL 323 at 324, and UNEP, GC, 10th meeting, 18th session, Decision 18/12 (26 May 1995), online: <http://www.chem.unep.ch/saicm/gc18-pic.pdf>.

"Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade." The treaty was adopted at a Diplomatic Conference in Rotterdam, the Netherlands, in September 1998, and it will enter into force once 50 instruments of ratification are deposited.[434] Parties agreed that the FAO and UNEP would continue to operate the voluntary PIC during the interim period, after some adjustments to bring it in line with the Rotterdam Convention's provisions were made.[435]

4.3.2. The Negotiations: the opinion of the Group of Experts on PIC

Although the finalization of the convention in such a short period of time could be seen as a success, not everybody thought the moment was right to convert the voluntary PIC into a legally binding system. Shortly before the negotiations began, from 1991 to 1995, the FAO/UNEP Joint Group of Experts on PIC had repeatedly urged that the voluntary procedure be implemented fully prior to focusing on converting it into a legally binding treaty.[436] When in 1994 UNEP's Ad Hoc Group of Experts on the Implementation of the London Guidelines recommended that PIC be made a binding instrument[437] and the FAO/UNEP Joint Group of Experts was invited to express its views, it explicitly indicated that "the time might not be ripe for the development of a mandatory instrument as more time is needed to further develop and resolve the problems under the existing voluntary procedure. The introduction of a mandatory system at this stage could prove counter-productive and expensive to operate."

Nevertheless, considering that the transformation of PIC into a legally binding instrument could be imminent, it emphasized

> "the need to resolve several basic problems (whether in the context of a voluntary or a new mandatory procedure) for the successful implementation of the procedure by:
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> - providing substantial training and technical support programmes for developing countries, not only for the implementation of the PIC procedure but in the context of a broader chemicals management scheme; and

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[434] Interim Secretariat to the Rotterdam Convention, overview, online: <http://www.pic.int/en/ViewPage.asp?id=101>. (Last visited August 2003)

[435] See *Resolution on Interim Arrangements*, *supra* note 7.

[436] See FAO and UNEP, *Report of the Second FAO/UNEP Joint Meeting on Prior Informed Consent* (Geneva, 1-5 October 1990) at 22; FAO and UNEP, *Report of the Third FAO/UNEP Joint Meeting on PIC* (Rome, 3-7 June 1991) at 18; FAO and UNEP, *Report of the Fifth FAO/UNEP Joint Meeting on PIC* (Rome, 26-30 October 1992) at 5; FAO and UNEP *Report of the Seventh FAO/UNEP Joint Meeting on PIC* (Rome, 21-25 March 1994) [hereinafter Report of FAO/UNEP 7th meeting] at 8; and Victor, *supra* note 388 at 258.

[437] See Victor, *Ibid.* at 258-259.

- taking measures to ensure that all exporting countries participate in, and follow up, the import decisions taken under the procedure."[438] (Emphasis in original)

Although the negotiating committee was supposed to take into account the experience gained with the voluntary procedure,[439] the two aspects that in the concept of the group of experts were critical for a successful PIC were not included in the Rotterdam Convention. With regards to participation of all exporting countries in the PIC procedure, initially there was a provision on trade with non-Parties, which would have incited exporting countries to ratify the treaty for fear of not being able to trade hazardous chemicals with parties to the convention. The provision, however, was deleted in plenary at INC 4,[440] following the view that the convention no longer included proposals for phase-outs or trade bans.[441] The unfortunate result is that parties can import PIC and other hazardous chemicals from non-Parties without receiving notification from the exporter, and they will not have the option of refusing future imports of PIC chemicals from those countries, so there is no incentive for non-Parties to join the treaty. The potential risk is significant, as evidenced by the fact that the U.S. has not yet ratified the Basel Convention (in force since 1992) despite being the largest single generator of hazardous wastes.[442] The U.S. is also one of the major pesticide exporters, and it has less stringent regulations than those of the Rotterdam Convention. [443] Additionally, if as noted by UNEP Executive Director Elizabeth Dowdeswell at INC 1, a binding PIC treaty was needed because "as long as compliance was not mandatory, it was susceptible to producing uneven results," a provision on trade with non-Parties was an indispensable element of the treaty. The objective of achieving full participation in the PIC procedure

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[438] See Report of FAO/UNEP 7th meeting, *supra* note 436 at 8.

[439] See Agenda 21, *supra* note 342 Chapter 19 para. 19.38(b).

[440] Only Argentina expressed its reservation to the proposal, stating that the same provision was included in the Basel Convention. See "Report of the Fourth Session of the Intergovernmental Negotiating Committee for an International Legally Binding Instrument for the Application of the PIC Procedure for Certain Hazardous Chemicals and Pesticides in International Trade," *Earth Negotiations Bulletin* 15:3 (27 October 1997) at 7 [Hereinafter ENB Report INC-4 PIC], online: <http://www.iisd.ca/linkages/download/pdf/enb1503e.pdf>, and FAO/UNEP Secretariat, *Report of the INC for an International Legally Binding Instrument for the Application of the PIC Procedure for Certain Hazardous Chemicals and Pesticides in International Trade on the Work at its Fourth Session,* UN doc. UNEP/FAO/PIC/INC.4/2 (4 November 1997) at 8-9.

[441] At INC 1, provisions concerning prohibitions of use or phase-out were considered, but several delegations expressed that it exceeded the INC's mandate, which was limited to the PIC procedure. See FAO/UNEP Secretariat, *Report of the INC for an International Legally Binding Instrument for the Application of the PIC Procedure for Certain Hazardous Chemicals and Pesticides in International Trade on the Work at its 1st Session*, UN doc. UNEP/FAO/PIC/INC.1/10 (21 March 1996) [Hereinafter UN Report of PIC INC-1] at 12 and FAO/UNEP Secretariat, *Comments on the Possible Elements for an International Legally Binding Instrument of the PIC Procedure for Certain Hazardous Chemicals and Pesticides in International Trade Identified by the Ad Hoc Working Group*, UN doc. UNEP/FAO/INC/INC.1/3 at 11. See also ENB Report INC-3 PIC, *supra* note 335 at 8.

[442] The U.S. generates about 85% of the world's hazardous wastes. See Clapp, "Toxic Exports," *supra* note 8 at 22. The Basel Convention proscribes trade with non-Parties. However, it allows Parties to celebrate agreements with non-Parties to trade these wastes provided that some requirements are met (notably, the environmentally sound management of the wastes in question). See Basel Convention, *supra* note 283 Art. 11.

[443] For U.S. legislation on the export of hazardous chemicals see section 2.3.3 in Chapter 2.

was also presented as a justification for negotiating a binding PIC in Agenda 21, which in the area of toxic chemicals sets as an objective "to achieve by the year 2000, as feasible, full participation and implementation of the PIC procedure, including possible mandatory applications through legally binding instruments contained in the Amended London Guidelines and in the FAO International Code of Conduct, taking into account the experience gained within the PIC procedure."[444]

The deletion of the article on trade with non-Parties was largely related to the narrow interpretation that was given to the intergovernmental negotiating committee's (INC) mandate. Since the beginning of the negotiations, a group led by the U.S. advocated that the INC had the mandate to simply convert the voluntary PIC into a legally binding instrument, while a group led by some EU members wanted the treaty to be a framework convention on the management of hazardous chemicals.[445] Since no agreement was reached between these groups, the debate was resolved in favour of the narrow approach.[446] This closed the door not only to a provision on trade with non-Parties but also to discussions on important issues such as integrated pest management, obligations relating to the management of chemicals, and testing, production and distribution of hazardous chemicals.[447]

Yet even a treaty strictly limited to PIC could have provided for concrete obligations on capacity building so that developing countries would be able to comply with their obligations under the convention, in accordance with the first recommendation of the FAO/UNEP Joint Group of Experts. The issue of financial and technology transfer to developing countries was another major subject of controversy, this time between the North and the South. While developing countries asked for financial and technological assistance to implement the convention, developed countries did not want to commit themselves to provide it and insisted that any financial mechanism should be based on voluntary contributions.[448] The issue of financial resources and mechanisms was introduced only at INC 3, where the discussion focused on whether contributions should

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[444] See Agenda 21, *supra* note 342 Chapter 19 para. 38(b).

[445] At the first meeting the government of Belgium, host of the meeting, expressed the necessity for a "broad perspective and consider the relationship between PIC and possible additional measures." See UN Report of PIC INC-1, *supra* note 441 at 2.

[446] See Kummer, *supra* note 433 at 325.

[447] Since the treaty could only apply to states, the regulation of industrial activity would be the responsibility of parties, which would have the obligation to adopt appropriate national legislation.

[448] See ENB Report INC-3 PIC, *supra* note 335 at 10-11.

be voluntary or mandatory, and no agreement was reached.[449] The matter was not discussed at INC 4, and it was still unresolved at INC 5, which due to time and financial constraints was the last meeting before the Diplomatic Conference, where the treaty would be adopted. Given these constraints, and at the suggestion of the Chairperson, all contentious proposals related to financial mechanism were removed from the draft text in an effort to concentrate on the 'substantive' issues and thus finalize the convention. The unfortunate result is that the Rotterdam Convention features absolutely no financial mechanism to sponsor capacity building activities or technical assistance –not even one of voluntary nature.[450]

In conjunction with the absence of a financial mechanism, no concrete obligations on technical assistance and capacity building were agreed upon. At INC 4, negotiators provisionally endorsed an article according to which parties would have the obligation to cooperate in promoting technical assistance to develop the capacity to implement the Convention, taking into account the needs of developing countries and countries with economies in transition. It was also established that Parties with more advanced chemical management programmes –regardless of whether they were developed or developing countries– 'should' provide technical assistance to other parties.[451] At INC 5, some delegations from the South suggested that the technical and financial needs of developing countries be specified, but the Chair stressed that they were implicit in the text of the clause.[452] The article was approved with no changes.

The lack of serious consideration to financial and capacity building provisions might have been partly due to the lack of unity among developing countries in virtually all other matters, including that of the nature of the INC's mandate.[453] Thus, the strong Southern coalition that was decisive for the introduction of PIC into the Code of Conduct and the London Guidelines was virtually lost in Rotterdam. A few developing countries favoured, for instance, a lesser amount of obligations for exporters. Some commentators have

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[449] While Japan, the U.S. and Canada advocated a voluntary mechanism, China, Jordan, Indonesia and other developing countries supported a mandatory fund. See *Ibid.* at 10-11.

[450] See Kummer, *supra* note 433 at 326, and "Report of the Fifth Session of the Intergovernmental Negotiating Committee for an International Legally Binding Instrument for the Application of the PIC Procedure for Certain Hazardous Chemicals and Pesticides in International Trade" *Earth Negotiations Bulletin* 15:4 (16 March 1998) at 2 [Hereinafter ENB Report INC-5 PIC], online: <http://www.iisd.ca/linkages/download/pdf/enb1504e.pdf>.

[451] See ENB Report INC-4 PIC, *supra* note 440 at 7.

[452] Ethiopia, Morocco, Iran and Malaysia. See ENB Report INC-5 PIC, *supra* note 450 at 6.

[453] Some developing countries –notably Colombia and Jordan- supported the U.S. position that the INC's mandate was to transform the voluntary PIC into a legally binding procedure. This was possibly due to the fact that they considered that to expand the scope of the agreement too much could impede concluding negotiations in the near future, and that the administrative and technical obligations in a treaty of a narrower scope would be challenging enough. See ENB Report INC-3 PIC *supra* note 335 at 3 and 11.

explained this shift by the fact that when the Rotterdam Convention was being negotiated, many developing countries had become significant pesticide exporters, so that they feared not being able to comply with their obligations as exporters.[454] When one looks at the negotiations, however, the argument is not entirely accurate, as the South was not clearly divided between countries who were exporters and those who were mere importers.

At INC 3, Brazil and Argentina –two pesticide exporters– defended, together with Cameroon, Ghana, Nigeria, Chile, Uruguay and Morocco, a provision on export notification for developing countries, and stressed the importance that it be mandatory.[455] This view was also supported by the African Group, who warned that it would not sign the convention if the article were excluded. In contrast, Colombia –another exporter– advocated the deletion of the provision, arguing that those interested in information concerning restrictive actions could obtain it from the Secretariat.[456] Also at INC 3, China –a major manufacturer and exporter– defended the interests of importing countries by opposing a provision according to which a 'governmental action' would suffice to allow the export of a PIC chemical in cases where no response had been given by the importing country. The Chinese delegation made it clear that it would only accept a provision indicating that only the importing country's DNA could authorise the import in such case.[457] At INC 4, Colombia and the U.S. supported New Zealand's concern in relation to an article benefiting importing countries in case they failed to give a response on the future importation of a PIC chemical. Brazil and Panama supported the views of the delegations of Iran and Jamaica, which stated that the deletion of such provision would create a grave health hazard, and that developing countries could not have the capacity to respond promptly in the first place.[458] Lastly, at INC 5, while Argentina agreed with the Philippines, Panama and Indonesia that one notification should suffice to trigger the PIC procedure regardless of the number of regions, India (a major Southern pesticide producer and exporter) agreed with the U.S., Canada and the EC that more than one

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[454] See, for instance, *Ibid.* at 11-12.

[455] Like the London Guidelines, the Rotterdam Convention requires exporting country parties to notify importing country parties of exports of chemicals banned or severely restricted for domestic use not subject to the PIC procedure. (See Rotterdam Convention, *supra* note 16 Art. 12).

[456] See ENB Report INC-3 PIC *supra* note 335 at 6-7. Brazil reiterated this position at INC 4.

[457] According to Art. 11 of the Rotterdam Convention, if a country has not given a response in relation to a PIC substance, that substance cannot be exported to that country unless: i) the chemical is registered in the importing country; or ii) there is evidence that the substance has been used in the importing country, or that it has been imported previously and no measure has banned its use; or iii) the exporter has obtained express authorization by the designated national authority of the importing country. China's position was in relation to the last provision. See Rotterdam Convention, *supra* note 16 Art. 11 and *Ibid.* at 6.

[458] See ENB Report INC-4 PIC, *supra* note 440 at 5.

region be required, as it would reflect broader concern and ensure that chemicals put on the PIC list had global support.[459]

These few but representative examples show that Southern exporters were themselves divided. However, it is important to clarify what a 'Southern exporter' is. Most commentators do not distinguish among those 'Southern exporters' who have a national industry manufacturing and exporting pesticides, and those who are essentially home of transnational corporations that produce and export hazardous substances from their territory. If the distinction is not made, however, even African countries can be considered pesticide exporters, which can be misleading.[460] As presented in Chapter 2, besides the presence of major multinational corporations, China, India and Brazil have an important national industry manufacturing pesticides. Countries like Colombia and Mexico are, in contrast, home of major multinational corporations and have only one important national manufacturer.[461] The question is, then, what motivates the second group of exporters to protect the interests of the chemical industry. The case of Colombia is particularly interesting because its delegation was very active during the negotiations, and it persistently defended the interests of industry/exporters. Yet, the argument that Colombia is an exporter is not sufficiently strong to explain this attitude. In fact, there were different positions inside the government,[462] and even though the Rotterdam Convention was an environmental treaty, the Colombian delegation did not include a representative from the Ministry of Environment but an official of the Ministry of Foreign Affairs and a representative of industry it had accredited.[463] Behind the government's decision to adopt a position more protective of the chemical industry than of health and the environment was perhaps the fear of losing foreign investment in the chemical industry, which is an important industrial sector in the country. Thus, the case of Colombia could be an example of how short and medium-term economic considerations

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[459] See ENB Report INC-5 PIC, *supra* note 450 at 4.

[460] See, for instance, Harris J., *supra* note 57 at 3-14; Wright, *supra* note 161; Nancy S. Zahedi, "Implementing the Rotterdam Convention: The Challenges of Transforming Aspirational Goals into Effective Controls on Hazardous Pesticide Exports to Developing Countries" (1999) 11 Geo. Int'l Envtl. L. Rev. 707 at 715. Zahedi cites Zambia, Rwanda and Tanzania as pesticide exporters.

[461] For a distinction between manufacture and formulation see note 149. For production in the South see Dinham, "Pesticide Production in the South," *supra* note 181 at 7, and Wright, *supra* note 161.

[462] The Ministry of Environment had opposing views to the ones presented during the negotiations, which were supported by the Ministries of Foreign Affairs, Commerce, Agriculture, and by industry. This information was kindly provided by a former official of the Ministry of Environment of Colombia.

[463] Although in theory both ministries could have attended the negotiations, the Ministry of Environment could not attend because it was in no position to finance one of its representatives, as it was decided that the Ministry of Foreign Affairs would utilize the financial assistance provided by the Secretariat. The fact that a person from industry was accredited as part of the Colombian delegation was related to the fact that she was more familiar with the technical aspects of the convention than officials from the Ministry of Environment. This information was kindly provided by a former official from the Ministry of Foreign Affairs, and a former official of the Ministry of Environment.

tend to defeat environmental and health concerns in the South, as described in Chapter 3. It may also be an example of a "regulatory freeze," where a country fears stricter (international) standards because they could imply that foreign investment decides to leave or not to come.[464]

4.4. The Rotterdam Convention

As explained before, the mandate of the negotiating committee for the Rotterdam Convention was very narrowly interpreted. As a result, the text of the treaty virtually reproduced the voluntary PIC scheme. Moreover, as the next section explains, the new provisions that the treaty incorporates were already operating, in practice, within the voluntary system.

4.4.1. Information exchange, export notification and PIC procedure

Like the London Guidelines and the Code of conduct, the Rotterdam Convention covers three types of procedures: information exchange; export notification of domestically banned or severely restricted chemicals not subject to PIC; and prior informed consent for the chemicals listed in Annex III.

Information exchange requires a party to notify the Secretariat in writing on each ban or severe restriction on a chemical it implements nationally.[465] The chemical could potentially be included in Annex III and thus be subject to the PIC procedure, providing some requirements –moderately stricter than those of the voluntary system– are met.[466]

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[464] The 'regulatory freeze' refers to the fear of some countries to raise domestic environmental standards, as it could imply a reduction of foreign investment. International standards could have the same effect, as they could make investment in the South less profitable. Thus, one could argue that developing countries may want to prevent those standards from becoming stricter so as to secure foreign investment. See Clapp, "Pollution Haven," *supra* note 261 at 17.

[465] The notification must be made as soon as possible and no later than 90 days after the regulatory action banning or restricting the chemical has taken effect. See Rotterdam Convention, *supra* note 16 Art. 5 (1).

[466] In the voluntary system (after the initial phase, which required a minimum of 5 notifications to trigger the process of including a chemical in the PIC list), any single action banning or severely restricting a chemical for health or environmental reasons could trigger the PIC procedure (it would require confirming that it responded to the definition of "severely restricted" or "banned" by a group of experts). No country could veto the decision to include a new chemical in PIC. The Rotterdam Convention requires that detailed information (specified in Annex II) be provided. Once the Secretariat receives at least one notification of two different regions, it shall forward them to the Chemical Review Committee. (At INC 6, six regions were established on an interim basis: Africa, Asia, Europe, Near East, Latin America and the Caribbean, North America, and South West Pacific). The expert group might decide to recommend the inclusion of the chemical to the PIC list to the COP), in which case it will elaborate a decision guidance document with all the relevant information. It is the COP who makes the final decision, which means that any party could veto the inclusion of a substance in Annex III (According to Art. 22(5)(b), decisions about the Annexes should be made by consensus). This is problematic because chemical manufacturers could lobby a country so it uses its veto. See Rotterdam Convention, *supra* note 16 Arts. 5, 7 and 22(5)(b).

Export notification, in turn, requires a party that plans to export a chemical banned or severely restricted for use within its territory, to inform the importing party of such export before the first shipment and annually thereafter. The obligation ceases if the chemical is listed in Annex III, since it is then covered by the PIC procedure. As in the voluntary system,[467] the exporting party must provide an updated export notification after having adopted a final regulatory action resulting in a major change concerning the ban or severe restriction of that chemical.[468]

Lastly, the PIC procedure applies to Annex III chemicals. Once a decision has been made to include a chemical in Annex III, a decision guidance document (DGD) must be sent by the Secretariat to all parties.[469] Then, parties must inform the Secretariat whether they will receive future imports of the chemical or not, no later than 9 months after the date of dispatch of the DGD. A decision could consist of consent, no consent or consent to import under certain conditions, or contain an interim response.[470] In all cases, the decision must be 'trade neutral.' This means that if a party decides to refuse an import or consents to an import under certain conditions, the same restrictions must apply to imports of that chemical from any source, and to domestic production.[471] Exporting parties must take appropriate legislative or administrative measures to ensure that exporters within their jurisdiction comply with the decisions of importing parties in relation to PIC decisions.[472] According to Article 11 (2), exporting parties must also ensure that, in the absence of a response by an importing party, no export takes place. There are, however, three exceptions to this rule. The export could still take place if: (a) the chemical to be exported is registered in the importing party; or (b) there is evidence that it has been used or imported into the importing party and no regulation to prohibit its use has been enacted; or (c) the exporter received explicit consent from the designated national authority (DNA) of the importing party.[473]

Because of the way in which it is formulated, Article 11 (2) gives the impression of instituting the norm that no export should take place unless expressly agreed by the importing country as the rule, and export without such consent but under certain

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[467] See Code of Conduct, *supra* note 48 Art. 9(5).

[468] For further details see Rotterdam Convention, *supra* note 16 Art. 12.

[469] The DGD must have the relevant information on the chemical so parties will be able to decide on its future importation. See *Ibid.*Art. 7.

[470] See *Ibid.*Art. 10(4).

[471] See *Ibid.*Art. 10(9).

[472] For details on timing, etc., see *Ibid.* Art. 11.

[473] See *Ibid.* Art. 11 (2). [Note: each party must designate one or more DNAs to act on its behalf in the performance of the administrative functions required by the convention: See *Ibid.*Art. 4].

circumstances as the exception. In practice, however, the article promises that trade in hazardous chemicals will continue (which is why it is referred as the "status quo" clause) *unless* the importing country impedes it through effective participation in the PIC procedure. This is because the three exceptional situations contemplated by the rule are very broad, and they place the burden of preventing an export on the importing country. To prevent an export, the importing country must give a negative response on the import of the substance concerned through the PIC system. In order to give that response, the country must be able to analyse the data received (which requires, e.g., technical capacity, sufficient qualified staff, adequate laboratories or facilities), to study the possible effects of the substance under its own environmental conditions, and to consider possible and affordable alternatives. Perhaps more importantly, the country must make sure that its response (whether provisional or final) is consistent with the rules of international trade.[474] Thus, the importing country must identify if it is currently importing the chemical, the history of imports from different sources, and what is the local production of the chemical, in order to ensure that its decision will not be challenged in international trade tribunals because it contradicts, for instance, the principle of non discrimination.[475] Since many countries lack the capacity to fulfil these requirements, they might prefer to give an interim response allowing the import of a chemical, or to register no decision at all, as the current record of country responses (or failures to respond) reveals.[476]

One could argue that by ensuring that trade of hazardous chemicals will continue unless there is an explicit prohibition by the importing state, the Rotterdam Convention is inconsistent with the principle of state responsibility for transboundary harm, studied in Chapter 3. According to this rule, states have the duty to take all appropriate measures to *prevent* significant transboundary harm when carrying out lawful activities.[477] Thus, a state that has banned, restricted or not registered a substance because it poses unacceptable risks to the environment or human health should not export it to others as a preventive measure, particularly if the importing country has relatively less capacity to guarantee its safe use. The application of the principle of state responsibility would entail, therefore, a presumption that substances that are harmful in the North will cause harm in

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[474] See Rotterdam Convention, *supra* note 16, Art. 10.9, which requires that the decision be 'trade neutral.'

[475] This principle is studied in Chapter 3.

[476] See Zahedi, *supra* note 460 at 727-729, and Interim Secretariat for the Rotterdam Convention, *Pic Cicular XVII* June 2003 (Appendix IV), which lists all importing country responses (and failures to transmit a response) received by from parties as of April 2003, online: <http://www.pic.int/en/Circular/CIRC17EN.pdf>.

[477] Since the Rotterdam Convention explicitly allows the export of chemicals that are banned or severely restricted in the exporting country to other states, the export of those substances would be 'lawful.'

the South, *unless* there is enough evidence contradicting that assumption. The rule would be therefore the prohibition to export PIC chemicals unless expressly agreed by the importing state, and exceptions would apply *only* if the exporter provided sufficient evidence that the substance to be exported will cause no significant harm in the importing country.

4.4.2. Chemicals covered by PIC and export notification under Rotterdam

4.4.2.1. Severely hazardous pesticide formulations

Besides the categories of banned and severely restricted chemicals that qualify as candidates of the PIC procedure, the Rotterdam Convention introduces the notion of 'severely hazardous pesticide formulation,'[478] and the possibility for a developing country or a country with an economy in transition experiencing problems with this type of substance under conditions of use in its territory, to propose its inclusion in Annex III.[479] Although the voluntary system did not expressly include this term, an expert group was established under the London Guidelines to study the problem of acutely hazardous pesticide formulations and to recommend those posing problems of particular concern to developing countries for inclusion in the PIC procedure.[480] Thus, in practice, the Rotterdam Convention did nothing but formalise what was already operating in the voluntary system. Furthermore, while the voluntary system gave the responsibility of proposing the inclusion of a severely hazardous formulation to a group of experts, the Rotterdam Convention gives this task to developing countries.[481] This may be problematic because, as recognised by the FAO/UNEP Joint Group of Experts on PIC, developing countries generally lack the infrastructure for documenting and reporting incidents, ideally the primary way of identifying pesticide formulations causing problems under conditions

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[478] According to the Rotterdam Convention, a severely hazardous pesticide formulation is a chemical "formulated for pesticidal use that produces severe health or environmental effects observable within a short period of time after single or multiple exposure, under conditions of use." See Rotterdam Convention, *supra* note 16 Art. 2(d).

[479] The proposal must contain the information required by part 1 of Annex IV and be presented to the Secretariat, who will forward it to the Chemicals Review Committee. This expert group might decide to recommend the inclusion of the chemical to the PIC list to the COP, in which case it will elaborate a decision guidance document with all the relevant information. The COP will make the final decision. See *Ibid.* Arts. 5(1) and 6.

[480] As a result, 5 acutely hazardous pesticide formulations were included in the PIC list in 1997. See Zahedi, *supra* note 460 at 721-722, and London Guidelines, *supra* note 387 Annex II para. 2.

[481] See Zahedi, *Idid.* at 722.

of use in those countries.[482] What is more, the group acknowledged that available scientific data on potential and actual hazards in developing countries were limited, and that it was unlikely that they would be available in the foreseeable future. As a result, it decided to apply the "principle of caution" in making its recommendations, considering the "potential hazards of the individual formulations so that the appropriate safeguards can be identified and disseminated through the PIC procedure."[483] Regrettably, this principle was not included in the Rotterdam Convention, which requires the proposing party to provide, among others, "a clear description of incidents related to the problem, including the adverse effects and the way in which the formulation was used."[484]

4.4.2.2. Banned and Severely Restricted Chemicals

Another difference between the binding and the voluntary PIC are the definitions of "banned" and "severely restricted" chemicals. In the voluntary PIC, a banned chemical is a chemical (or a pesticide) that has been prohibited for all uses by final governmental regulatory action, or a pesticide for which all requests for registration or equivalent action for all uses have not been granted.[485] The Rotterdam Convention incorporates the notion of categories,[486] and clarifies that the definition includes a chemical that has been refused for approval or been withdrawn by industry either from domestic market or from further consideration in the domestic approval process, where there is 'clear evidence' that such action was taken to protect human health or the environment. The same applies to the notion of "severely restricted," defined by the voluntary system as a chemical for which "virtually all uses have been prohibited by final government regulatory action but for which certain uses remain authorized."[487] Again, the Rotterdam Convention refers to

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[482] See FAO/UNEP Secretariat, *Review of Issues Relevant to the Implementation of the Existing, Voluntary PIC Procedure*, UN doc. UNEP/FAO/PIC/INC.1/5 (19 December 1995) [Hereinafter Review of Implementation of voluntary PIC] at 13.

[483] FAO and UNEP, *Report of the Fifth FAO/UNEP Joint Meeting on PIC* (Rome, 26-30 October 1992) at 17-19. At that meeting, the Group of Experts recommended the inclusion of certain formulations of monocrotophos, methamidophos, phosphamidon, methyl parathion and parathion into the PIC list.

[484] See Rotterdam Convention, *supra* note 16 Annex IV. Annex IV provides the information and criteria for listing severely hazardous pesticide formulations in the PIC list (Annex III).

[485] In both cases, for health or environmental reasons. See Code of Conduct, *supra* note 48 Art. 2 and London Guidelines, *supra* note 387 Art. 1(b).

[486] A banned chemical is a chemical "all uses of which within *one or more categories* have been prohibited by final regulatory action, in order to protect human health or the environment." [For the full definition see Rotterdam Convention, *supra* note 16 Art. 2(b)]. Most of the chemicals in the voluntary PIC were included because they were banned or severely restricted for one use category, e.g. as a pesticide. With a reference to categories in the Rotterdam Convention's definition, the DGD could focus on the health and environmental effects of a particular category, mentioning other use categories (e.g. industrial chemical or consumer chemical). This would allow governments to consider the possible implications of a total ban of the substance. See Review of Implementation of voluntary PIC, *supra* note 482 at 13.

[487] See London Guidelines, *supra* note 387 Art. 1(c). The Code of Conduct has a similar definition (see Code of Conduct, *supra* note 48 Art. 1).

categories[488] and makes clear that the definition includes a chemical that has, for "virtually all use," been refused for approval or been withdrawn by industry either from the domestic market or from further consideration in the domestic approval process, to protect the environment or human health.[489]

The definitions in Rotterdam incorporate those situations in which a chemical is voluntarily withdrawn by industry, without requiring formal regulatory action.[490] This clarification was necessary to fill a gap under the voluntary system, which did not expressly cover those chemicals subject to voluntary action even when motivated by reasons of the environment or health. An example presented by Nancy Zahedi serves to illustrate this point. An acutely hazardous pesticide (mevinphos) was taken off the U.S. market through a voluntary agreement between the EPA and the pesticide manufacturer, which precluded the need for regulatory action even if the EPA had been prepared to take action to cancel its registration. However, because it was a voluntary action, exporters were not required to notify importing countries about mevinphos under the Code of Conduct.[491]

Although the clarifications in the Rotterdam Convention are new, the UNEP Governing Council and FAO Conference had previously decided that "chemicals which have been refused approval for first time use or have been withdrawn by the industry, either from the market or from further consideration in the approval process, where there is clear evidence that such actions have been taken for health and environmental reasons, should be included in the PIC procedure."[492] Thus, the loophole of the original voluntary system had been already identified and corrected by the FAO and UNEP while operating the voluntary scheme.

Regrettably, like the voluntary system, the Rotterdam Convention requires 'clear evidence' that the refuse for approval or withdrawal by industry has been taken for reasons of health or the environment. This can be difficult in the case of a voluntary action, even for a developed country. In the U.S., for instance, if companies voluntarily

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[488] The Rotterdam Convention defines a severely restricted chemical as "a chemical virtually all use of which within *one or more categories* have been prohibited by final regulatory control action in order to protect human health or the environment, but for which certain specific uses remain allowed" (emphasis added). See Rotterdam Convention, *supra* note 16 Art. 2(c).

[489] For a full definition see Rotterdam Convention, *supra* note 16 Art. 2(c).

[490] See Zahedi, *supra* note 460 at 717-719.

[491] See *Ibid.* Although the paper expresses the author's personal opinion, it is worth noting that at the time of writing Ms. Zahedi had experience working at the U.S. EPA (Office of Pesticide Programs).

[492] FAO and UNEP, *Report of the Third FAO/UNEP Joint Meeting on PIC* (Geneva, 3-7 June 1991) at 7.

pull their product out of the market once it is subject to investigation but before a risk assessment has been completed and published, government officials will not invest resources to develop a full risk/benefit analysis of that substance. As a result, the 'clear evidence' required by the convention might not be available.[493] Again, the obligation upon states to prevent significant transboundary harm would dictate that, as a preventive measure, states should not allow the export of substances that were refused for approval or withdrawn by industry if there were sufficient reasons to believe that they were withdrawn or refused for reasons of health or the environment. This is because, given the preventive nature of the obligation to prevent harm, 'clear evidence' seems to be too high a standard.

4.4.2.3. Never registered chemicals

As in the voluntary system, chemicals for which no registration has been sought remain completely outside the scope of the Rotterdam Convention. This could be an important loophole because most exporting countries allow chemicals never registered for domestic use to be exported, and no specific testing requirements apply to these chemicals. The lack of interest on the part of a manufacturer to register its product in the domestic market might simply reflect different needs (e.g. the pest is not a problem in the exporting country), but it might also be a conscious decision to prevent a substance from being rejected for environmental or health reasons in its own country.[494] This underlines the need to eliminate double standards in relation to testing requirements, so that producers are obliged to use similar testing procedures for their products, regardless of whether they will be used domestically or abroad.[495] The Joint Group of Experts explicitly stressed the importance of testing unregistered pesticides in its second session, when it recommended that "emphasis be given to articles of the Code related to the testing of such pesticides."[496]

4.4.3. Labelling requirements

In relation to labelling, the convention requires that chemicals included in the PIC procedure and other chemicals that are banned or severely restricted domestically, when

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[493] See Zahedi, *supra* note 460 at 718-719.
[494] See *Ibid.* at 719-720, and section 2.3.4. in Chapter 2.
[495] This issue is considered in more detail in the last part of this chapter.
[496] See FAO and UNEP, *Report of the Second FAO/UNEP Joint Meeting of PIC* (Geneva, Switzerland, 1-5 October 1990) at 13.

exported, be subject to labelling requirements that ensure adequate availability of information with regard to risks and/or hazards to human health or the environment, taking into account relevant international standards.[497] If the chemicals exported are to be used for occupational purposes (e.g. by farmers), the exporting party must ensure that a safety data sheet that follows an internationally recognized format, setting out the most up-to-date information available, is sent to the importer. However, the information on the label and on the data sheet "should, as far as practicable" be given in one or more of the official languages of the importing party.[498] Logic dictates that a *minimum* requirement to allow the importing country to ensure the appropriate use of a chemical is that its citizens understand the label. The Rotterdam Convention, however, does not require that the label be *at least* in one of the official languages of the importing country.

In addition, it is not required that when a chemical that is subject to handling restrictions (but which is not covered by PIC or banned or severely restricted in the exporting country) is exported, it be subject to labelling requirements that ensure adequate availability of information with regard to risks and/or hazards to human health or the environment. It is merely a choice for the exporting country to demand such a requirement. Yet given the conditions of use in developing countries, considered in detail in Chapter 2, these restrictions (e.g. on application methods, protective clothing) are of extreme importance to prevent misuse and human poisonings in those countries.[499] Furthermore, the FAO/UNEP Joint Group of Experts had identified handling restrictions in industrialised countries as a potential mechanism for 'flagging' chemicals likely to cause problems under conditions of use in developing countries. It had also identified data on poisoning incidents and adverse effects in industrialised countries as a supplement to information available from developing countries. The reasoning behind these proposals was that if despite their relatively greater ability to impose and enforce safety precautions industrialised countries continued to experience problems with certain formulations, developing countries would be likely to have even greater difficulties.[500]

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[497] See Rotterdam Convention, *supra* note 16 Art. 13(2). Both the Code of Conduct and the London Guidelines included similar and more detailed requirements on labelling and packaging. See Code of Conduct, *supra* note 48 Art. 10, and London Guidelines, *supra* note 387 Art. 14.

[498] See Rotterdam Convention, *supra* note 16 Arts. 13(4) and 13(5).

[499] See Rotterdam Convention, *supra* note 16 Art. 13(3), and Zahedi, *supra* note 460 at 720.

[500] See Review of Implementation of voluntary PIC, *supra* note 482 at 5-6.

4.4.4. International cooperation and assistance

Since the PIC procedure largely relies on the importing country's ability to make an informed decision on whether it will allow imports of certain chemicals in the future, it is essential that all parties possess or acquire that ability. Like the voluntary system,[501] the Rotterdam Convention explicitly acknowledges that developing countries need to develop the capacity to manage chemicals. This includes, of course, the effective management of information.[502] Its Preamble reads:

> "Taking into account the circumstances and particular requirements of developing countries and countries with economies in transition, in particular the need to strengthen national capabilities and capacities for the management of chemicals, including transfer of technology, providing financial and technical assistance and promoting cooperation among the Parties."

In spite of this concession in its preamble, the text of the treaty does not address the needs of developing countries in any meaningful way. No concrete obligations on capacity building are included and, perhaps more importantly, there is no financial mechanism to support those activities. Article 16, on technical assistance, contains a very general obligation to "cooperate in promoting technical assistance for the development of the infrastructure and the capacity necessary to manage chemicals to enable implementation of this Convention," taking into account the needs of developing countries and countries with economies in transition. It also asks parties with "more advanced programmes for regulating chemicals" to provide technical assistance to other parties to develop their infrastructure and capacity to manage chemicals throughout their lifecycle. However, it is not clear whether it is developed country parties that should provide such assistance, and the provision starts with the word "should,"[503] and thus must be met only to the extent practicable. A more specific provision asks exporting parties to advise and assist importing parties (a) to obtain further information to make a decision in relation to the future importation of a PIC chemical and to directly respond to the exporter in case no decision has been made, and (b) to strengthen their capacities to manage chemicals safely throughout their lifecycle. Its fulfilment is, however, 'upon request and as appropriate.'[504]

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[501] See, for instance, Code of Conduct, *supra* note 48 preface para. 5 and Arts. 1.5.2, 3.3.1, and London Guidelines, *supra* note 387 paras. 6 and 8 (introduction) and Arts. 15(b) and 15(c).

[502] The fact that this provision is included in the preamble of the Rotterdam Convention indicates that the subject of chemicals management is directly related to PIC.

[503] See Rotterdam Convention, *supra* note 16 Art. 16.

[504] See Rotterdam Convention, *supra* note 16 Art. 11(1)(c).

The vagueness of these provisions could have been mitigated by a financial mechanism to secure their fulfillment. Yet, the Rotterdam Convention provides absolutely no financial mechanism to ensure capacity-building activities. Moreover, the matter was not referred to the Conference of the Parties for future considerations, as it occurred with non-compliance.[505] This is, without doubt, the greatest flaw of the treaty.

4.4.5. Compliance

Part of what differentiates a voluntary system from a binding one is that compliance is mandatory only in the latter. Thus, the procedures and institutional mechanisms for determining non-compliance are an essential part of any effective binding system.[506] The Rotterdam Convention does not establish mechanisms to measure compliance with its provisions, or the treatment of parties to be found in non-compliance. However, article 17 provides that the Conference of the Parties will have the task of creating such mechanisms once the treaty enters into force.

4.5. Will a binding PIC make a difference?

When the Rotterdam Convention was being negotiated, the voluntary PIC system had finally taken off, after years of preparations and adjustments. Having started with six chemicals in late 1991, 38 chemicals and pesticides were subject to PIC in 1997.[507] In 1996, 143 countries had already named designated national authorities (at least for pesticides) and were participating in the procedure.[508] No single case of a firm exporting a PIC substance contrary to the PIC procedure had been reported,[509] and the most important chemical players were complying with PIC. This is because key organisations such as Croplife International (former GIFAP) made compliance with the FAO Code of

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[505] See Rotterdam Convention, *supra* note 16 Art. 17.

[506] The mechanism could include: a clear reporting system for all parties (providing information not only on PIC chemicals but also on export notifications of substances domestically banned or severely restricted); sanctions for non-compliance (from fines for exporters violating the decision of an importing country to the publication of a report listing every country and major chemicals manufacturers and their compliance with the Rotterdam Convention). See Zahedi, *supra* note 460 at 732 and 733.

[507] One of the most important initial tasks in the voluntary procedure was the creation of the PIC list. Since more than 1,000 control actions existed when PIC was created and a substance could not enter the procedure until a decision guidance document (DGD) had been prepared –an expensive and time-consuming process– the FAO/UNEP Joint Group had to set priorities for the pesticides and chemicals to be included in PIC. For further details see Victor, *supra* note 388 at 241-244.

[508] The PIC system allows governments to declare different DNAs for pesticides and for chemicals. In 1996, 61 countries had designated combined DNAs while 59 countries had designated separate DNAs (33 countries had designated a DNA for pesticides). See *Ibid.* at 251.

[509] See *Ibid.* at 250.

Conduct by national associations and their members a condition for membership.[510] In addition, the European Union, a major chemical exporter, had made the PIC procedure mandatory for its member states through Council Regulation EEC No. 2455/92. For importing countries, complying with the basic requirements of the PIC procedure was relatively simple and, over time, the quality of information provided by DNAs improved.[511]

In the strict sense, therefore, the voluntary PIC system was fairly successful. The success of the PIC system, however, must also be analysed in relation to its ultimate goal, which is to "enhance the sound management of chemicals through exchange of scientific, technical, economic and legal information."[512] In this context, the question is whether the voluntary PIC procedure improved the capacity of developing countries to safely manage chemicals and pesticides hazards. When one looks at the reviews of implementation made both by the FAO and UNEP, the achievements in regards to capacity building activities are very modest. In a 1993 survey to gather information on the status of implementation of the Code of Conduct,[513] the FAO concluded that although there was significant progress towards compliance with various provisions of the Code, most notably in the Asia and Pacific region, there was evidence of "continuing several serious deficiencies in critical areas of pesticide regulation, management and control in many countries, particularly in African and Latin American regions."[514] In addition, the extent of assistance to developing countries by pesticide exporting countries and by international organisations, with training of personnel in the interpretation and evaluation of test data, was identified as a serious problem.

The lack of capacity of developing countries to implement the PIC procedure and to make PIC decisions was explicitly recognised at INC 1. In a note prepared by the FAO/UNEP Secretariat on the countries' experience in the implementation of the PIC procedure, it was stressed that while the procedure was designed to assist countries with limited resources to make decisions regarding the import of certain chemicals, "the DNAs have

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[510] Formerly GIFAP (see note 411) and then Global Crop Protection Federation, CropLife International represents the global plant science industry. It leads a network of over 80 regional and national associations. Among its members are BASF, Bayer CropScience, Dow AgroSciences, DuPont, FMC, Monsanto, Sumitomo and Syngenta. Online: <http://www.croplife.org>.

[511] See Victor, *supra* note 388 at 253.

[512] See London Guidelines (as amended in 1989), *supra* note 387, introduction. The paragraph refers to the purpose of the guidelines, which are centered in PIC and information exchange. From this follows that the ultimate goal of PIC and information exchange is to enhance the sound management of chemicals.

[513] The FAO did another survey in 1986, before the Code was amended to include PIC (1989).

[514] See FAO "Analysis of Government Responses to the 2nd Questionnaire on the State of Implementation of the International Code of Conduct on the Distribution and Use of Pesticides" (1996), online: <http://www.fao.org/WAICENT/FAOINFO/AGRICULT/agp/agpp/Pesticid/Manage/Quest2/2qfrt.htm>.

difficulty in fulfilling their responsibilities as defined in the PIC procedure, as their governments often do not have the institutional and financial capacity nor the access to the technical skills and information needed to make PIC-related decisions." It was also noted that "the work resulting from the participation in the PIC procedure is often an unacceptable additional workload for DNAs, who are already overloaded by their regular work programme."[515] Similarly, it was mentioned that "in many countries there is a lack of essential local data necessary to make decisions which are relevant to national conditions of use. This can include information on actual health and environmental effects in the country, chemical types and quantities in use, exposure potential, etc."[516]

These remarks suggest that most developing countries are still largely incapable of managing hazardous chemicals and, perhaps more importantly, of analysing the information that they receive through the PIC system. Thus, the voluntary PIC procedure was successful only on the *surface*. While there have been no documented cases of violation of PIC and industry is committed to observing its provisions, information exchange and the PIC procedure have not had a great impact because those countries for which the system was created still largely lack the ability to analyse the information they receive through the system, and to act upon it.

This raises the critical the question of whether making the PIC procedure legally binding was a valuable step towards the safe management of hazardous chemicals in the South. This thesis argues that the Rotterdam Convention is not likely to bring any substantial progress, for two basic reasons. First, negotiators decided that the convention would be limited to reproducing the PIC system, instead of establishing a legal framework for the management of hazardous chemicals that would have opened the door for much needed provisions on chemical management, chemicals testing, integrated pest management, and so on. A PIC system that ignores these issues is fundamentally flawed because without alternatives the idea of prior informed consent practically loses its significance, its *raison d' être*. After all, if there are no alternatives so that importers can actually refuse a substance, there is no the point in going though a procedure of prior informed consent. Second, a treaty limited to PIC should have at least provided for a financial mechanism to improve the capacity of the South to fully implement the procedure. In fact, one of the only areas where the binding PIC could have truly differed from the voluntary system was

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[515] See FAO/UNEP Secretariat, *Experience in the Implementation of the PIC Procedure*, UN doc. UNEP/FAO/PIC/INC.1/6 (19 December 1995) [Hereinafter Experience in Implementation of PIC] at 2.
[516] See *Ibid.* at 3.

in the creation for a financial mechanism with mandatory contributions.[517] However, a financial mechanism was discarded and it was not even envisaged for future negotiations in the text of the Convention (in contrast to, for instance, non-compliance mechanisms).[518] As in the voluntary PIC, capacity-building activities can be carried out without a binding provision or fund.[519] However, as evidenced by the little progress achieved with the voluntary PIC and by the experience with the voluntary fund of the Basel Convention,[520] a binding financial mechanism is virtually the only way of ensuring that capacity building activities will be carried out extensively and that all relevant parties will contribute to making them possible.

As pointed out by a student writer more than ten years ago:

> "The [PIC] system's effectiveness depends on the diligence (and, I would add, on the capacity) of importing state authorities. Government indifference to environmental or consumer protection due to corruption or the ability of a powerful multinational corporation to hold a government "hostage" could make a mockery of that country's prior informed consent policy. Such problems might require modifying prior informed consent in the direction of a traditional ban."[521]

While corruption is a significant problem and it is upon the importing country to prevent it, it is the enormous power of Northern multinational corporations (studied in Chapter 2) that present the biggest challenge.[522] The fact that most developing countries relied on the information provided by international manufacturers, since they lacked the necessary infrastructure to obtain it themselves, was one of the primary reasons why the Code of Conduct and the London Guidelines were adopted.[523] In addition, as explained in Chapter 3, pesticides play a very important role in the economy of most developing countries,

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[517] See Victor, *supra* note 388 at 254.

[518] The Rotterdam Convention gives the task of developing mechanisms of non-compliance to the Conference of the Parties (COP). See Rotterdam Convention, *supra* note 16 Art. 17.

[519] After PIC was introduced into the Code of Conduct, seminars to inform government officials about PIC were initiated through the FAO in Asia, the Caribbean, Africa, South and Central America. Similarly, the United Nations Institute for Training and Research (UNITAR) launched a project to implement the London Guidelines in developing countries, and GIFAP initiated a "Safe Use Project" that improved pesticide management, though only in three countries. For details see Victor, *supra* note 388 at 254-255. For GIFAP see note 411.

[520] The lack of a financial mechanism of a mandatory nature in the Basel Convention has greatly affected the performance and activities of several regional centres for capacity building under the Basel Convention. Please see section 5.2.1.2.1. in Chapter 5.

[521] See Mehri, *supra* note 426 at 388 (Parenthesis added).

[522] As explained in Chapter 2, six multinational corporations based in the North control about 73% of the world's pesticide market.

[523] The Preface of the Code of Conduct reads as follows:

> "In the absence of an effective pesticide registration process and of a governmental infrastructure for controlling the availability of pesticides, some countries importing pesticides must heavily rely on the pesticide industry to promote the safe and proper distribution and use of pesticides. In these circumstances foreign manufacturers, exporters and importers, as well as local formulators, distributors, repackers, advisers and users, must accept a share of the responsibility for safety and efficiency in distribution and use." (See Code of Conduct, *supra* note 48 Preface para. 6).

which largely depend on export crops (i.e. monocultures, which are more vulnerable to pests and more prone to the use of chemical pesticides). For these reasons, the role of the chemical industry and of multinational corporations is of extreme importance to achieve some progress in the field of hazardous chemicals.

The Rotterdam Convention does not, however, regulate the most basic activities of industry, probably owing to the narrow interpretation of the negotiating committee's mandate. An obligation on the part of states to enact and enforce legislation to ensure that the same testing requirements apply in relation to substances to be sold domestically than those to be exported, for instance, was much needed. Even if one accepted the justifications given by the U.S. EPA to explain the export of chemicals that have never been registered domestically, there are no justifications for exporting a substance that has not been tested with the same standards as it would have been tested if it were to be sold domestically. Appropriate testing is even more critical if the importer is a developing country. However, it should still be required if the importing state had the capacity to properly evaluate the substance and make a sound decision about its importation, because it is the responsibility of the manufacturer to ensure beyond an acceptable level of risk that its product is safe. Furthermore, the only way of sustaining the argument that double standards may in some cases be justifiable (i.e. the product is only useful in a tropical country with a particular pest) is by guaranteeing that the product is tested in the conditions of the country where it is going to be used, and by ensuring that all relevant information on the substance is obtained and transmitted to the importing country so that it can make a truly informed decision on its importation.[524] The claim that a multinational company is not capable of reproducing the importing country's conditions is hard to believe, especially if one considers that all of them have several 'tropical subsidiaries' where tests could be completed.

The Code of Conduct ultimately reflects this view. While it maintains that the fact that a product is not used or registered in a particular exporting country is not necessarily a valid reason for prohibiting the export of that pesticide, thereby justifying double standards in the case of exports, it rejects double standards when it comes to production, labelling, and testing. Art. 8.1.4, for instance, requires industry to undertake to see that pesticides that are manufactured for export be subject to the same quality requirements and standards as those applied by the manufacturer to comparable domestic products. Similarly, Art. 8.1.5.

[524] This should go, of course, in conjunction with improving that country's capacity to analyse the data received and to consider viable alternatives.

requires industry to ensure that pesticides manufactured or formulated by a subsidiary company meet appropriate quality requirements and standards which should be consistent with the requirements of the host country and of the parent company. In relation to testing, the Code explicitly affirms that "it is generally accepted that no company should trade in pesticides without a proper and thorough evaluation of the pesticide, including any risks."[525]

The Code states that due to the climatic, ecological, agronomic, social, economic and environmental conditions of developing countries, mostly situated in tropical and semitropical regions, the government of the exporting country is in no position to judge the suitability, efficacy, safety or fate of the pesticide under the conditions in the country where it may ultimately be used, and that "such a judgment must, therefore, be made by the responsible authority in the importing country." Yet the paragraph refers to governments, not to industry. The fact that an exporting country government should not decide whether or not an importing country should use a particular substance by no means exempts the manufacturer from properly testing and labelling its product. While it is incumbent upon the importing party to decide whether it will allow the use of a substance in its territory, it is incumbent upon the producer to ensure the safety of its product. However, the manufacturer will only follow the rules to which it is bound, and thus the state where the chemical manufacturer is based should enact appropriate legislation to ensure that it will.

Although provisions on pesticides testing, IPM and the management of chemicals are of paramount importance, one could argue that a fair critique of the Rotterdam Convention could only take into account the treaty's own objective, which is:

> "...to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm and to contribute to their environmentally sound use, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties." (Article 2 of the Rotterdam Convention)

Even by its own standards, however, the Rotterdam Convention fails to respond to its objective. This is not because the treaty is limited to PIC (which in itself is unfortunate, as it could have dealt with needed provisions on chemical management), but because it does not address any of the elements on which a successful PIC depends, namely: capacity building of developing countries to effectively implement the procedure; provisions to

[525] See Code of Conduct, *supra* note 48 Pmbl. para. 7.

facilitate the promotion of alternatives so that countries can actually reject an import; and trade with non-Parties to ensure participation of all relevant countries.

Capacity building activities are absolutely essential because although the exporting and importing countries have a 'shared responsibility' to protect human health and the environment from hazardous chemicals, the PIC system relies heavily on importing countries. Exporting countries must notify exports and ensure that decisions of importers in relation to PIC substances are respected, but it is upon importing countries to analyse the data received, to consider what other alternatives there are, and to make a decision on the future importation of a chemical, which must be consistent with national legislation and the rules of international trade. In addition, they must be able to effectively control imports.

In practice, the limited resources of developing countries greatly reduce their governments' ability to test, monitor, or regulate pesticides imported across their borders.[526] Government departments responsible for pesticides in developing countries have too few trained agronomists, chemists, biologists, engineers, etc., in extension service roles at the local level to gather and analyse samples (water, soil, produce), to advise farmers, to educate and work with those using pesticides or to initiate and promote new agricultural and integrated pest management practices.[527] In is in this context that the Rotterdam Convention will operate, just as the voluntary system did. The group of experts on the implementation of the voluntary PIC had specifically stressed the need to take measures to ensure participation of all exporting countries in the PIC system, and to provide substantial training and technical support programmes for developing countries for the implementation of the PIC procedure and for the management of chemicals. Yet the Rotterdam Convention addresses none of these problems. It does not encourage participation of all countries, since it allows trade with non-Parties, and it does not guarantee capacity building activities because it includes no concrete obligations upon developed countries to provide them, and no financial means to sustain them. All these factors point to the conclusion that the transformation of the voluntary PIC system into a binding one will be of little consequence. This is because a treaty that makes a procedure binding but provides no means for all parties to implement it; no alternatives to importing countries so that they can actually refuse imports; and no measures to promote participation of all relevant countries, is virtually meaningless.

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[526] See Zahedi, *supra* note 460 at 712.
[527] See Ecobichon, *supra* note 50 at 32.

Chapter Five

Protecting Health and the Environment from Hazardous Substances: How and to What Extent could Rotterdam Contribute?

5.1. Introduction

With the aim of undertaking a comprehensive and critical analysis of the Rotterdam Convention, this thesis has taken several steps. The first step, carried out in Chapter 2, was to define the problem that made a convention on trade in hazardous chemicals necessary. Then, the next chapter studied the context in which the problem developed, and its underlying causes. With those considerations in mind, Chapter 4 undertook a critical evaluation of the Rotterdam Convention, concluding that the treaty is fundamentally flawed in relation to its own objective.

The purpose of this final chapter is to consider ways in which the Rotterdam Convention could be improved so that it can make a significant contribution to the protection of the environment and human health from hazardous chemicals. On the one hand, the chapter points out the elements that a successful PIC system requires, and suggests ways to incorporate them into the Rotterdam Convention. On the other, it inquires whether these measures would be sufficient to contribute significantly to the protection of the environment and human health from hazardous chemicals. In other words, the chapter steps outside of the Rotterdam Convention framework and reflects on whether a system of prior informed consent is the most appropriate way of dealing with the problems that relate to the international trade in hazardous chemicals. In particular, it considers whether trade in hazardous chemicals and environmental protection are inherently compatible, as claimed by the Rotterdam Convention and reflected in the prior consent approach. The chapter explains why the assumption that trade and environment are inherently compatible is highly problematic, and why it has prevented states from seriously addressing the issue of trade in hazardous chemicals. The chapter contends that the means to achieve real progress are at hand and have been used in other cases (e.g. POPs), but that there seems to be a lack of political will to implement them in this case. This is arguably because the chemicals regulated by the Rotterdam Convention are not a priority for the North, which would need to provide most of the resources to achieve these goals. One would hope, however, that the principles analysed in Chapter 3 provide enough reasons for developed countries to take this issue as seriously as they took the

one on POPs, particularly because it is Northern agrochemical corporations which are collecting most of the profits of this transfer of hazardous chemicals.

5.2. Towards a successful PIC system

As pointed out in Chapter 4, the FAO/UNEP Joint Group of Experts –perhaps the most authoritative body on the voluntary PIC procedure– defined two ways of working towards a successful PIC system. The negotiating committee drafting the text of the Rotterdam Convention, however, did not consider these suggestions seriously, even though it was expected to take into account the experience gained with the voluntary PIC procedure.[528] The group of experts had clearly stressed the need to solve several basic problems for the successful implementation of the PIC procedure by: a) providing substantial training and technical support to developing countries to implement PIC and manage hazardous chemicals, and b) taking measures to ensure full participation of exporting countries in the PIC procedure.[529] The Rotterdam Convention assumed none of these tasks. It features no concrete obligations for developed country parties to provide financial or technical assistance to developing countries; there is absolutely no mechanism or fund to finance such assistance; and there is no provision banning trade with non-Parties, so there are no incentives for exporting countries to ratify the treaty. These are, therefore, two major issues that the parties to the Rotterdam Convention will need to address at a later stage. The next section explores the specific measures that could be adopted to deal with these deficiencies.

5.2.1. Training and technical support to developing countries

In relation to the first requirement, several steps should be considered. First, concrete obligations upon developed country parties to contribute to capacity building activities in the South should be specified. Second, parties should consider the creation of regional and subregional centres for capacity building to carry out some of these activities. Third, a mechanism to finance the activities performed by the centres (or any other capacity building mechanism) and the additional costs of using safer alternatives should be established, with mandatory, new and additional contributions by developed country parties and voluntary contributions by developing country parties and other donors.

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[528] See Chapter 4, and Agenda 21, *supra* note 342 Chapter 19 para. 38 (b).
[529] See Report of FAO/UNEP 7th meeting, *supra* note 436 at 8.

5.2.1.1. Specific obligations for capacity building activities in the South

The only obligation in the Rotterdam Convention that rests specifically on exporting parties (which are not necessarily developed country parties) is the one to advise and assist importing parties (not necessarily developing country parties) "upon request and as appropriate" to: (i) obtain further information in order to be able to make a decision in relation to the future import of a PIC chemical and (ii) to "strengthen their capacities and capabilities to manage chemicals safely during their life-cycle."[530] In addition, there is an obligation upon *all* parties to "cooperate in promoting technical assistance for the development of the infrastructure and the capacity necessary to manage chemicals to enable implementation of [the] Convention," "taking into account the particular needs of developing countries and countries with economies in transition."[531] These provisions are very difficult to enforce, as they do not feature specific measures or degrees of compliance, and they are not explicitly due by developed country parties, which are the ones that have the capacity to fulfil them. Moreover, the first obligation, which is slightly clearer, is due merely upon request and 'as appropriate.'

Interestingly, in a note that was prepared for consideration of INC 1, the UNEP/FAO Secretariat had urged state representatives to carefully consider and address the problems developing countries were facing to implement the voluntary PIC procedure, so that the legally binding PIC would achieve its objective:

> "Experience with the implementation of the PIC procedure has provided valuable insights into the strengths and weaknesses of the procedure as described in the London Guidelines and the Code of Conduct. When discussing the form and content of a legally binding instrument, due consideration should be given to the points raised above. Many of the problems raised need to be addressed in order to obtain the intended effect of a future legally binding instrument."[532]

The elements that the note asked representatives to consider related to a number of problems and deficiencies that had been frequently highlighted by DNAs (Designated National Authorities) and other government representatives in the course of the implementation of the voluntary PIC procedure. They included: the lack of local data (relevant to national conditions of use) necessary to make final decisions (e.g. information on health and environmental effects; exposure potential, etc); the lack of rapid communication devices (e.g. fax machines, computers, photocopiers); the need to

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[530] See Rotterdam Convention, *supra* note 16 Art. 11 (c).
[531] See Rotterdam Convention, *supra* note 16 Art. 16.
[532] See Experience in Implementation of PIC, *supra* note 515 at 7.

strengthen the offices responsible for controlling the importation of hazardous chemicals (e.g. Customs, ports of entry); the need for technical assistance to strengthen research into the environmental effects of use of chemicals in tropical ecosystems and high-altitude conditions, and to find, evaluate and do research on safer and affordable alternatives to hazardous chemicals; the lack of data on the chemicals being manufactured, imported or used domestically; and the need to train and assist DNAs to implement PIC effectively.

As specific problems encountered by developing countries in their efforts to comply with the PIC procedure have been identified, it would be useful to consider including concrete obligations addressing those issues. These could include obligations upon developed country parties to: assist and strengthen DNAs in developing countries so that they are able to comply with their obligations under the PIC procedure (e.g., by supplying them with appropriate equipment and by training officials so that they can collect and assess information on the impact of chemicals on health and the environment, on local production and importation of chemicals, and on affordable and safer alternatives); strengthen the systems and agencies responsible for controlling imports (Customs offices, ports of entry, monitoring systems); strengthen and promote research into the environmental effects of the use of chemicals in tropical and high altitude ecosystems; provide information on cost-effective alternatives to the chemicals to be exported; and provide training to DNA and other officials on the PIC procedure and on chemicals management in general.[533]

These and other provisions would set up concrete actions to enhance the capacity of developing countries (and of countries with economies in transition, if necessary) to implement the Rotterdam Convention effectively. To have specific obligations with regard to capacity building activities could also contribute to the effective implementation of the convention, since it would make it easier to determine whether or not a developed country party is complying with its obligations under the treaty. At the same time, the general character of the last obligation suggested, the one upon developed country parties to 'provide training to DNA and other officials on the PIC procedure and on chemical management in general,' would allow for some flexibility so that other activities not specifically listed would be covered by the provision.

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[533] See *Ibid.*

5.2.1.2. Regional centres for training and assistance

The second undertaking parties should assume to provide training and technical support to developing countries is the creation of regional and subregional centres for capacity building, as most of the tasks mentioned above could be performed through these centres. This idea was put forward in the note that the FAO/UNEP Secretariat presented at INC-1, which recommends that "regional training and assistance centres should be established to provide services on bio-efficacy, environmental effects in tropical ecosystems/high altitude conditions, identification of alternatives, etc."[534]

The centres for training and transfer of technology could be similar to those that have been established under the Basel Convention. However, it is important to take into account the experience gained with the implementation of the Basel Convention so that possible mistakes or deficiencies are not replicated. With that purpose in mind, the next section briefly reviews the regional and subregional centres created under the Basel treaty.

5.2.1.2.1. The Regional and Subregional Centres of the Basel Convention

Recognising the need to enhance the capacity of developing countries to comply with its provisions, the Basel Convention on hazardous wastes devises a specific mechanism to provide assistance to these countries: regional and subregional centres for training and technology transfer. Article 14(1) of the treaty stipulates:

> "The Parties agree that, according to the specific needs of different regions and subregions, regional or subregional centres for training and technology transfers regarding the management of hazardous wastes and other wastes and the minimization of their generation should be established. The Parties shall decide on the establishment of appropriate funding mechanisms of a *voluntary* nature..."[535] (emphasis added)

The role of the centres is to strengthen the capacity of developing countries to implement the Basel Convention both in relation to technical requirements (i.e. environmentally sound management of hazardous wastes) and with regard to institutional and legal aspects. They also play a key role in building the capacity of developing countries to enhance their knowledge of wastes and address their lack of inventories on waste

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[534] See *Ibid.* at 7.

[535] See Basel Convention, *supra* note 283 Art. 14 (1).

generation and other infrastructural deficiencies.[536] Activities include providing guidance on technical and technological issues, advising on enforcement aspects of the convention, and encouraging the introduction of cleaner production technologies and the use of environmentally sound waste management practices.[537]

Despite the importance of their activities, only eleven centres have been formally established, and their performance has been uneven primarily because of uneven availability of financial resources.[538] According to the directors of the centres in China, Argentina, Uruguay, South Africa and Egypt, the lack of adequate resources and/or financial insecurity are the most important constraints for the operation and development of the centres.[539] Furthermore, while the number of activities that some of centres have carried out is not very impressive,[540] the regional centre in Nigeria (which covers the whole African continent) and the subregional centre in India (which covers the countries of the South Asian Association for Regional Cooperation)[541] have not been formally established, pending identification of funding sources.[542]

The financial instability of the centres relates to the fact that the funding mechanism upon which they depend is of voluntary nature: the Basel Convention provides that

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[536] See UNEP, *Report of the Fifth Meeting of the Conference of the Parties to the Basel Convention* (Basel, 6-10 December 1999) UN Doc. UNEP/CHW.5/29 (10 December 1999) at 3 (argument presented by Jorge Illueca, speaking on behalf of Mr. Klaus Topfer, Executive Director of UNEP), online: <http://www.basel.int/meetings/cop/cop5/cop5reportfinal.pdf>.

[537] Basel Secretariat "About the Regional Centres" Online: <http://www.basel.int/centers/centers.html> (last visited 24 August 2003). Centres have been established in Argentina, China, Egypt, El Salvador, Indonesia, Senegal, Slovakia, South Africa, Russia, Trinidad & Tobago and Uruguay. See "Status of the Basel Regional Centres", online <http://www.basel.int/centers/regcentrestatus01.html>. Only three of them have web portals.

[538] At the 7th session of the Intergovernmental Negotiating Committee of the Stockholm Convention on POPs, held in 14-18 July 2003 in Geneva, Switzerland, the representative of Senegal noted that due to lack of financial resources, the performance of the centres in Sub-Saharan Africa has been inferior to that of Francophone Africa.

[539] Information kindly provided by Dr. Li Jinhui, Administrative Director of the Regional Centre in China, Ms. Leila Devia, Director of the Centre in Argentina, Ms. Silvia Aguinaga, Director of the Coordinating Centre in Uruguay, Mr. Adel Osman, from the Regional Centre in Egypt, and Dr. John Mbogoma, Director of the Centre in South Africa. The framework agreement that will clarify the legal status of the Regional Center in Egypt still needs to be finalized. Although a fund has been allocated thanks to a grant by the Finish government, it will cover only the first three years of implementation of the activities scheduled in the work plan of the center. Information kindly provided by Mr. Adel Osman (Regional Centre in Egypt).

[540] In terms of capacity building, for instance, the centre in Egypt, which covers the Arabic speaking countries in Africa and in West Asia, has only carried out one workshop on hazardous wastes management (2000); the centre in Indonesia, which covers Asia and Pacific countries, has done a workshop on hazardous waste management (2000) and a workshop on national reporting and the undertaking of national inventories of hazardous wastes under the Basel Convention (2002). See Secretariat to the Basel Convention, *Progress Report on the Activities carried out by the Basel Convention Regional Centres for Training and Technology Transfer*, UN Doc. UNEP/CHW.6/5 (10 October 2002), online: <http://www.basel.int/meetings/cop/cop6/english/5e.pdf?meetingId=2>.

[541] These countries are: Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

[542] See Secretariat to the Basel Convention, *Current Status of Basel Regional Centres*, (September 1999), online: <http://www.basel.int/centers/regcentrestatus99.html> (As of 24 August 2003, no information that the centres in Nigeria and India have been established had been posted by the Secretariat to the Basel Convention).

contributions to support the centres are voluntary, which means that even developed country parties are seen merely as donors. There is thus not mechanism to support the long-term sustainability of the centres and, even during their first years of operation, external financial support was required through the parties and other donors.[543] As noted by the consultative meeting of the Basel Convention regional centres, held in Cairo, Egypt in April 2002:

> "The funding of the centres, regardless of their nature, is one of the major problems confronting the Contracting Parties. The voluntary funding, envisaged by the Convention, does not provide stability needed for a smooth operation of the centres according to a longer-term business plan. Obviously, the financial burden for the operation of the centres has to be shared between the host country and other Parties to the Convention. However, in the absence of firm, longer-term financial commitments of the Parties, the host governments are usually reluctant to make major "investment" in centres whose financial viability and very existence does not seem secured by binding commitment of the Parties."[544]

5.2.1.2.2. The Creation of Regional Centres under the Rotterdam Convention

As the previous section explained, the lack of a financial mechanism with mandatory contributions under the Basel Convention has significantly curtailed the overall positive impact of the treaty's regional and subregional centres. Because the amount and availability of the resources are uncertain, there is no guarantee that the centres will be able to carry out their activities, or be sustainable in the future. Thus, while under the Basel Convention some centres have been able to obtain resources from governments and other donors, others have not even been established due to a lack of financial means. On the other hand, the fact that a donor may support the activities of a centre for a period of time does not guarantee its long-term sustainability.

Two conclusions can be drawn from the experience gained with the regional centres of the Basel Convention if regional centres were to be created under the Rotterdam Convention. First, contributions by parties should be mandatory, so as to ensure that enough resources are available for all the centres to carry out their activities. Second, contributions should be made on a regular basis, so as to guarantee the long-term sustainability of the centres.

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[543] Several aspects show the instability of the centres: in El Salvador and Trinidad and Tobago, the centres have undertaken regional activities without having formally designated specific staff for the long term; in South Africa, funding of the centre is being negotiated with the Government of Denmark and the staffing situation is pending; in Egypt, the identification of funding sources for the long-term funding of the centre is pending, and India is still pending and staffing situation has not been defined yet. See *Ibid.*

[544] Consultative Meeting of the Basel Convention Regional Centres, "Option of the Establishment of Basel Convention Regional Centres and the Implications of Various Options" (Cairo, Egypt, 4-5 April 2002) at 7-8, online: <http://www.basel.int/centers/draft.options.rev5.pdf>. (Last visited 24 August 2003)

5.2.1.3. Creation of a financial mechanism for capacity building activities

Given the very limited capacity of developing countries to manage hazardous chemicals and to implement the PIC procedure, it is essential that a financial mechanism supporting capacity building activities -regardless of whether they are carried out through regional centres or any other mechanism(s)- be created. The fund should also sponsor the additional costs of using safer but more expensive alternatives in the South. This is not only because the use of safer alternatives is directly connected to the safe management of chemicals (i.e. those that are too hazardous should simply be avoided), but also because the PIC procedure is based on the idea that the importing country has the *choice* to refuse an import; without that option, it would make no sense to go through the process of information exchange and prior consent. Thus, if the only option to a PIC chemical is a more expensive alternative that the importing country needs but cannot afford, that additional cost should be borne by the financial mechanism to the Rotterdam Convention.

The financial mechanism to fund capacity-building activities and safer alternatives should be sponsored by mandatory, periodic, new and additional contributions by developed country parties, and contributions by other donors (including developing country parties) on a voluntary basis and within their capabilities. The Stockholm Convention on POPs provides for a similar mechanism, which could serve as guidance for the Rotterdam fund. However, the Stockholm Convention deals with POPs, which by definition have a global effect. Accordingly, it provides that the financial mechanism will cover the agreed full incremental costs of implementing measures that fulfill the obligations of developing country parties and parties with economies in transition.[545] This approach would not be appropriate for the Rotterdam Convention, however, because some of the substances to be replaced may not have a direct impact on the global environment,[546] and thus may not be considered an "incremental cost" as defined by the Global Environment Facility.[547]

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[545] The Stockholm Convention also provides for the creation of regional centres for capacity building and transfer of technology to assist developing country parties and parties with economies in transition to fulfill their obligations under the treaty. However, there is no reference to the financial resources that will support the centres. See Stockholm Convention, *supra* note 13 Art. 12(4).

[546] If just incremental costs were accepted, only safer alternatives to those pesticides directly linked to the global environment, i.e., POPs, could be considered for funding.

[547] The term 'incremental cost' refers to "the additional cost that the GEF funds between the cost of an alternative project that a country would have implemented in the absence of global environmental concerns and a project undertaken with global objectives in mind." See *supra* note 366.

Since the Stockholm Convention finances alternatives to POPs, which have a clear global impact because of their characteristics and travelling patterns, the Rotterdam Convention could finance and promote safer alternatives to those chemicals which are not POPs and are especially problematic for the South. This idea responds to the fact that, as explained in Chapter 3, it is the responsibility of *all* countries, with developed countries having a larger share on account of their special responsibilities and capacities, to contribute to the safe management of hazardous chemicals in the South. Furthermore, Chapter 19 of Agenda 21 specifically refers to the use of safer chemical and non-chemical alternatives as one approach to risk reduction (one of the six programme areas for the environmentally sound management of toxic chemicals), and to the adoption of policies and measures to "identify, and minimize exposure to, toxic chemicals by replacing them with less toxic substitutes and ultimately phasing out the chemicals that pose unreasonable and otherwise unmanageable risk to human health and the environment" as an activity that governments should undertake.[548]

Despite its significance to the PIC procedure and to chemicals management, the issue of safer alternatives to hazardous chemicals is barely mentioned in the Rotterdam Convention, which simply asks parties to provide available information:

> "Each Party shall ensure, to the extent practicable, that the public has appropriate access to information on chemical handling and accident management and on alternatives that are safer for human health or the environment than the chemicals listed in Annex III."[549]

By the same token, Annex I (d)(ii) of the convention includes among the relevant information that parties 'may' provide to the Secretariat when notifying a final regulatory action to ban or severely restrict a chemical:

> "(ii) Information on alternatives and their relative risks, where available, such as:
> - Integrated pest management strategies;
> - Industrial practices and processes, including cleaner technology."

Although the Rotterdam Convention is not intended to deal directly with chemicals management but with information exchange and prior informed consent, the very concept of PIC lies on the idea that importing countries have a choice. As explained before, if developing countries had no access to alternatives to the chemicals included in the PIC list, it would be completely meaningless to follow a procedure of prior consent. Furthermore, if the ultimate goal of the Rotterdam Convention is to protect human health

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[548] See Agenda 21, *supra* note 342 Chapter 19 paras. 44 and 49(c).
[549] See Rotterdam Convention, *supra* note 16 Art. 15(2).

and the environment from the potential harmful effects of some hazardous chemicals and pesticides, alternatives should be promoted, made known and, if necessary, supported.

Another important aspect to consider in relation to the financial mechanism is that decisions on resources (e.g. what projects and alternatives should be financed, what are the priorities of project financing, etc.) should be made by a body where developed and developing country parties are equally represented. It could be, for instance, an executive committee such as the one managing the multilateral fund of the Montreal Protocol, the COP, or a subsidiary body of the COP. Participation of all concerned parties in decision-making is important because capacity building activities are to benefit developing countries, which are aware of their local problems and should have a say in the solution. In addition, attention should be paid to the role of entities that have traditionally promoted pesticide use in the South. The World Bank, for instance, has a history of promoting chemical pesticides in developing countries, as it has consistently encouraged export agriculture (i.e. large monocultures which are more vulnerable to pests and thus require significant amounts of pesticides) in those countries. As explained in Chapter 3, the bank has attempted to address this problem through Operational Policy 4.09, which applies to projects involving pest management and supports the use of biological or environmental pest control methods to reduce reliance on chemical pesticides.[550] In practice, however, the policy has been poorly implemented, and even projects with good pest management design frequently fail to achieve their goals due to inadequate project monitoring and control by bank staff.[551] Under these premises, it is not desirable that the World Bank be involved in any decision-making process concerning the financial mechanism of the Rotterdam Convention. As an alternative, the bank could operate under specific guidelines dictated by the COP or other democratic decision-making representative body, which could periodically oversee its activities.[552]

5.2.2. Trade with non-Parties: promoting participation of all exporting countries

The second recommendation by the Joint Group of experts was to take measures to ensure participation of all exporting countries in the PIC procedure. As pointed out in

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[550] See O.P. 4.09, *supra* note 296 Art. 1.

[551] For details see Chapter 3.

[552] Participation of the bank could be indirect, like in the case of the multilateral fund of the Montreal Procotol, managed by an Executive Committee with assistance from the World Bank, UNEP and UNDP. Given its structure and expertise in project finance, the World Bank has directly managed the operations of the multilateral fund. However, the Executive Committee oversees these operations. See Montreal Protocol, *supra* note 352 Art. 10(5) and Jason M. Patlis, "The Multilateral Fund of the Montreal Protocol: A Prototype for Financial Mechanisms in Protecting the Global Environment" (1992) 25 Cornell Int'l L.J. 181 at 202.

Chapter 4, the easiest way to achieve this goal was to proscribe trade of PIC chemicals with non-Parties, so that all exporting countries would feel compelled to ratify the convention. The Rotterdam Convention originally included a rule on trade with non-Parties, but the provision was later deleted. There is therefore no incentive for exporting countries to become parties to the treaty. This jeopardises the very purpose of transforming the voluntary PIC into a binding instrument, which is to achieve "full participation and implementation of the PIC procedure."[553]

The fact that the United States, a major chemical exporter, has not yet ratified related treaties such as the Basel Convention on hazardous wastes (in force for more than ten years) reveals the significance of a provision on trade with non-Parties. Unlike the Rotterdam Convention, however, the Basel treaty generally proscribes trade with non-Parties, and allows it only when an agreement that guarantees the environmentally sound management of hazardous wastes as required by the convention has been celebrated.[554] Thus, although the U.S. has not ratified the Basel Convention, it is at least bound by some minimum requirements under the bilateral agreements it has celebrated with Mexico, Canada, and Malaysia, which are all parties to the treaty.[555]

The Stockholm Convention provides that intentionally produced POPs (listed in Annexes A and B) for which there are specific production or use exemptions may be exported to a non-Party only if the latter has provided an annual certification to the exporting party. The certification must specify the intended use of the chemical, and include a statement by the importer that it is committed to protect human health and the environment by taking the necessary measures to minimize or prevent releases, to comply with provisions on final disposal and, if applicable, to use DDT only for malaria control and if affordable and safe alternatives are not available.[556] In summary, trade with non-Parties is prohibited as a general rule, unless this specific exception applies.

Whether trade with non-Parties is entirely proscribed, or whether it is allowed under certain conditions (e.g. if prior notification has been given to the importing country and a response has been received), the Rotterdam Convention must address the issue so as to

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[553] See Agenda 21, *supra* note 342 Chapter 19 para. 38(b), and Chapter 4.

[554] See Basel Convention, *supra* note 283 Art. 11 (a) This requirement is somehow problematic, as "environmentally sound management" is an ambiguous term.

[555] For details see James O'Reilly & Barbara Cuzze "Trade or Treasure? Industrial Recycling and International Barriers to the Movement of Hazardous Wastes" (1997) 22 Iowa J. Corp. L. 507 at 521-524.

[556] See Stockholm Convention, *supra* note 13 Art. (3)(b) para. 3. The production and use of DDT is limited to parties included in the DDT Register. (See Annex B Part II para. 1).

ensure that a few exporting countries do not defeat the purpose of the treaty, which is to protect human health and the environment from certain hazardous chemicals through information exchange and prior informed consent. Given the vulnerable situation of developing countries, it would be preferable that trade with non-Parties be entirely prohibited. The Rotterdam Convention features very basic requirements in relation to information exchange and prior notification, and exporting countries should simply not be able to export hazardous chemicals to parties unless they ratify the treaty and observe it in its entirety.

This section has suggested some specific measures that would serve to improve the Rotterdam Convention so that it may achieve its objective through a more effective PIC system. A system of prior informed consent, however, may not be the most appropriate way of dealing with the international trade in hazardous chemicals and pesticides. This is because underlying that system lies the assumption that trade in hazardous chemicals and environmental protection are inherently compatible or, as put by the Rotterdam Convention, 'mutually supportive.' This, however, can be highly problematic. The purpose of the next section is to explain why.

5.3. Trade in hazardous chemicals and the environment: mutually supportive?

The Rotterdam Convention prohibits trade of hazardous chemicals only in very exceptional cases. As explained in Chapter 4, although it provides that no PIC chemicals should be exported when the importing country has given no prior consent, unless one of three exceptions apply, the exceptions are so broad that they ensure trade in hazardous chemicals will continue unless the importing country effectively participates in the PIC procedure by refusing an import.[557] Furthermore, all those hazardous chemicals which are not subject to the PIC procedure but that have been banned, severely restricted or which are not registered for use in the exporting country can be legally exported to other states as long as some minimal requirements (i.e. notification to the importing country) are met.

[557] See Rotterdam Convention, *supra* note 16 Arts. 10(9) and 11(2), and Chapter 4. To make a decision, the importing country requires the technical capacity to analyse the data received and to study the possible effects of the substance under its own environmental conditions; to consider viable and affordable alternatives; and to make sure that its decision is consistent with international trade law.

These provisions are consistent with the liberal economic paradigm of free market, as they reflect the notion that trade should be disrupted as little as possible. They derive from the assumption that trade in hazardous chemicals and pesticides and the protection of the environment are inherently compatible. This idea is articulated in the preamble of the Rotterdam Convention as follows:

> "[t]rade and environmental policies should be mutually supportive with a view to achieving sustainable development."

The consequence of this assumption is that the export of hazardous chemicals (i.e. chemicals and pesticides banned or severely restricted in the exporting country for reasons of health or the environment) is confirmed as the general rule, and not as the exception. Like this, the Rotterdam Convention supposes that the problem is not the transfer of hazardous chemicals from developed to developing countries in itself, but the lack of information and the very limited capacity of the latter to manage hazardous chemicals safely (yet no means are provided to enhance that capacity). More importantly, the treaty assumes that once developing countries have adequate information, they will be able to decide freely on the importation of a chemical. However, as explained in Chapter 3, developing countries are in a difficult economic position that greatly limits that choice, especially when one bears in mind the emphasis that international economic institutions have put on export agriculture as a way to overcome underdevelopment in the South –with the resulting increasing dependence on chemical pesticides– and the enormous power exerted by multinational agrochemical corporations in developing countries, which not only need pesticides but are also anxious to attract or maintain foreign investment.

The liberal economic model calls for information exchange, perhaps training on the safe use of chemicals, and as little intervention of the international trade in hazardous chemicals as possible. Using the argument of national sovereignty, it maintains that developing countries should decide which substances they import and which substances they reject. Thus, even though it is accepted that certain chemicals are too hazardous to be used in the North, it is argued that developing countries might have different 'preferences' and needs, and it is up to them to decide whether health and the environment are more important than fast economic growth. This view is reflected in the preface of the FAO Code of Conduct, which justifies export double standards as follows:

> "[T]he fact that a product is not used or registered in a particular exporting country is not necessarily a valid reason for prohibiting the export of that pesticide. Developing countries are mostly situated in tropical and semitropical regions. Their climatic, ecological, agronomic, social, economic and environmental conditions and therefore their pest problems are usually quite different from those prevailing in countries in which pesticides are manufactured and exported. The government of the exporting country, therefore, is in no position to judge the suitability, efficacy, safety or fate of the pesticide under the conditions in the country where it may ultimately be used. Such a judgement must, there fore, be made by the responsible authority in the importing country in consultation with industry and other government authorities in the light of the scientific evaluation that has been made and a detailed knowledge of the conditions prevailing in the country of proposed use..."

This thinking would be less problematic if all countries had the proper resources and technical capacity to do a risk analysis on each chemical that they import, and if they had the same ability to refuse the import of a substance if they found that the risks for the environment or human health are simply too high to assume. Yet the Code of Conduct and the Rotterdam Convention were adopted precisely because developing countries lack such capacity. That very fact suggests that the export of hazardous chemicals should be admitted only in very exceptional cases, i.e., when safer and viable alternatives are not available, or when there is sufficient evidence proving that the substance will not pose unacceptable risks to the environment or human health under the environmental conditions of the importing country. The argument has been, however, that since climatic, social and environmental conditions vary, a substance posing risks to the environment or human health in the developed North will not necessarily pose such risks in the South. The presumption, however, should be exactly the opposite. While it is true that climatic and pest conditions may vary, the fact that around 99% of the poisonings occur in the South even though more than 80% of the world's pesticides are applied in industrialised countries,[558] provides enough indication that a substance creating problems in the North will very likely create *at least* equally serious problems in the South. Moreover, as explained in Chapter 2, the fact that most developing countries are located in tropical or semitropical regions increases the risks for farmers, as such climatic conditions make the use of protective equipment unpractical. Thus, it should be presumed that chemicals banned or severely restricted in a developed country are going to cause equal or greater harm in the South, *unless* sufficient evidence proved otherwise.

This reasoning also applies to the export of pesticides never registered for use in the exporting country. As argued in Chapter 2, the export of pesticides never registered for use in the exporting country could eventually be acceptable, because a substance may deal with a pest that is not a problem in the exporting country. Thus, there would be no

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[558] See "International Code on Pesticide Use Adopted in Rome," *supra* note 55.

reason for the manufacturer to register the product in its own country. However, as the chapter also stresses, that circumstance should not exempt the manufacturer from ensuring the safety of its product, nor should it exempt the exporting state from ensuring that testing procedures for pesticides meant only for export are *at least* as stringent as those applied to products meant for domestic use. A possible solution to avoid the export of never registered chemicals which have not been properly tested in the country of origin and which pose significant risks to health or the environment would be to condition their exportation to proper testing requirements. This could be achieved, for instance, through a provision ordering parties to adopt and enforce legislation requiring *at least* the same testing requirements for chemicals only meant for export as those to be used domestically. Until such legislation is enforced, no 'never registered' chemicals should be exported from that party.

5.3.1. Trade and environment in the Stockholm and Basel conventions

Despite the fact that they deal with similar problems, both the Stockholm and Basel conventions deal with the issue of international trade and environmental protection in a different manner. Although the Stockholm Convention declares in its preamble that the treaty and "other international agreements in the field of trade and the environment are mutually supportive," it bans trade in POPs as a general rule and allows it only in very exceptional cases. The compatibility between trade and environment means, therefore, that trade in POPs should not occur unless special circumstances existed. Furthermore, while the non-conflicting relationship between trade and the environment is not very clearly formulated, the preamble of the convention quotes the principle of state responsibility for transboundary harm as formulated in the Stockholm and Rio declarations, reaffirming the duty of states to prevent transboundary harm. It also affirms that "precaution underlies the concerns of all the Parties and is embedded within [the] Convention," and recognises "the importance of developing and using environmentally sound alternative processes and chemicals." Accordingly, the treaty bans not only trade in POPs but also the production of intentionally produced POPs, aiming at the reduction and ultimate elimination of all POPs. These provisions suggest that the precautionary approach to prevent environmental damage, and the protection of human health, no matter how economically 'inefficient,' were preferred to the liberal economic paradigm of free trade, comparative advantage, economic efficiency, etc. This preference was probably related to the special situation of developed countries in relation to POPs. As Chapter 2 explains, POPs have a more tangible global impact and a direct effect in the

North, as they tend to migrate to and accumulate in colder latitudes, regardless of where they are used (e.g., DDT applied in India may eventually have a negative effect on the Arctic environment and peoples).

The Basel Convention, which did not initially ban the export of hazardous wastes unless expressly prohibited by the importing party, seems to go even further. In 1995, the treaty was amended to incorporate an outright ban on the export of hazardous wastes from North to South, due to the pressure long exerted by developing countries and nongovernmental organisations.[559] The reasoning behind the ban (not yet in force) is that there is a high risk that hazardous wastes will not be safely managed in developing countries, and the risk should simply not be taken. It also reflects the 'polluter pays principle,' according to which whoever causes pollution should assume its costs.[560] As a result, developed countries should bear the costs of industrialization, from which they have enjoyed the benefits, and dispose of their own hazardous waste instead of exporting it to the South.[561] This view is reflected in the following statement by former U.S. EPA Administrator Carol Browner:

> " The U.S. must set an example for the world by taking responsibility of our own wastes. Citizens in other countries should not be asked to bear the burden of U.S. pollution... The U.S. exports only a fraction of a percent of our hazardous wastes. But that fraction adds up to a significant amount. The current policy puts people in other countries at risk of dangerous exposures to toxic chemicals. That has to stop."[562]

The Basel ban seeks to protect the environment and human health in developing countries, and to promote the responsibility of those generating large amounts of waste to manage it at home instead of transferring it to the poor. For the liberal economic paradigm, however, an outright ban is inefficient, since waste disposal is much cheaper in the South[563] and some developing countries could have a 'comparative advantage' in the

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[559] Decision III/1 bans the export of hazardous wastes from Annex VII countries (members of the OECD and the EU, and Liechtenstein) to other countries. The amendment requires 62 ratifications in order to enter into force. As of June 2003, 37 parties had ratified it. Information online: <http://www.basel.int/ratif/ratif.html#ban>. (Last visited 24 August 2003).

[560] See Rio Declaration, *supra* note 341 Principle 16.

[561] See Zada Lipman "Dirty Dilemma. The Hazardous Waste Trade" *Harvard International Review* 23:4 (2000) 67 at 70-71.

[562] In Muthu S. Sundram "Basel Convention on Transboundary Movement of Hazardous Wastes: Total Ban Amendment" (1997) 9 Pace Int'l L. Rev. 1 at 23-24.

[563] In the late 1980s, for instance, the average disposal cost for one tonne of hazardous waste in Africa was between $2.50 and $50, while in OECD countries it ranged from $100 to $2000. See Jonathan Krueger, *International Trade and the Basel Convention* (London: Royal Institute of International Affairs with Earthscan, 1999) at 21.

recycling or disposal of hazardous waste.[564] From that perspective, it would make more sense to focus on developing the capacity of recipient countries to manage hazardous waste safely than to ban trade altogether. From the perspective of environmental equity, however, it is unfair that the poor be burdened disproportionately by environmental hazards simply because they have no choice, or because their choice is significantly constrained.[565]

One could argue that the Basel ban employs an alternative approach to the liberal economic paradigm, giving primacy to health and environmental protection over plain economic efficiency. However, it formulates and develops the principle without providing the means for vulnerable countries to implement it. Thus, even if a Southern country prohibits the importation of hazardous waste from the North, the transfer may still occur, because the importing country may be incapable of implementing the Basel Convention's provisions (e.g. it is unable to prevent illegal traffic; to collect data on the wastes being imported and generated internally; and to manage hazardous wastes in an environmentally sound manner), and it may still dependent on hazardous wastes that are used as cheap raw materials. Since the Basel Convention does not provide the means for developing countries to improve that capacity, and it does not promote safer alternatives to cheap raw materials, one could argue that the ban is only a half-measure. The Stockholm Convention, in contrast, provides the means for the South to implement its provisions, particularly its restrictions on use, production and trade in POPs. Although it does not impose an outright ban on trade in POPs as the Basel Convention does with hazardous wastes, it sets trade as the exception and provides for new and additional financial resources to fund the additional costs of using alternatives to POPs in developing countries. These measures reflect the willingness of the North to make sacrifices to protect the environment and health from POPs, arguably because of its special vulnerability to these chemicals.

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[564] The view that a ban is inappropriate because developing countries could have a comparative advantage in waste recycling or disposal is supported, for instance, by Schneider, *supra* note 239 at 288; Gudofsky, *supra* note 239 at 283-285 (Gudofsky argues that despite the risks of allowing trade in recyclable hazardous waste, these potential dangers do not justify a total ban on transboundary shipments in and of themselves. He claims that failure to provide a relatively open system of trade in secondary materials may "stunt the development of a strong recycling and recovery industry"); and Asante-Duah & Nagy, *supra* note 239 at 5-6, 39-60 and 110. Despite of recognising the various deficiencies for waste management in developing countries (at 39-60), Asante-Duah & Nagy argue that many developing countries are

> "plagued by lower health standards and low life expectancy. The increased risks associated with the handling of hazardous wastes may be considered low when compared to everyday risks of living in an impoverished developing country. As a result, tolerance to risk is high, and many opportunities exist for taking advantage of the income disparities between developed and developing countries... if the hazardous waste trade is properly managed, such trade programmes can be used to curb poverty, improve quality of life for people in developing countries, and safeguard the environment" (at 110).

[565] See section 3.4.2. in Chapter 2 and Lipman, *supra* note 561 at

Unfortunately, those hazardous chemicals which do not exhibit the characteristics of persistent organic pollutants (generally less acutely toxic to humans than to the environment), but which have serious implications for health and the environment in the South, are scarcely controlled. Behind the reasoning of the London Guidelines, the Code of Conduct and the Rotterdam Convention seems to be the conviction that the high environmental standards of the North should not be imposed on the South, especially if the implication is that developing countries will not be able to use chemicals needed for economic development (i.e. export agriculture). Yet, by interpreting the use of hazardous chemicals as a necessity for the South, the debate has portrayed the environment and human health on one side, and economic development on the other, as two conflicting aspirations. As a result, the well being of farmers and a healthy environment are seen as luxuries that developing countries cannot afford and for which the North is not responsible, even though most of these substances are produced by or imported from Northern multinational corporations.[566]

The consequence of this conception is that instead of promoting the use of safer alternatives in the South, international responses have focused on information exchange and prior consent, as if the lack of information were the primary problem of the South in relation to hazardous chemicals. As pointed out by the report "World Resources 1998-1999," many of the pesticides of the 1990s are less toxic to humans and the environment and require less per hectare use to be effective, and the number of acute pesticide poisonings could be greatly reduced if countries and pesticide manufacturers agreed to phase out the use of the most toxic pesticides and enact other reforms to increase the safety of pesticide handling.[567] While giving the impression of addressing the issue, the Code of Conduct, the London Guidelines and the Rotterdam Convention have instead left the international market of hazardous chemicals virtually unhindered, legitimizing double standards. This has allowed Northern agrochemical corporations to continue reaping the profits of selling hazardous pesticides in developing countries, regardless of the negative consequences for the people and the environment in those countries, and Northern governments to protect their own people and natural environments by banning or restricting the use of certain chemicals within their borders, while transferring them to the South.

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[566] For an incisive analysis of the myth that environmental protection is a luxury that the South can ill afford, and of how the North has reaped the benefits of liberalized trade while exporting the environmental costs (e.g. hazardous wastes) to the South see Carmen G. Gonzalez "Beyond Eco-Imperialism: An Environmental Justice Critique of Free Trade"(2001) 78 Denv. U.L. Rev. 979 at 983-993.

[567] See "World Resources 1998-1999," *supra* note 32 at 85.

The difficulty of international trade rules and the paradigm of free trade is that they put all actors in the same playing field (the international market) regardless of the different capacities of states, of human rights and of environmental protection. Thus, if as a result of lower environmental standards a Chinese company produces hazardous pesticides that significantly pollute the environment or poison users in China, that automatically gives the right to, e.g., a Swiss company to do the same. This way of thinking is implicit in one of the arguments given by the U.S. EPA to justify the export of banned and unregistered American pesticides to developing countries, despite the recognition that they have negative impacts on the environment and health in the importing countries. In its 1993 Pesticide Export Policy, the EPA noted:

> "[c]ontrolling the export of hazardous pesticides from the United States alone will not resolve the problems associated with pesticide use in developing countries. The United States is one of many pesticide exporters... many countries, including some developing countries, have the manufacturing capability to produce and export pesticides which have been banned or which are unregistered in the United States."[568]

While it sounds logical and even 'fair' from the perspective of the international trade system, as the same rules should apply to all, this reasoning is morally problematic. From the perspective of the human rights approach and of Kantian ethics, which are both versions of the principle of international environmental equity (studied in Chapter 3), the fact that a person violates the rights of others or uses them as means does not entitle others to do the same. To put it bluntly, if A tortures B, that does not give the right to C (or anyone else) to do the same, simply because B has some inalienable rights that should be respected. Furthermore, one could argue that the more freedom C has (and coming back to the Kantian concept of "moral agent" explained in Chapter 3), the more responsible it is for respecting the rights of B. Thus, while the conduct of a Chinese company producing hazardous substances would be reprehensible (perhaps it produces older and more toxic substances because no patent rights protect them and it is all it can afford to produce), it would arguably be even more reprehensible –given its greater ability to do what is right– for a big Swiss corporation to take advantage of lower standards and start producing or exporting noxious substances to China, particularly if those substances were banned in Switzerland for health or environmental reasons.

As argued by Marc Williams, the liberal perspective (strongly reflected in the Rotterdam Convention) is seriously deficient because it abstracts from power relations in the global

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[568] See EPA Export Policy 1993, *supra* note 109 at 9064, and Chapter 2.

political economy. Thus, although the transfer of pollution from a rich to a poor country may be economically efficient, and the leaders of the poor country may decide to sacrifice the health and well-being of their population in order to achieve faster economic growth, to accept that the international trade in hazardous substances should result in the poisoning of Third World population is to take a *morally bankrupt position*.[569] By assuming that there is no inherent conflict between trade of hazardous chemicals and environmental protection, the liberal economic order immediately prefers economic efficiency to environmental or health protection whenever the two objectives conflict. Thus, although an effective way of preventing environmental degradation and poisonings in the South would be to ban the export and production of some hazardous chemicals as a general rule, while providing the economic and technological means for developing countries to use and manage safer alternatives, the paradigm of free trade claims that it would be cheaper and more sensible to allow such trade, while taking measures to procure the safe management of chemicals in the South. However, to claim that such measures are sufficient to deal with the problem neglects ample and consistent evidence that the safe use of hazardous chemicals in the South is far from being a reality, and that some substances are simply too hazardous to be used even in the developed, rich and technically equipped countries of the North.

5.3.2. Conclusion

Given the magnitude and complexity of the issues it confronts, the Rotterdam Convention is clearly not sufficient to address the environmental and health problems related to the use of hazardous chemicals in developing countries, as it is limited to information exchange and prior informed consent. As explained throughout this thesis, to protect health and the environment from hazardous chemicals would also require serious consideration of issues such as: the management of chemicals in developing countries; the activities of the chemical industry (including rules on testing and production in the South); and the promotion and funding of safer and non-chemical alternatives. Nevertheless, a convention centred in PIC could achieve some progress in the area of hazardous chemicals if it addressed the issues upon which a successful PIC system depends, and which have been explained in this chapter, i.e.: clear obligations for developed country parties to provide assistance for developing country parties to implement the treaty and to manage hazardous chemicals; a financial mechanism to support capacity building activities and to finance the additional costs of using more

[569] See Marc Williams, *supra* note 255 at 96.

expensive but safer alternatives in the South; and a provision on trade with non-Parties to promote participation of all exporting countries in the procedure.

While these elements are fundamental for a successful PIC procedure, the PIC procedure itself might not be sufficient to truly contribute to the protection of the environment and human health from potential harm of certain hazardous chemicals, which is the ultimate goal of the Rotterdam Convention. This is because the PIC approach is based on the idea that trade in hazardous chemicals and environmental protection are inherently compatible. From that assumption follows the principle that trade should be restricted as little as possible (i.e. only in exceptional circumstances), and the supposition that substances that are too hazardous to be used in the North will not necessarily be hazardous in the South, as it has different environmental conditions, different standards and priorities, etc.

This approach, however, is highly problematic, because it neglects the fact that developing countries are relatively less capable of safely managing hazardous chemicals and may not be able to afford safer alternatives; that conditions of use in developing countries make it more (and not less) likely that chemicals banned or restricted in the North will pose at least equally serious problems in the South; and that some substances are just too hazardous to be used. Perhaps more importantly, it neglects the rights of the people using hazardous chemicals in the South, and the duty upon states to take all practicable measures to prevent transboundary harm.

If states were as serious about this issue as they were about dealing with POPs, trade in hazardous chemicals would be the exception rather than the rule; it would be presumed that chemicals that are problematic in the North will pose problems in the South unless the exporter provided sufficient evidence contradicting that assumption; and sufficient resources and efforts would be dedicated to support safer alternatives to hazardous chemicals, and to the environmentally sound management of chemicals in the South. Regrettably, most of the financial and technical resources to achieve these goals –not to mention the efforts to hold big multinational corporations accountable for what they sell in the South- would need to come from the industrialised North, which does not have a strong interest in preventing those hazardous chemicals and pesticides that are not persistent organic pollutants from being used in the South. One would still hope, however, that the legal and moral principles considered in Chapter 3 provide enough

incentive for the industrialised countries of the North to address the issue of trade in hazardous chemicals and pesticides as fervently as they addressed the issue of POPs.

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