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The Basel, Rotterdam and Stockholm Conventions on Chemicals and Wastes – Regulation, Sound Management and Governance

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PREFACE

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The Geneva-based conventions on chemicals and wastes show evidence of the difficult balance between different legal approaches concerning environmental goods and services, promotion of trade and protection of the environment (including health, both human and animal), long term and short term approaches, technical measures and respect of legal as well as ethical requirements. The key word to reconcile the different approaches underlying different conventions is *mutual supportiveness* of international agreements. Applying this concept consistently is the only answer to the complexity of the relation between international commitments often based on similar basic philosophies (such as *sustainable development,* a goal common to the WTO and multilateral environmental agreements), but with substantially different interests at stake.

The Need to Work Together: Cooperation, Coordination and Mutual Supportiveness

The successful conclusion of the extraordinary Conference of the Parties (ExCOP) of the Basel, the Rotterdam, and the Stockholm Conventions in Bali in February 2010 has demonstrated the desire of the Parties to increase synergies among these three related but distinct conventions. This ExCOP is the result of a three year long process aiming at strengthening the cooperation and coordination among them. It represents a particularly appropriate moment in time to take an analytical look at these conventions, at their legal and managerial interactions, and at some issue areas which are related to their functions. We thus hope that this publication will be helpful in facilitating international cooperation in the complex multistakeholder and interdisciplinary domains where related negotiating and administrative challenges arise every day.

In addition to mutual supportiveness, *systemic approaches* are necessary to make the best use of the opportunities offered by the development of environment-friendly technologies on one hand, and the search for sustainable policies, on the other hand. The example of the three "chemicals" conventions is from this point of view striking. And yet they are often largely ignored in the public discussions about trade, environment, transfer of scientific knowledge and technology, even by professional negotiators. For example, the importance taken by *environmentally sound management* as a framework for the technical solutions that those conventions require confirms the limits of a purely "trade" approach. Yet it is often ignored when considering trade in potentially harmful goods. To address the ultimate problems of waste disposal, of handling dangerous chemicals or accepting new chemicals, it is not sufficient to open the door to environmental goods and services, or even to deliver environmentally sound technology.

Like most international conventions, the ones dealing with chemicals and wastes reflect the moment and the conditions under which they were adopted. They provide different legal instruments to achieve their goals. They do not always take into account the opportunities offered by other conventions or their impact on a specific kind of trade. They tend to be implemented "in isolation" according to their specific objectives. Yet, those three conventions deal with a common set of problems: wastes and chemicals are products which have a deep and long term impact on the environment. To a large extend they escape control once they have been put to use or discarded as useless. In addition, their impact must be considered within their *lifecycle*, and not for a specific, punctual use. Moreover, they are often related to each other, waste being the ultimate destination of all goods and products subject to trade. Thus, it is necessary to consider the *problems* created in the long term by those products rather than the conditions under which they are put on the market or used.

The Instruments of a Common Approach

Waste is the object of a single convention, the Basle Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, adopted in 1989 and entered into force in 1992. Chemicals are subject to different conventions including the Basel Convention (reflecting different approaches to the problems they raise) and initiatives from the international community. A common approach therefore relies on the coordinated implementation of those conventions, but also on the use of common concepts and principles. *Similar instruments* should be used for performing the *risk analysis* which is a necessary tool for implementing the three conventions, as the effects of hazardous wastes and chemicals on the environment can be very similar. The concept of *environmentally sound management*, inspired by the Basel Convention, should be basic to the implementation of both the wastes and the chemical legislations. Actually, managing waste means looking at what it was before being defined as waste, and managing chemicals implies taking into account their becoming hazardous waste soon or later. In addition, the very nature of a chemical product is likely to determine the problems to address when dealing with waste containing, or resulting from the use of, such chemicals. Environmentally sound management of one is not possible without the same approach for the other. This is the consequence of an increasing awareness that there is no control of the negative impact of specific substances without considering their total lifecycle, 'from cradle to grave.'

An additional way of fostering a common approach is through joint implementation of the conventions. This includes providing joint recommendations for the interpretation of the three conventions and their translation into national legislation. It can hardly be done from a strictly formal point of view, as the parties to those conventions are not exactly the same, and they are, as usual, rather concerned about having to comply with rules or principles they did not fully approve. Nevertheless, they did, through adoption of similar recommendations by their Conferences of the Parties or through cooperation of their secretariats, try to enhance consistency and cooperation in view of achieving environmentally sound management in both areas.

Mutual supportiveness between international conventions also depends on their being based on the same *principles*. This is to a large extent the case for the management of wastes and chemicals. The three conventions rely on the *principle of prevention,* as well as an extensive application of the *polluter pays principle.* Even if it does not appear as clearly in the Basel Convention as in the two others, the *precautionary principle* is another common feature of the three conventions. It implies that the management of waste and chemicals should not be limited to avoiding the consequences of the danger they involve, but should try to control and restrict their use whenever some serious risk for the environment is identified, without waiting for certainties which are often only obtained by the destruction of the goods at stake.

Avenues toward a Common Approach

Cooperation between the secretariats which are implementing the conventions is a first step toward having a global approach to those problems. A further step toward ensuring that chemicals are going to serve the benefit of societies and not to be a burden for future generations has been taken by the adoption of the *Strategic Approach to International Chemicals Management (SAICM)* by the International Conference on Chemicals Management, in February 2006. This approach underlines the link between sound management of chemicals and sustainable development, and, as sound management of chemicals cannot be achieved without taking into account their terminal stage as waste to be disposed of, it implies a long term lifecycle approach to the common management of wastes and chemicals.

Yet, initiatives like SAICM do not provide legal frameworks for action. They are neither conventions, nor international organisations. While they enable states, organisations and private partners to cooperate, they cannot prevent inadequate behaviour in the field of wastes and chemicals management or trade. They must therefore rely on the existing legal framework to achieve full efficiency. There is presently a momentum to bring together international organisations such as UNEP, specific institutions such as those in charge of the Basel, the Rotterdam or the Stockholm Rotterdam Conventions, and more flexible instruments such as SAICM, in order to integrate into a tighter system these means and measures to ensure a better control of the chemicals and wastes environmental issues. We hope that the articles published in this *EcoLomic Policy and Law Special Edition* can help to understand both the importance of the problem and the interest of the efforts made to address it globally.

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THE INTERNATIONAL MANAGEMENT OF RISK: AN OVERVIEW OF THE BASEL, ROTTERDAM AND STOCKHOLM CONVENTIONS

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ABSTRACT

This paper has two parts. First of all I am exploring the role of science and technology in the wider context of the protection of public health and the environment. The successful implementation of the Basel, Rotterdam and Stockholm Conventions depends greatly on a proactive role of scientists, engineers and educators. Unfortunately, as the tragic case of the very numerous asbestos victims shows, scientific knowledge and evidence does not necessarily translate into regulations which are based on scientific facts. There is a parallel here in the sense that in both the asbestos and the chemicals cases, certain concerned industries have resisted transparency and cooperation with governmental authorities when it was not in their interest.

Despite an international consensus on the importance of technology transfer and capacity building, relatively little research has been undertaken on the effectiveness of institutional cooperative arrangements for promoting the development and dissemination of environmentally beneficial technologies, especially with a focus on these conventions. Part II presents an application of this science policy related discussion by means of a short introduction to these three Geneva-based chemicals and wastes conventions

1. TRADE IN HAZARDOUS SUBSTANCES AND THE ROLE OF SCIENCE AND TECHNOLOGY

The three Geneva-based Conventions on Transboundary movements of hazardous wastes and chemicals, i.e. the Basel Convention,[2] the Rotterdam Convention[3] and the Stockholm Convention,[4] address certain trade-related environmental issues, that is they are Multilateral Environmental Agreements (MEAs) which are included in the ambit of the WTO's Division on Trade and Environment as well as in the discussions and negotiations of its Committee on Trade and Environment (CTE). Furthermore, it is important to emphasize that issues related to trade and environment are negotiated in other WTO fora, especially the SPS and the TBT Committees, and the GATT Council under Art. XX covering exceptions to the WTO agreements. The relationship with the WTO is different here from certain other MEAs such as the Cartagena Protocol on Biosafety of the Convention on Biological Diversity[5] or the FAO's International Treaty on Plant Genetic Resources for Food and Agriculture[6] because the purpose here is not to maximize trade under specific conditions; to the contrary, the purpose is to ban trade of the most dangerous substances and to regulate and restrict trade in many other cases which are less toxic. Nevertheless, the tree MEAs fall into the general trade and environment debate in which of course the WTO represents the underpinning framework. I should clarify from the outset that I consider the multilateral approach to trade and environment issues through the WTO much preferable to any realistic alternatives, i.e. bilateral or regional trade agreements which in most cases are worse for both the environment and for poverty alleviation in developing countries than the global trade regime.

The purpose of this exploratory study is to investigate the role of science and technology in the negotiation, in the further development, and in the implementation of these three conventions, and more generally in related risk management at the intergovernmental level. The role and the importance of scientific and technological issues, questions – and also controversies – clearly vary considerably among MEAs. In the case of these three Conventions the technical ramifications are particularly important. At the scientific level one might perhaps assume that the understanding of the potential risks to public health and to the environment which is generated by trade in hazardous chemicals and wastes is relatively well understood in comparison for instance to genetically modified organisms and biodiversity, or climate change – let alone in comparison to nanotechnology products which are not even covered yet by an MEA in spite of the fact that they have become an international industry weighing many billions of dollars with very serious potential threats to the

[2] Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Text of the Convention: http://www.basel.int/text/con-e-rev.pdf

[3] The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. Text of the Convention: http://www.pic.int/en/ConventionText/ONU-GB.pdf

[4] Stockholm Convention on Persistent Organic Pollutants. Text of the Convention: http://www.pops.int/documents/convtext/convtext_en.pdf

[5] http://www.cbd.int/biosafety/default.shtml

[6] http://www.fao.org/AG/cgrfa/itpgr.htm

environment and to public health.[7] Nevertheless, there is a great deal of uncertainty about the medium-term effects of the majority of the vast number of chemicals which have accumulated in the biosphere and in human tissues, especially where there are interactions of toxic chemicals.

According to documentation provided by the US Environmental Protection Agency (EPA) in 1998, a complete package of basic information is available only on about 7 per cent of approximately 3000 chemical substances which are produced in large quantities, and for nearly half of them no information is available at all.[8] There is much evidence, however, that some chemicals affect biological systems at very low concentrations, for instance by interfering with hormone systems at specific stages in the lifecycle of an organism. Even less is known about the effects on the human health of interacting chemicals.[9] Chapman provides a fascinating and at the same time worrisome account on industrial stonewalling during the negotiations of the European Union's regulatory framework Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) which has come into force in 2007.[10]

Unfortunately, the role of science is probably even more questionable on the other side of the Atlantic. This role of science is at the center of a book by Chris Mooney *The Republican War on Science*[11] which examines numerous examples of such pressures and cover-ups by commercial interests in the US under Republican Administrations, especially the present one. For instance in the case of mercury pollution, one of industrial society's most intractable and most persistent environmental problems[12] he illustrates how certain industries and their representatives have successfully lobbied for a weakening of the Environmental Protection Agency's regulations in 2003.[13]

The key problems addressed by the three conventions are not only of a scientific but also of a technological and administrative nature. They include the capacity of a country to make available, or to have access to, the necessary financing for required infrastructures at all levels, such as the professional education of the specialists involved, as well as the communication of risks to the public at large, the political will to act upon potential risks in light of other governmental priorities, or the wherewithal to put in place remedial measures once a spill or another chemical-related accident has happened. The legislative and regulatory frameworks at the national level are also key drivers of technology demand, cooperation, and transfer.

In order to put our discussion into the proper context it should be noted that there are links here to the trading regime at different levels. The CTE distinguishes between *non-binding discussions* on one hand, which are carried out on an ongoing

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[7] Nanotechnology products engender very serious environmental and health risks since they can be highly hazardous (e.g. by passing across the blood-brain barrier), and once they have contaminated a body of water they are too small to be filtered or otherwise eliminated by any known chemical, biological or technological means. See Christof Studer. 2006. L'infiniment petit en question. *Environnement* (2) 43-47 (Published by the Swiss Federal Office of the Environment).

[8] Chapman, Anne. 2007. Democratizing Technology - Risk, Responsibility and the Regulation of Chemicals. London: Earthscan, 181 p., (60).

[9] *Ibid.*

[10] *Ibid.* 75-77.

[11] Chris Mooney. 2005. *The Republican War on Science.* New York: Basic Books, 343 p.

[12] Noelle Eckley and Henrik Selin. 2006. Global Politics of Mercury Pollution: The Need for Multi-Scale Governance. *RECIEL* 15 (3): 258-270.

[13] Mooney, *op. cit.* 136.

basis in the CTE Regular Session, and *negotiations* on the other hand which are limited to the very narrow and specific mandate provided especially by paragraph 31 of the 2001 Doha Ministerial Declaration.[14] These negotiations are handled separately by the CTE in Special Session (CTESS). The relationships between these three conventions and the WTO is not really affected by the negotiations in the CTESS except that they are part of a group of about twenty MEAs which are of concern to the WTO because they contain trade-related provisions. Thus they are regularly included in trade and environment discussions among those MEAs which have the strongest trade-related pertinence, together especially with CITES, the Montreal Protocol, and the Cartagena Protocol on Biosafety.[15]

In order to place this study in the appropriate wider context, we should be highly conscious of the *role of science* which indirectly very much underpins the present analysis, and which deserves a short digression. We shall take the case of asbestos which is particularly appropriate here because its difficult and hazardous but important removal from ship wrecks is one of the Basel Convention's ongoing concerns. Scientists have known for more than 100 years that the exposure to asbestos fibers has led to fatal lung diseases among many British asbestos workers.[16] In 1927 evidence of the disastrous health consequences of the inhalation of asbestos fibers was reported in Switzerland (home of the asbestos producer *Eternit*). The Swiss insurance for work-related health problems recognized the disease as a justification for compensations within its mandate for the first time as early as 1939.[17] This did not prevent the Swiss National Exhibition held in Lausanne in 1964 to vaunt asbestos as an exceedingly useful and valuable material for a large number of applications, and only in 1990 did the Swiss authorities prohibit asbestos as a construction material.[18]

Detailed statistics on asbestos-related diseases and fatalities have been maintained in industrialized countries for a long time, and billions of dollars have

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[14] Doha WTO Ministerial 2001: Ministerial Decéaratoion, WT/MIN(01)/DEC/1
20 November 2001, Ministerial declaration, Adopted on 14 November 2001
http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm
Trade and environment
Para 31. With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on:
(i) the relationship between existing WTO rules and specific trade obligations set out in multilateral environmental agreements (MEAs). The negotiations shall be limited in scope to the applicability of such existing WTO rules as among parties to the MEA in question. The negotiations shall not prejudice the WTO rights of any Member that is not a party to the MEA in question;
(ii) procedures for regular information exchange between MEA Secretariats and the relevant WTO committees, and the criteria for the granting of observer status;
(iii) the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.
We note that fisheries subsidies form part of the negotiations provided for in paragraph 28.

[15] For a discussion of the policy-related relationship between MEAs and the WTO, including the role of the environmental mandate of the Doha Round in this context, see Urs P. Thomas. 2005 revised v. Oil or Sand in the Trade and Environment Machinery? The Doha Round at the WTO's 10th Anniversary. *EcoLomic Policy and Law* 2 (1): 1-32.
http://www.ecolomics-international.org/headg_ecolomic_policy_and_law.htm

[16] Gary Gardner. 2006. First Do No Harm. *World*Watch* January-February, 30-31, (31)

[17] Urs Fitze. 2006. Impossible de démontrer l'innocuité du rayonnement. *Environnement* 2 (Office fédéral de l'environnement). 47-49 (47).

[18] Bernhard Raos. 2003. Lebensgefährliche Nachlässigkeit. *Beobachter* 28-31 (28).

been spent over the past twenty years or so for the removal of asbestos-containing construction materials from buildings. The countless human tragedies due to asbestos-related diseases across the word have been well known for a very long time. It is truly difficult to comprehend why governments have not acted decades earlier, and why medical and other scientific researchers have not made far greater efforts to communicate the risks that they knew to be inherent in the handling of this material without very elaborate protective measures. The question arose at the WTO Dispute Settlement Body (DSB) whether asbestos and asbestos-containing products on one hand, and substitute products which have been on the market for a long time on the other hand, are equivalent, i.e. so-called "like" products. The DSB has ruled that they are not, and that as a consequence the banning of these products for health reasons is WTO-compatible.[19] As we can see, the long and tragic history of asbestos contamination due to incompetent governmental regulations and industry pressures to cover up scientifically established dangers represents by now a well-known illustration of the importance of the role of science in modern society and of the wide-ranging ramifications that may result from its action -- or from its inaction.

2. THE BASEL, ROTTERDAM, AND STOCKHOLM CONVENTIONS REGULATING INTERNATIONAL TRANSPORTS OF HAZARDOUS CHEMICALS AND WASTES

There is a considerable discussion in the international environmental affairs literature on the issue of reorganizing the structures of global environmental governance, [20] especially the question of establishing a new UN or World Environment Organization, or whether UNEP should be converted into a UN specialized agency.[21] The late Konrad von Moltke has been arguing, from the beginning of this debate, that MEAs ought to be *clustered* according to functional synergies which would make a closer cooperation beneficial,[22] The three Geneva-based chemicals and wastes conventions have frequently been cited as the most likely candidates for increasing synergies by creating such a cluster. The mandate of each one of them is distinct and separate from that of the other two, but they all operate in the same broad issue area. These are the Convention on Transboundary Movements of Hazardous Wastes and their Disposal, i.e. the Basel Convention,[23] the Rotterdam Convention on Prior Informed Consent,[24] and the Stockholm Convention on Persistent Organic Pollutants.[25] Thanks to important commonalities there are important areas where their tasks are to some extent similar and therefore may benefit from targeted efforts

[19] European Communities - Measures Affecting Asbestos and Asbestos-Containing Products, WT/DS135/AB/R, 12 March 2001.
[20] UNEP uses the term 'International Environmental Governance.'
[21] See for instance *Global Environmental Politics* Vol. 1 No. 1 Current Debate section on "A World Environment Organization."
[22] Konrad von Moltke. 2001. The Organization of the Imposible. *Global Environmental Politics* 1 (1): 23-29.
[23] Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Text of the Convention: http://www.basel.int/text/con-e-rev.pdf
[24] The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. Text of the Convention: http://www.pic.int/en/ConventionText/ONU-GB.pdf
[25] Stockholm Convention on Persistent Organic Pollutants. Text of the Convention: http://www.pops.int/documents/convtext/convtext_en.pdf

at increasing synergies. The three conventions are administered by the United Nations Environment Programme (UNEP)[26] with the exception of the Rotterdam Convention that is jointly administered by FAO and UNEP. In addition, one should keep in mind -- among a number of related organizations and mechanisms -- especially two important initiatives whose discussion unfortunately goes beyond the framework of this introductory article: (1) The UNEP Chemical's Strategic Approach to International Chemicals Management (SAICM),[27] a new ambitious comprehensive institutional framework being developed with the objective of becoming an effective instrument of international chemicals policy, [28] which has developed a Quick Start Program that has its own trust fund;[29] (2) the Ad Hoc Joint Working Group (AHJWG)[30] whose mandate consists in enhancing cooperation, coordination and synergies among the three conventions. Let us look now briefly at each one of the three conventions.

The Basel Convention

> The Basel Convention addresses the challenges posed by the generation, transboundary movement and management of hazardous wastes and other wastes. In the late 1980s, stricter environmental standards and higher disposal costs in developed countries increased the shipment of hazardous waste to countries that were not always able to adequately manage the waste. Improper management, indiscriminate dumping, and the accidental spill of wastes can result in, *inter alia*, air, water, and soil pollution that endangers entire communities, burdens countries with colossal clean up costs, and undermines prospects for development. A public outcry over the mounting evidence of uncontrolled movement and dumping of hazardous wastes, including incidents of illegal dumping in developing nations by companies from developed countries, led to the adoption of the Basel Convention in 1989. The Basel Convention came into force in 1992. Its fundamental aims are the control and reduction of transboundary movements of hazardous wastes and other wastes subject to the provisions of the Convention, the disposal and treatment of such wastes as close as possible to their source of generation, the reduction and minimization of their generation, the environmentally sound management of such wastes and the active promotion of the transfer and use of cleaner technologies. [31]

The creation of the Basel Convention was further pushed ahead by some highly mediatized disastrous voyages of "toxic ships" such as the 'Pelicano'[32] in 1986 or the 'Karin B' in 1988[33] which focused the mind of the world's environmental authorities on the problem. It is the oldest and largest of the three Conventions in terms of the

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[26] http://www.chem.unep.ch/chemicals/default.htm and http://www.unep.org/themes/chemicals/?page=home
http://www.unep.org/themes/chemicals/?page=home
[27] http://www.chem.unep.ch/saicm/
[28] Franz Xaver Perrez. 2006. The Strategic Approach to International Chemicals Management: Lost Opportunity or Foundation for a Brave New World? *RECIEL* 15 (3): 245-258.
[29] http://www.chem.unep.ch/saicm/qsptf.htm
[30] http://ahjwg.chem.unep.ch/
[31] UNEP Economics and Trade Branch (DTIE-ETB). 2007. Trade-related Measures and Multilateral Environmental Agreements, prepared by CIEL, 31 p. (15). http://www.unep.ch/etb/areas/pdf/MEA%20Papers/TradeRelated_MeasuresPaper.pdf
[32] http://query.nytimes.com/gst/fullpage.html?res=940DE1DC163DF93BA15752C1A96E948260
[33] http://query.nytimes.com/gst/fullpage.html?res=940DEFDC1F38F930A3575AC0A96E948260&sec=&spon=&pagewanted=print

Secretariat's staff. All industrialized countries are parties except the United States who have signed it but not ratified,[34] it presently counts 170 members.[35]

The convention is based on the principle of Environmentally Sound Management (EMS) which it subdivides into three separate levels: (1) The minimization of the generation of hazardous wastes is a strategy which takes into consideration the integrated life cycle of a product from mining, growing or otherwise accumulating the raw materials to manufacturing and use all the way to the final disposal. (2) Hazardous wastes should be treated and disposed of as close as possible to the location were they were created. In practice, however, this principle needs to be qualified by the need to dispose of numerous products in industrial incinerators rather than simply burning them close by which tends to release much more toxic emissions. The convention has elaborated a number of technical guidelines for recycling, disposal of specific groups of waste, and for the rehabilitation of old dumps. (3) International movements of hazardous waste should be minimized. Exporters or brokers must obtain from the government of the exporting state prior written consent issued by the competent authorities of the state of import and any transit country.[36]

The incineration of hazardous wastes has become a large industry; it is essentially monopolized by about half a dozen corporations.[37] Significant changes have occurred in business practices with regard to waste management and disposal. The rapidly advancing concentration and globalization process of the waste management industry has led to the adoption of certain industrial patterns

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[34] On 13 March 1996, the Secretary-General received from the Government of the United States of America, the following communication:

"(1) It is the understanding of the United States of America that, as the Convention does not apply to vessels and aircraft that are entitled to sovereign immunity under international law, in particular to any warship, naval auxiliary, and other vessels or aircraft owned or operated by a State and in use on government, non-commercial service, each State shall ensure that such vessels or aircraft act in a manner consistent with this Convention, so far as is practicable and reasonable, by adopting appropriate measures that do not impair the operations or operational capabilities of sovereign immune vessels.

(2) It is the understanding of the United States of America that a State is a `Transit State' within the meaning of the Convention only if wastes are moved, or are planned to be moved, through its inland waterways, inland waters, or land territory.

(3) It is the understanding of the United States of America that an exporting State may decide that it lacks the capacity to dispose of wastes in an `environmentally sound and efficient manner' if disposal in the importing country would be both environmentally sound and economically efficient.

(4) It is the understanding of the United States of America that article 9 (2) does not create obligations for the exporting State with regard to cleanup, beyond taking such wastes back or otherwise disposing of them in accordance with the Convention. Further obligations may be determined by the parties pursuant to article 12.

Further, at the time the United States of America deposits its instrument of ratification of the Basel Convention, the United States will formally object to the declaration of any State which asserts the right to require its prior permission or authorization for the passage of vessels transporting hazardous wastes while exercising, under international law, its right of innocent passage through the territorial sea or freedom of navigation in an exclusive economic zone."

http://www.basel.int/ratif/convention.htm

[35] http://www.basel.int/ratif/convention.htm

[36] *Minimizing Hazardous Wastes: A Simplified Guide*. 2005. Basel Convention. 18 p.

[37] Kate O'Neill. 2001. The Changing Nature of Global Waste Management for the 21st Century: A Mixed Blessing? *Global Environmental Politics* 1 (1): 77-98 (83).

("templates")[38] leading to strong lobbying groups and very serious questions about technical cooperation practices, especially with regard to recycling[39] and the touchy relationship between the Basel ban and illegal trade flows.[40] The pressures and lobbying efforts of local as well as international commercial interests which attempt to maintain a lucrative international trade of recyclable scrap metals and other retrievable substances of commercial value complicate the task of achieving a responsible and transparent control over these very large material flows.[41]

The early negotiations at the Basel Convention were, as the recently appointed Executive Secretary Dr. Katharina Kummer Peiry observed, "emotionally charged"[42] during the first couple of Conferences of the Parties, and have since then become gradually more technically oriented. In 1999 a Liability Protocol was adopted which so far has only 8 Parties out of 20 that are required for entry into force,[43] but which nevertheless represented a significant legal breakthrough for the still new convention.[44] Finally, in 2002 a Compliance Committee was established which consist of 15 members drawn in equal numbers from the five regional groups. Its task is to assist members who encounter difficulties in implementing the convention, e.g. in dealing with illegal shipments or meeting reporting requirements. Submissions can be made to the Committee by a Party about its own compliance or implementation difficulties, or about another Partiy's difficulties, or by the Secretariat when it becomes aware, through national reporting, that a Party may be experiencing difficulties.[45] As a pioneering innovation, it may significantly influence the respective negotiations at the Rotterdam and Stockholm Conventions and other MEAs.[46]

Technical cooperation includes relevant organizational and institutional arrangements such as especially public-private partnerships (PPP) which are particularly important for the Basel Convention.[47] These PPPs represent an important aspect in the context of the rise of private enterprise involved in the execution of tasks in the environmentally sound waste management. The incineration of hazardous wastes is an important example of this increasingly widespread kind of division of work. Thus the Basel Convention's Secretariat cooperates for example

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[38] *Ibid.* 90.
[39] *Ibid.* 94.
[40] Eric Neumayer. 2001. Greening Trade and Investment Without Protectionism. London: Earthscan, 228 p. (165).
[41] Kate O'Neill, 2001, *op. cit.* 94-96.
[42] Katharina Kummer. 1998. The Basel Convention: Ten Years On. *RECIEL* 7 (3): 227-237, 230.
[43] Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and Their Disposal
http://www.basel.int/meetings/cop/cop5/docs/prot-e.pdf
[44] Kanami Ishibashi. 2003. Environmental Measures Restricting the Waste Trade. In *Economic Globalization and Compliance with International Environmental Agreements*, edited by Alexandre Kiss, Dinah Shelton and Kanami Ishibashi, 59-74. The Hague: Kluwer Law International (62). Botswana, Congo (Republic), Congo (Democratic Republic), Ethiopia, Ghana, Liberia, Syria, Togo.
[45] 2002 Compliance Mechanism - The Compliance Mechanism, adopted at COP6 in December 2002, promotes the identification, as early as possible, of implementation and compliance difficulties encountered by Parties.
http://www.basel.int/legalmatters/compcommitee/index.html
[46] Akiho Shibata. 2003. The Basel Compliance Mechanism. *RECIEL* 12 (2): 183-198 (198).
[47] The Basel Convention has a *Partnership Programme* which originates in the 1999 Ministerial Basel Declaration on Environmentally Sound Management. The text of this "Framework for Cooperation with Industry (31 Oct. 2002)" is available at
http://www.basel.int/meetings/cop/cop6/english/32a1e.pdf

with Holcim, one of the world's largest cement suppliers in the management of the incineration of hazardous wastes in cement kilns.[48] The Secretariat is also involved in the management of electrical and electronic waste,[49] an initiative which illustrates developing countries' difficulties in coping with definitional difficulties such as establishing what kind of wastes falls under which provisions.[50] Another important example is the Africa Stockpiles Programme which involves over a dozen partners such as UNEP, FAO, WHO, WWF and the GEF.[51] PPPs in certain sectors of environmental management have assumed a very important role which has prompted Robert Falkner of the London School of Economics to explore the linkages of Global Environmental Governance with private enterprise, especially with regard to waste management.[52] He concludes that "private governance has become a reality in global environmental politics that few analysts deny," but cautions that there is not enough information available to evaluate the effects of this complex interdependence between private and public actors. He emphasizes in fact that this kind of research "needs to move center-stage in the study of international environmental politics."[53]

The Basel Convention convened its ninths Convention of the Parties (COP-9) in Bali, Indonesia from 23-27 June 2008. In spite of a heavy agenda the negotiations were conducted in a constructive spirit without any of the dreaded all-night sessions which may be interpreted as a reflection of the maturity and good administration of the Secretariat.

The one issue, however, which intractably resisted a comprise consensus was the Basel Ban, more correctly called the Ban Amendment. The Ban Amendment was adopted by the Parties in 1995, it bans hazardous wastes exports for recycling as well as for final disposal from so-called Annex VII countries, i.e. OECD members, to non-Annex VII countries which are composed of all the other Parties. The most important disagreement consisted in the interpretation of the key modality of the adoption of amendments to the Convention and to its Protocols.[54] Do the three-fourth of the Parties refer to the Number at the time of the Convention's ratification in 1995 (*fixed approach*, 82 ratifications) or to those who ratified at any given time, i.e. 170 presently (*current time approach*)? Even a contact group chaired by Switzerland, and later an informal lunch discussion during the high-level segment, hosted by Rachmat Witoelar, the Indonesian Environment Minister, were unable to breach the deadlock.[55]

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[48] Information on this joint venture is provided by the Basel Convention's short description of its involvement in a project in the municipality of Guayaquil, as well as other municipalities in Ecuador at www.basel.int/press/environment-day-2005.doc

[49] René Vossenaar, Lorenzo Santucci and Nudjarin Ramungul. 2006. Environmental Requirements and Market Access for Developing Countries: the Case of Electrical and Electronic Equipment. In *Trade and Environment Review 2006,* 61-91. Geneva: UNCTAD.

[50] Constanza Martinez. 2006. Electrical and Electronic Equipment Waste and the Basel Convention, Annex I. In *Trade and Environment Review 2006,* 92-95. Geneva: UNCTAD.

[51] http://www.africastockpiles.org/

[52] Rober Falkner. 2003. Private Environmental Governance and International Relations: Exploring the Links. *Global Environmental Politics* 3 (2): 72-88.

[53] *Ibid.* 84.

[54] Amendments adopted … shall enter into force between Parties having accepted them .. by at least three-fourths of the Parties who accepted them or by at least two thirds of the Parties to the protocol concerned who accepted them, except as may otherwise be provided in such protocol. Basel Convention Art. 17.5.

[55] Hira Jhamtani. 2008. Basel Convention Members again Fail to Agree on Toxic Waste Ban. *Third World Resurgence* No. 214, June, 2-5.

The Basel Ban is contentious for a number of reasons: it reduces opportunities for profitable recycling operations; it requires knowledge of the toxicity of the products which is not always clearly established e.g. in the case of electronic waste; enforcement of controls and traceability by the exporting country is expensive and there are no economic incentives to take this matter seriously; the push toward more globalized and integrated markets has resulted in new trade patterns such as inter-Asian or Asia-Africa flows of chemicals and wastes which complicate the Convention's work considerably; illegal shipments may increase as a result of tighter regulations especially if their implementation is deficient.[56] These complexities go a long way in explaining the difficulty in reaching a consensus on the Basel Ban.

Another key item on the agenda consisted in making some progress in the comprehensive process toward improving the synergies among the three chemicals and wastes Conventions. An important achievement therefore consisted in the adoption, in its entirety, of the Report of the third meeting of the Joint Ad Hoc Working Group (JAHWG).[57] Brazil initially requested a section-by-section negotiation which would have jeopardized such a conclusion but in the end it joined the consensus.[58] The report will be discussed by the upcoming COPs of the Rotterdam and the Stockholm Conventions, that is why it was crucial for progress with regard to the enhancement of synergies that the first and biggest Convention would adopt it, especially since in May 2009 the Second International Conference on Chemicals Management (ICCM-2), to be held back to back with the Stockholm COP in Geneva, will attempt to provide a coordinated impetus to this synergies process.

The Rotterdam Convention

> The Rotterdam Convention provides countries considering the importation of certain hazardous pesticides and chemicals the tools and information they need to identify potential risks and exclude chemicals they cannot manage safely. In addition, if a country agrees to import chemicals, the Rotterdam Convention promotes their safe use through labeling standards, technical assistance, and other forms of support. Hazardous pesticides and other chemicals create significant risks to human health and the environment, killing or seriously affecting the health of thousands of people every year and also damaging the natural environment and many wild animal species. Governments began to address the problem in the 1980s by establishing a voluntary Prior Informed Consent (PIC) procedure and in 1998 strengthened the procedure by adopting the Rotterdam Convention, which makes PIC legally binding. The Rotterdam Convention has two primary objectives. First, it aims to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm. Second, it seeks to contribute to the environmentally sound use of those chemicals by facilitating information exchange about their characteristics. **[59]**

[56] The worst recent example is the illegal dumping of 580 tons of toxic chemicals from the *Probo Koala* in Abidjan, Côte d'Ivoire, on 19 August 2006. The vessel started from Amsterdam, under the Panamian flag of conveniance, owned by a Greek shipping company, chartered by the Dutch trading company Trafigura. Isolda Agazzi. La Côte d'Ivoire toujours contaminée par les déchets toxiques. *Le Courrier (Genève),* 30 août 2008 p. 9. Christine D'Anna-Huber. Schmutzige Geschäfte mit Todesfolgen. *Tages-Anzeiger (Zürich)* 20.9.2006, p. 10.

[57] This working group comprised a representative of 15 members of each of the three Conventions.

[58] Earth Negotiations Bulletin Vol. 20 No. 31, 30 June 2009. http://www.iisd.ca/vol20/enb2031e.html

[59] UNEP Economics and Trade Branch (DTIE-ETB). 2007. Trade-related Measures and Multilateral Environmental Agreements, prepared by CIEL, 31 p. (18). http://www.unep.ch/etb/areas/pdf/MEA%20Papers/TradeRelated_MeasuresPaper.pdf

An important characteristic of the Prior Informed Consent (PIC) Convention is its bicephalous Secretariat, with its double venues of Rome, where it is administered by FAO, and Geneva, administered by UNEP Chemicals. Adopted in 1998 in Rotterdam, it entered into force in 2004. All industrialized countries are parties except the US and Israel.[60] The framing of technology-related issues in a perspective which emphasizes technical cooperation activities is particularly important for the Rotterdam Convention as Paula Barrios explicitly confirms:

> …[the Rotterdam Convention] reflects the mistaken assumption that information will by itself improve the capacity of developing countries to implement its provisions. Instead, experience gained from the voluntary system reveals that enhancing the ability of these countries to analyze chemical data, 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. [61]

Indeed, the PIC procedure may be quite difficult for developing countries to implement, yet achieving compatibility between the two regimes is of crucial importance for the effectiveness of the convention.[62] Unlike the Basel Convention -- and also the Cartagena Protocol -- Rotterdam lacks a re-importation obligation.[63] It is crucial for technical cooperation to be effective that importing developing countries have an institutionalized and operationalized understanding of the complex processes and procedures which govern these rights and obligations that are sometimes difficult to reconcile for a WTO Member and MEA Party. [64] [65]

The PIC procedure finds its roots in Article 9 of the FAO's 1986 *International Code of Conduct on the Distribution and Use of Chemicals,* a voluntary set of chemical standards for the handling and transport of pesticides. The transformation of this voluntary standard into a binding procedure occurred in the 1990s, it was pushed to an important extent by two NGOs, the Pesticide Action Network (PAN) and by Oxfam. It was, however, the change of heart of US and UK industry coalitions which provided the decisive momentum. The *Groupement international des associations de fabricants de produits agrochimiques* (GIFAP) in its 1991 annual report announced its support for the FAO/UNEP efforts to implement the PIC

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[60] Ratifications : http://www.pic.int/home.php?type=t&id=63

[61] Paula Barrios. 2004. The Rotterdam Convention on Hazardous Chemicals: A Meaningful Step Toward Environmental Protection? *Georgetown International Environmental Law Review*, Summer issue (online version).
http://findarticles.com/p/articles/mi_qa3970/is_200407/ai_n9429400 (section one)

[62] Katharina Kummer. 1999. Prior Informed Consent for Chemicals in International Trade: The 1998 Rotterdam Convention. *RECIEL* 8 (3): 323-330.

[63] Redgwell, Catherine. 2003. Regulating Trade in Dangerous Substances : Prior Informed Consent under the 1998 Rotterdam Convention. In *Economic Globalization and Compliance with International Environmental Agreements,* edited by Alexandre Kiss, Dinah Shelton and Kanami Ishibashi, 75-88. The Hague: Kluwer Law International.

[64] *Ibid.* 86: *Relationship with the WTO Agreements* "… Controversy on this point appears to be inherent in multilateral environmental negotiations addressing transboundary transfer of potentially hazardous substances, since they deal with the interface of environmental and trade considerations."

[65] Ted L. McDorman. 2004. The Rotterdam Convention on Prior Consent: Some Legal Notes. *RECIEL* 13 (2): 187-200.

procedure because it seems to have feared that the alternative would be an outright prohibition of the export of certain pesticides, specifically a bill debated in the US during 1991-92 which proposed export controls for certain pesticides. GIFAP therefore was able to avoid this worse scenario by supporting the FAO/UNEP PIC procedure as the lesser evil.[66] The list of chemicals which are subject to the PIC procedure are contained in Annex III; Annexes II and IV spell out the criteria for listing chemicals in accordance with the procedures of Art. 5 and 6 respectively, on one hand for banned or severely restricted chemicals, and on the other hand for hazardous pesticide formulation.

Thus the Rotterdam convention represents a compromise between environmental and health objectives on one hand, and export industries' interests on the other hand. At the beginning health objectives were predominant, environmental objectives were resisted during the negotiations but in the end they achieved equal ranking.[67] Interactions on the risk management of pesticides and pesticide residues in food between the Rotterdam Convention, WTO, and also the much older but constantly renegotiated Codex Alimentarius pesticide residue standards don't appear to generate a large amount of interest. This may be explained by the fact that an importing country's basic position on the question of the rights to use a precautionary approach to risk management in the Rotterdam Convention is related with its position toward principles of risk management within the WTO where the question of precaution is still not clarified. This applies also to the Codex where the question of precaution has also long been a touchy issue which is still not resolved.[68] One may hypothesize that Members and Parties of these regulatory frameworks may not want to rock the boat of diplomacy unnecessarily regarding a negotiation issue where it is clear that consensus presently is very elusive. Now what is the position of the Rotterdam Convention with regard to precaution? It mentions the term 'precaution' twice but in a manner which is quite innocuous for the WTO:

> Article 15
> Information exchange
> 3. The following information shall not be regarded as confidential for the purposes of this Convention:
> (d) Information on <u>precautionary</u> measures, including hazard classification, the nature of the risk and the relevant safety advice;
>
> Annex V
> INFORMATION REQUIREMENTS FOR EXPORT NOTIFICATION
> 1. Export notifications shall contain the following information:
> (e) Information on <u>precautionary</u> measures to reduce exposure to and emission of, the chemical;[69]
>
> [Underlining added]

[66] Peter Hough. 2003. Poisons in the System: The Global Regulation of Hazardous Pesticides. *Global Environmental Politics* 3 (2): 11-24 (15-16).
[67] *Ibid.*
[68] *Ibid.* 17.
[69] Rotterdam Convention *op. cit.*

The Stockholm Convention and UNEP/DGEF

> The Stockholm Convention is a global treaty focused on protecting human health and the environment from persistent organic pollutants (POPs). POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms, and are toxic to humans and wildlife. With the evidence of long-range transport of these chemicals to regions where they have never been used or produced and the consequent global threats they pose to human health and the environment, States recognized the need for global actions to reduce and eliminate releases of these chemicals… In order to achieve its objective, the Stockholm Convention seeks to eliminate or restrict the production and use of intentionally produced POPs. It also seeks to continue minimizing and, where feasible, ultimately eliminate releases of unintentionally produced POPs. In addition, the Stockholm Convention requires Parties to develop strategies for identifying POPs stockpiles and wastes and to ensure that they are managed or disposed of in an environmentally sound manner. [70]

The Convention on Persistent Organic Pollutants (POPs) was adopted in 2001 in Stockholm and has entered into force in 2004. Several industrialized countries have not yet ratified it.[71] POPs are chemicals which are known to bio-accumulate in body tissues, which is what makes them particularly dangerous. The evidence provided by Rachel Carson in 1962 about DDT which, as she was able to demonstrate scientifically, accumulated in living organisms at great distances from spraying locations can be considered to have triggered the awakening of the 20th century to the fact that potent environmental contaminants can travel long distances and threaten public health and the environment. They can be semi-volatile and travel hundreds of kilometers through cycles of evaporation and precipitation. The convention has singled out 12 POPs which can be divided into (I) unintentional by-products (dioxins and furans), (II) industrial chemicals (PCB is the best known), and (III) the remainders which are pesticides, the largest group including DDT. This Convention is situated -- perhaps more than any other MEA -- right at the interface between environmental and health concerns and was shaped substantially by fears over threats to health like cancers or birth defects arising from toxic chemicals.[72]

Technology-related concerns are reflected especially in measures to reduce or eliminate releases from unintentional production (Art. 5 and Annex C). Interestingly, however, the Convention does not use the term 'technology transfer' at all, rather it emphasizes technical assistance, technical feasibility and similar expressions such as best available techniques and best environmental practices. As in the case of the Rotterdam Convention, the human aspects and the discussion of skills and capacities inherent in technical cooperation are stressed. The premises of technology-related debates have changed fundamentally over the past 10-15 years in that industrial production in developing countries has increased very much while at the same time climate change has become a major geopolitical issue.

An important technological and at the same time financial issue are electrical transformers filled with PBCs which need to be emptied and refilled with dielectric mineral oil. This replacement is so expensive that the operation is not carried out with

[70] UNEP Economics and Trade Branch (DTIE-ETB). 2007. Trade-related Measures and Multilateral Environmental Agreements, prepared by CIEL, 31 p. (23). http://www.unep.ch/etb/areas/pdf/MEA%20Papers/TradeRelated_MeasuresPaper.pdf

[71] Ireland, Israel, Italy, Malta, Poland, Russia, US.

[72] Pia M. Kohler. 2006. Science, PIC and POPs: Negotiating the Membership of Chemical Review Committees under the Stockholm and Rotterdam Conventions. *RECIEL* 15 (3) 293-303.

the sole objective to combat unintentional releases of furans and dioxins but other reasons such as the age of the transformer need to be taken into consideration also. These transformers have a life expectancy of about 40 years which is the reason why the phase-out of PCB is planned for 2025, i.e. 40 years from the time when these replacements started to get underway (at least in developed countries).

As far as this convention's positioning toward precautionary approaches is concerned, it does not discuss them in any operational detail, contrary to the Biosafety Protocol which was adopted the previous year in Monréal whose key distinction lies in the operationalization of the Precautionary Principle.[73] Nevertheless, it is significant that precaution appears very prominently at the very beginning:

> Article 1 Objective
> Mindful of the precautionary approach as set forth in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Convention is to protect human health and the environment from persistent organic pollutants.
>
> [Underlining added]

Precautionary measures are not really problematic with regard to the 12 original chemicals, but that is changing regarding new POPs whose addition to the list is being negotiated. In any case, these 12 chemicals may be considered to be the "low hanging fruit," i.e. those chemicals where an agreement was achieved relatively easily because there is a large consensus on their dangers to public health and on their persistency in the environment. In any case, some have been replaced already, e.g. the three --drins[74] due to their particularly high toxicity.

The Rotterdam and the Stockholm Conventions have comparable concerns at the level of technical cooperation through their respective Chemical Review Committees, i.e. respectively the Chemical Review Committee (CRC) and the POPs Review Committee (POPRC).

The Stockholm Convention is the only one of the three which benefits from Global Environment Facility (GEF) financing, which has important organizational and procedural consequences.[75] UNEP's Division of GEF Coordination (UNEP DGEF) is cooperating with UNEP Chemicals and the Convention Secretariat. This cooperation is presently in an organizational transition period. Countries which benefit from GEF financing are expected to have established National Implementation Plans by 2008 when a new phase is starting. The GEF as an organization which was planned as a light structure is also undergoing change in that the original distinction between implementing agencies (World Bank, UNDP, UNEP) and executing agencies (UNIDO, FAO, IFAD) is increasingly getting blurred.[76]

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[73] Boisson de Chazournes, Laurence and Makane Moïse Mbengue. 2007. A Propos du principe du soutien mutuel -- les relations entre le Protocole de Cartagena et les accords de l'OMC. *Revue Générale du Droit International Public.* Numéro 4: 829-863.

[74] Annex A : Aldrin, Dieldrin, Endrin.

[75] Boisson de Chazournes, Laurence. 2005. The Global Environment Facility (GEF): A Unique and Crucial Institution. *RECIEL* 14(3): 193-202.

[76] Interviews at the three Conventions and UNEP Chemicals, 2007.

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STRATEGIC APPROACH TO INTERNATIONAL CHEMICALS MANAGEMENT: DEVELOPMENT AND OPPORTUNITIES

By Hamoudi Shubber•

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This article has been written in January 2009. For additional information and updates please refer to the SAICM Web site: http://www.saicm.org

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ABSTRACT

The Strategic Approach to International Chemicals Management (SAICM) is a global policy framework which supports the achievement of the goal agreed in 2002 at the World Summit on Sustainable Development of ensuring that, by 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health. SAICM was adopted in February 2006 in Dubai by the International Conference on Chemicals Management (ICCM) at its first session and comprises the Dubai Declaration on international chemicals management, the Overarching Policy Strategy and the Global Plan of Action.

The present article aims to provide a perspective on the emergence of chemicals as an international concern, the development of SAICM, its features and the opportunities and challenges that lay ahead of it. From the early stages of environmental protection and awareness to the first session of the ICCM, chemicals management has gradually been recognized as an issue of sustainable development requiring global action. The development of SAICM allowed to ensure the involvement of all relevant sectors and stakeholders.

While the adoption of SAICM was a positive step forward, its implementation will be the indicator for measuring success against the goal set by the World Summit on Sustainable Development. The achievements and shortcomings of the initial phase of SAICM will be considered during the second session of the ICCM, to be held in May 2009 in Geneva.

1. THE ORIGINS OF SAICM

1.1 The Emergence of Chemicals Management as a Global Issue

While chemicals constitute all elements of nature, their widespread use and processing by mankind is a relatively recent phenomenon. Use and production of chemicals has been tied to the development of craftwork and of industries. From traditional leather tanning to the development of the pharmaceutical industries, chemicals have followed the evolution of production technologies and consumption patterns. Chemicals have in particular contributed to improving living standards and played an essential role in modern society. The consumption of chemicals by all industries and our society's reliance on chemicals for virtually all manufacturing processes make chemicals production one of the major and most globalized sectors of the world economy.

Acknowledgement of the essential economic role of chemicals and their contribution to improved living standards needs to be balanced with recognition of potential costs. These include the chemical industry's heavy use of water and energy and the potential adverse impacts of chemicals on the environment and human health. Early in their development, industries were aware of the need for the sound management of chemicals. Initially, international chemical safety aimed at the protection of workers. These efforts to prevent damages from harmful chemical substances were also aimed as prevention against the use of narcotics and of chemical weapons.[77]

In 1962, the publication of *Silent Spring* by Rachel Carson[78] inspired widespread public concerns with pesticides and pollution of the environment. S*ilent Spring* facilitated awareness of environmental protection and the ban of the Dichloro Diphenyl Trichloroethane (DDT) pesticide in 1972 in the United States. In June the same year, the United Nations Conference on the Human Environment held in Stockholm, Sweden, marked a turning point in the development of international environmental politics. The Conference recommended Governments and relevant intergovernmental organizations "to strengthen and co-ordinate international programmes for integrated pest control and reduction of the harmful effects of agro-chemicals".[79] The Conference led to the creation by the United Nations General

[77] Early international initiatives include the International Labour Organization's 1919 recommendations for the protection of workers against white lead pigments in paint and white phosphorus in the manufacture of matches, and the 1912 *Hague Convention on Exercising Control Over Opium*. See John Buccini: *The Global Pursuit of the Sound Management of Chemicals,* the World Bank, 2004, p.13-14. http://siteresources.worldbank.org/INTPOPS/Publications/20486416/GlobalPursuitOfSoundManagementOfChemicals2004Pages1To67.pdf

[78] Rachel Carson: *Silent Spring,* Houghton Mifflin, 1962.

[79] Recommendation for action at the international level number 21, chapter X: Planning and management of human settlements for environmental quality. Available on http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=97&ArticleID=1506&l=en

Assembly of the United Nations Environment Programme (UNEP)[80] and its Governing Council to promote international co-operation in the field of the environment and to recommend, as appropriate, policies to this end.

In 1983, the United Nations General Assembly established the World Commission on Environment and Development (WCED), known by the name of its Chair, Dr. Gro Harlem Brundtland, to address growing concern "about the accelerating deterioration of the human environment and natural resources and the consequences of that deterioration for economic and social development."[81] The report of the Commission, published in 1987 and entitled *Our Common Future*,[82] was an important milestone in bringing environmental protection and sustainable development on the international political agenda. The report made numerous references to chemicals and the need for their sound management, pointing out the contribution to the improvement of living standards, as well as their risks. Sections of the report point to the possible hazardous effects of excessive use of agrochemicals, pesticides and pest control chemicals, of the risks caused by hazardous wastes, aerosols and refrigerating chemicals.[83] The document called for the use of alternatives to chemicals, as well as the strengthening of legislation, policy, and research capacity for advancing non-chemical and less-chemical strategies.[84]

1.2 The 1992 Earth Summit

The United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro, Brazil, in June 1992 was also a significant event in the creation of international environment and development frameworks and conventions. The Summit, which gathered 178 governments and 100 world leaders, brought out five separate agreements signed by most of the participating nations, which includes three non-treaty agreements: *Agenda 21*, the Rio Declaration on Environment and Development, the Statement of Forest Principles, and two legal binding conventions, the United Nations Framework Convention on Climate Change and the United Nations Convention on Biological Diversity.

Chemicals management was addressed in the outcomes of the Conference by chapter 19 of *Agenda 21*.[85] The section entitled “environmentally sound management of toxic chemicals, including prevention of illegal international traffic in toxic and dangerous products” recognized the benefits of the use of chemicals and the need for their sound management in the context of sustainable development:

[80] General Assembly resolution 2997 (XXVII), 15 December 1972, http://daccessdds.un.org/doc/RESOLUTION/GEN/NR0/270/27/IMG/NR027027.pdf

[81] General Assembly resolution A/RES/38/161, 19 December 1983, available on http://www.un.org/documents/ga/res/38/a38r161.htm.

[82] Bruntland, G (ed): Our Common Future: The World Commission on Environment and Development, Oxford University Press, 1987.

[83] Our Common Future, Chapter 7: Energy: Choices for Environment and Development.

[84] Our Common Future, Chapter 5: Food Security: Sustaining the Potential.

[85] Chapter 19 of Agenda 21 is available on: http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21chapter19.htm

> A substantial use of chemicals is essential to meet the social and economic goals of the world community and today's best practice demonstrates that they can be used widely in a cost-effective manner and with a high degree of safety. However, a great deal remains to be done to ensure the environmentally sound management of toxic chemicals, within the principles of sustainable development and improved quality of life for humankind. Two of the major problems, particularly in developing countries, are (a) lack of sufficient scientific information for the assessment of risks entailed by the use of a great number of chemicals, and (b) lack of resources for assessment of chemicals for which data are at hand.

Chapter 19 also highlighted six programme areas as well as relevant objectives, activities and means of implementation. The programme areas identified were:

- Expanding and accelerating international assessment of chemical risks;
- Harmonization of classification and labelling of chemicals;
- Information exchange on toxic chemicals and chemical risks;
- Establishment of risk reduction programmes;
- Strengthening of national capabilities and capacities for management of chemicals;
- Prevention of illegal international traffic in toxic and dangerous products.

Agenda 21 also stressed the need for increased coordination both within and outside the United Nations system. In response to this call, intergovernmental organizations involved in chemicals safety[86] established in 1995 the Inter-Organization Programme for the Sound Management of Chemicals (IOMC) with the aim of strengthening cooperation and increase coordination in the field of chemical safety among the different organizations. An Inter-Organization Coordinating Committee (IOCC) composed of representatives of the Participating Organizations coordinates relevant activities. Planning, programming, implementation and monitoring of activities undertaken jointly or individually by the Participating Organizations is carried out by IOCC. This ensures full consultation among all those involved, with the aim to ensure effective implementation without duplication.[87]

1.3 The Intergovernmental Forum on Chemical Safety

Chapter 19 called upon the governing bodies of WHO, ILO and UNEP to convene a global forum to promote chemical safety. The organizations convened the International Conference on Chemical Safety (ICCS), which was held in Stockholm in April 1994.[88] The Conference established the Intergovernmental Forum on Chemical Safety (IFCS), which is

[86] The seven participating organizations of the IOMC are: the Food and Agriculture Organization of the United Nations (FAO), the International Labour Organization (ILO), the Organisation for Economic Co-operation and Development (OECD), UNEP, the United Nations Industrial Development Organization (UNIDO), the United Nations Institute for Training and Research (UNITAR) and the World Health Organization (WHO). In addition the United Nations Development Programme (UNDP) and the World Bank participate in the IOMC as observers.

[87] Information on the work of the IOMC can be found on: http://www.who.int/iomc/en/.

[88] The report of the Conference (document IPCS/ICCS/94.8) is available on http://www.who.int/ifcs/documents/forums/forum1/en/FI-report_en.pdf

> A non-institutional arrangement whereby representatives of governments meet, together with intergovernmental and non-governmental organisations, to consider all aspects of the assessment and management of chemicals. The aim is to integrate and consolidate national and international efforts to promote the objectives of Chapter 19 of Agenda 21. The IFCS provides policy guidance, identifies priorities, develops strategies and, where appropriate, makes recommendations to governments, international organisations, intergovernmental bodies and non-governmental organisations involved in chemical risk assessment and environmentally sound management of chemicals.[89]

The Conference was considered to be the first session of the Forum. A key feature of the IFCS was to allow and encourage multi-sectoral and multi-stakeholder participation in an international policy process addressing chemical safety. It provided the first international open and inclusive forum concerning issues of common interest and also new and emerging issues in this area.

In October 2000, the Forum met in Salvador da Bahia, Brazil, and adopted the Bahia Declaration on Chemical Safety. The Declaration reaffirmed IFCS's commitment to *Agenda 21* and recognized the importance of the provision of technical and financial assistance and technology transfer to developing countries and countries with economies in transition to accomplish Forum priorities beyond 2000.[90]

1.4 UNEP Governing Council

The issue of chemicals management and an international framework for chemicals management was also discussed by the Governing Council of UNEP. In its decision 18/12 of 1995, the Governing Council invited UNEP's Executive Director to convene an expert group to consider and recommend further measures to reduce risks from a limited number of chemicals. The Expert Group was convened in April 1996 and decided to focus on the following four problem areas:

- Inadequate capacity of developing countries to handle issues of hazardous chemicals and pesticides;
- Disposal of unwanted stocks of pesticides and other chemicals; Insufficient information for chemicals management decision-making and action;
- Possible needs to ban and phase out certain chemicals.[91]

The Expert Group also took note of a proposal regarding the possible benefits of an integrated international mechanism concerning the management of hazardous chemicals and invited UNEP, FAO and to seek the views of Governments on this issue for consideration at the 19th session of the Governing Council. At its 19th

[89] IFCS: *Brief History & Overview*, December 2005, available on: http://www.who.int/ifcs/documents/ifcs_overview_dec05.doc.

[90] The Bahia Declaration is available on http://www.who.int/ifcs/documents/forums/forum3/en/Bahia.pdf

[91] *The concept of a chemicals and waste cluster an overview*, Information Document presented at the second meeting of the Open-ended Intergovernmental Group of Ministers or their representatives on International Environmental Governance, Bonn, Germany, 17 July 2001 (UNEP/IGM/2/INF/2)

session in 1997, the Governing Council adopted decision 19/13, which sought out options for enhanced coherence and efficiency among international activities related to chemicals.[92]

In February 1999, the 20th session of the UNEP Governing Council invited the Executive Director to prepare for a general policy discussion on chemicals management at the Governing Council session in 2001. The report of the Executive Director outlined the roles and responsibilities of existing legal instruments and organizations and evaluated the advantages and disadvantages of various options for enhanced coherence and efficiency among international activities related to chemicals. The report described initiatives and activities of the IFCS and IOMC and stressed that:

> 21. The IFCS and IOMC have only been in existence for a short period of time but they have made progress in helping identify priorities for action by governments and international organizations, in improving awareness of international activities and access to information, and in increasing cooperation and coordination among different programmes. Furthermore, by bringing together senior staff responsible for relevant programmes in the respective organizations, and representatives of governments and other stakeholders, the IFCS and IOMC contribute to the development of personal relationships and in increasing the level of trust, important prerequisites to increasing coordination and cooperation.
>
> 22. Nevertheless, several shortcomings have been identified. A critical concern is that recommendations made within the context of IFCS or IOMC are not necessarily approved by the governing bodies of the organizations involved and therefore there may not be the mandate, nor the resources allocated, to carry out the recommendations. The IFCS and IOMC do not have an official role in the meetings of the relevant governing bodies. Furthermore, Governments do not necessarily coordinate their positions for various meetings and, in many cases, send different representatives to the IFCS and to the governing bodies.[93]

At the same session, the Governing Council adopted decision 21/7, which

> Requests the Executive Director, in consultation with Governments, the Inter-Organization Programme for the Sound Management of Chemicals, the Intergovernmental Forum on Chemical Safety and other relevant organizations and stakeholders, to examine the need for a strategic approach to international

[92] The resolution also authorised UNEP to facilitate the negotiation of a global legally binding instrument for the implementation of the Prior Informed Consent (PIC) procedure, together with FAO. This negotiation process led to the adoption on 10 September 1998 of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. Additional information on the Rotterdam Convention can be found on www.pic.org and UNEP Governing Council decision 19/3 is available at: http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=96&ArticleID=1438&l=en

[93] *Enhanced coherence and efficiency among international activities related to chemicals*, information document presented at the 21st session of the UNEP Governing Council, Nairobi, Kenya, 5-9 February 2001, available on http://www.unep.org/gc/gc21/Documents/gc-21-INF-20/e-GC-21-INF-20.doc

> chemicals management and to prepare a report on this subject for detailed consideration at the seventh special session of the Governing Council/Global Ministerial Environment Forum in 2002.[94]

In preparation for discussion in the Governing Council and its Global Ministerial Environment Forum, UNEP used a questionnaire to solicit the views of Governments, members of the IOMC, IFCS, non-governmental organizations, industry and environmental groups and other stakeholders.[95] The Executive Director reported that:

> 11. The great majority of respondents concurred that a strategic approach was warranted, albeit with varying conceptions as to what such an approach might entail. Environmentally sound management of chemicals was seen as integral to sustainable development objectives as it is a global issue requiring a comprehensive response. A strategic approach was viewed as a means of advancing the chemical safety agenda and building on progress to date. It was envisaged that such an approach would lend greater coherence to efforts at the global, regional and national levels. One of the strongest themes to emerge was the perception that more coordinated and effective delivery of capacity-building is essential if policies and programmes relating to international chemicals management are to bear fruit. A firm belief was also expressed that any new strategic approach should not compete with or duplicate existing work, such as the valuable priority-setting exercise undertaken by IFCS and reflected in the Bahia Declaration and the Priorities for Action. Significant attention was devoted to institutional and legal coordination, issues that are under active consideration by the Global Ministerial Environmental Forum under the heading of "governance" and that will be addressed at the same February meeting as this report. Other prominent themes included the improvement of access to information on hazardous chemicals, the mobilization of greater resources to support chemicals management, and the encouragement of industry to accept increased responsibility for and play a more active role in the promotion of chemical safety.[96]

Furthermore, the report analyzed that

> 12. The number and tenor of the responses testify to the importance attached to the subject by the international chemicals management community. The general thrust of the comments is that the time is ripe for a strategic approach to international chemicals management and that the international community needs to respond proactively to the increasingly prominent issue of chemical safety, bearing in mind the particular needs of developing countries. […]
>
> 13. The heightened exposure of developing countries and countries with economies in transition to risks posed by hazardous substances underlines the

[94] The decision is reproduced in the report of the 21 session of the Governing Council http://www.unep.org/gc/gc21/Documents/K0100275-E-GC21.doc.

[95] Views expressed are summarized in documents UNEP/GCSS.VII/INF/1, UNEP/GCSS.VII/INF/1/Add.1 and UNEP/GCSS.VII/INF/1/Add.2 available on http://www.unep.org/gc/GCSS-VII/.

[96] Report on the implementation of the decisions adopted at the twenty-first session of the Governing Council/ Global Ministerial Environmental Forum, report of the Executive Director (UNEP/GCSS.VII/4), presented at the seventh session of the Global Ministerial Environmental Forum, Cartagena, Colombia, 13-15 February 2002, available on http://www.unep.org/gc/GCSS-VII/.

> need for a concerted global approach to capacity-building in the area of chemicals management. This is essential if past achievements are to be consolidated and we are to continue making progress in chemical safety internationally. Such progress would benefit all countries.

In 2002, the Governing Council in its resolution SSVII/3, decided that there was a need to further develop a strategic approach to international chemicals management and endorses the IFCS Bahia Declaration and Priorities for Action beyond 2000 as the foundation of this approach. The Governing Council requested the Executive Director of UNEP to identify concrete projects and priorities in the context of a strategic approach to international chemicals management, working with key partners and, together with the IFCS and the IOMC, to convene an open-ended consultative meeting involving representatives of all stakeholder groups to contribute to the further development of a strategic approach to international chemicals management.[97]

1.5 The 2002 World Summit on Sustainable Development

Ten years after the 1992 Earth Summit in Rio, Heads of State and Government met during the World Summit on Sustainable Development in Johannesburg to reaffirm their commitment to sustainable development, the Rio Principles and the full implementation of *Agenda 21*. Delegates adopted the Johannesburg Declaration on Sustainable Development and the Johannesburg Plan of Implementation. The Johannesburg Declaration[98] outlines the path taken from the 1992 Rio Earth Summit, and the Johannesburg Plan of Implementation[99] sets out a framework for action to implement the commitments originally agreed at Rio.

The Summit set the aim "to achieve, by 2020, the use and production of chemicals in ways that lead to the minimization of significant adverse effects on human health and the environment."[100] Furthermore, the WSSD endorsed the development of "a strategic approach to international chemicals management based on the Bahia Declaration and Priorities for Action beyond 2000 of the IFCS by 2005, and urge that UNEP, IFCS, other international organizations dealing with chemical management and other relevant international organizations and actors closely cooperate in this regard, as appropriate."[101]

Following the work of the IOMC and IFCS and the mandate of the UNEP Governing Council, the WSSD provided the objective and endorsement and timeframe required for the development of a strategic approach to international chemicals management. The Johannesburg Plan of Implementation also set an ambitious and broad goal,

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[97] Resolution SSVII/3, Strategic approach to international chemicals management can be found in the report of the seventh session of the Global Ministerial Environment Forum: http://www.unep.org/gc/GCSS-VII/Reports.htm .

[98] http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POI_PD.htm

[99] The Johannesburg Plan of Implementation is available on http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIToc.htm

[100] See paragraph 23 of chapter 3 of the Plan of Implementation: http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIChapter3.htm

[101] *Ibid*.

linking the sound management of chemicals with sustainable development and acknowledging its multisectoral scope.

2. THE DEVELOPMENT OF SAICM

2.1 Sessions of the SAICM Preparatory Committee and the International Conference on Chemicals Management

In February 2003, the UNEP Governing Council agreed at its twenty-second session, in decision 22/4 IV,[102] to the concept of an open-ended consultative process involving representatives of all stakeholder groups as envisaged in decision SS.VII/3, taking the form of preparatory meetings followed by an international conference. Decision 22/4 IV also proposed that the international conference be held in conjunction with the ninth special session of the Governing Council and Global Ministerial Environment Forum in early 2006 and called upon the Executive Director to strive to ensure that the process of further developing the strategic approach remained open, transparent and inclusive, providing all stakeholders with opportunities to participate in the substantive work.

After initial planning work by an inter-organization steering committee[103] and an open-ended information meeting held in Geneva in April 2003, the first session of the Preparatory Committee for the Development of a Strategic Approach to International Chemicals Management (SAICM PrepCom1) was held in Bangkok, Thailand, from 9 to 13 November 2003.[104] The session was attended by 428 participants from 127 Governments, 19 intergovernmental organizations and approximately 50 non-governmental organizations drawn from a wide range of sectors including agriculture, environment, foreign affairs, health, industry, labour and science. Under the Presidency of Mr. Halldor Thorgeirsson of Iceland, the Preparatory Committee considered and further developed draft SAICM elements proposed by stakeholders and compiled by the secretariat. It adopted as the overall goal of SAICM the target set down in the Plan of Implementation of the World Summit on Sustainable Development that, by 2020, chemicals be used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment. Also developed at the first session were rules of procedure designed to maximise participation in the development of SAICM by all stakeholders.[105]

The second session of the Preparatory Committee (SAICM PrepCom2), held in Nairobi from 4 to 8 October 2004, was again attended by approximately 400 participants, including representatives of 115 Governments, from a broad range of

[102] The report of the meeting and decision 22/4 can be found on http://www.unep.org/gc/gc22/REPORTS.asp.

[103] The members of the steering committee were the seven participating organizations of the IOMC, the Global Environment Facility (GEF), IFCS, UNDP and the World Bank.

[104] PrepCom1 information and meeting documents can be found on: http://www.saicm.org/documents/prepcom1/default.htm.

[105] The report of PrepCom1 can be found on: http://www.saicm.org/documents/meeting/prepcom1/report/en/1_7report.doc.

sectors.[106] The Committee elected a new President, Ambassador Viveka Bohn of Sweden, and agreed upon a tripartite structure for the SAICM documents comprising a high-level declaration, an overarching policy strategy and a global plan of action. The President was mandated to prepare a draft of the declaration based on an outline agreed by the Committee and also to work with the secretariat to revise drafts of the overarching policy strategy and global plan of action that had been developed during the session. Other intersessional work agreed to by the Committee included studies on financial considerations and on principles and approaches, as well as papers relating to implementation of SAICM and taking stock of progress. During the first half of 2005, a process for submissions on the draft texts, regional consultations and a meeting of an expanded bureau facilitated the intersessional work.[107]

The third session of the Preparatory Committee (SAICM PrepCom3) was held in Vienna from 19 to 24 September 2005. The meeting was attended by over 600 participants from 145 Governments and numerous intergovernmental and non-governmental organizations.[108] The Committee considered the President's draft of the high-level declaration and reached provisional agreement on most sections of the overarching policy strategy and the detailed global plan of action, subject to final consideration by the International Conference on Chemicals Management (ICCM). It was agreed that given the guidance status of the global plan of action, it need not be fully negotiated and would be subject to ongoing refinement in the future. The Committee provisionally agreed that the Executive Director of UNEP should be requested to perform secretariat functions to support the implementation of SAICM and that the ICCM, which was expected to adopt SAICM at its first session in February 2006, should be reconvened to undertake periodic reviews of progress in the implementation of SAICM. It also agreed provisionally on the functions of both the future SAICM secretariat and the ICCM when reconvened to exercise its proposed review role. While it was provisionally agreed that the Executive Director of UNEP should be requested to establish and assume overall responsibility for the secretariat, both UNEP and WHO would take "lead roles in the secretariat in their respective areas of responsibility."[109]

The first session of the ICCM was held in Dubai, United Arab Emirates from 4 to 6 February 2006. The Conference was held in conjunction with the 23rd session of the UNEP Governing Council and 9th session of the Global Ministerial Environment Forum. The session was the culmination of the three years process of negotiation between Governments, intergovernmental organizations, non-governmental organizations and others within the framework of the Preparatory Committee. Over the course of the three PrepCom sessions, it had been agreed that SAICM would be embodied in a high level declaration, an overarching policy strategy and a global plan of action, and provisional agreement had been reached on much of the text of those documents. By the time of the first session of the ICCM, however, final agreement

[106] PrepCom2 information and meeting documents can be found on: http://www.saicm.org/documents/prepcom2/default.htm.

[107] The report of PrepCom2 can be found on: http://www.saicm.org/documents/meeting/prepcom2/meeting_report/meeting_report.htm.

[108] PrepCom3 information and meeting documents can be found on: http://www.saicm.org/documents/prepcom3/default.htm.

[109] The report of PrepCom3 can be found on: http://www.saicm.org/documents/meeting/prepcom3/meeting_report/meeting_report.htm

had yet to be reached, and certain elements of the text remained in square brackets to reflect a lack of consensus, in particular with regards to financial considerations and principles and approaches.[110]
Following intense work during the Conference and final negotiations facilitated by the ICCM President, Mr. Mariano Arana, Minister of Housing, Territorial Planning and Environment of Uruguay and Committee of the Whole Chair Amb. Viveka Bohn of Sweden, agreements were reached on the main documents of SAICM. The Dubai Declaration on International Chemicals Management, the Overarching Policy Strategy (OPS) and four Conference resolutions were adopted by the ICCM, while the Global Plan of Action (GPA) was recommended for use and further development.[111]

2.2 The SAICM framework

The three texts agreed at the first session of the ICCM, as well as the four resolutions of the Conference provide the overall outline of SAICM. The Dubai Declaration on International Chemicals Management was adopted by ministers, heads of delegation and representatives of civil society and the private sector gathered in Dubai. The Declaration enshrines the political commitment to SAICM, as well as key principles.

The links between chemicals management and sustainable development is one of the principle features of the Declaration and SAICM.

> 1. The sound management of chemicals is essential if we are to achieve sustainable development, including the eradication of poverty and disease, the improvement of human health and the environment and the elevation and maintenance of the standard of living in countries at all levels of development. […]
> 11. We are unwavering in our commitment to promoting the sound management of chemicals and hazardous wastes throughout their life-cycle, in accordance with Agenda 21 and the Johannesburg Plan of Implementation, in particular paragraph 23. We are convinced that the Strategic Approach to International Chemicals Management constitutes a significant contribution towards the internationally agreed development goals set out in the Millennium Declaration. […]

The Declaration also highlights the importance of the work of all stakeholders in the sound management of chemicals and in the implementation of SAICM. The special situation of developing countries and countries with economies in transition are fully recognized in the Declaration:

> We will work towards closing the gaps and addressing the discrepancies in the capacity to achieve sustainable chemicals management between developed countries on the one hand and developing countries and countries with economies in transition on the other by addressing the special needs of the latter and strengthening their capacities for the sound management of chemicals and

[110] See the report of the first session of the ICCM, available on: http://www.saicm.org/index.php?menuid=8&pageid=7.
[111] The publication of the SAICM texts and ICCM resolutions is available in Arabic, Chinese, English, French, Spanish and Russian on the SAICM website: http://www.saicm.org/index.php?menuid=3&pageid=187.

> the development of safer alternative products and processes, including non-chemical alternatives, through partnerships, technical support and financial assistance;

The Dubai Declaration also makes a number of connections between chemical safety and workers, the prevention of impacts on human health, the protection of vulnerable groups and human rights, as well as the importance of SAICM implementation and taking stock of progress.

While the overall objective of SAICM is the achievement of the 2020 goal of sound management of chemicals, the OPS defines its scope, which includes:

> (a) Environmental, economic, social, health and labour aspects of chemical safety; and
> (b) Agricultural and industrial chemicals, with a view to promoting sustainable development and covering chemicals at all stages of their life-cycle, including in products."[112]

The document also highlights needs and objectives in five work areas:

> (a) Risk reduction;
> (b) Knowledge and information;
> (c) Governance;
> (d) Capacity-building and technical cooperation; and
> (e) Illegal international traffic.

The OPS provides guidance on general principles and specific aims to be taken for each of these work areas. In addition, the GPA's 273 listed activities are also classified in relation to each work area with the assumption that their successful implementation will contribute to achieving the objectives laid out in the Strategy.

Financial considerations were a key negotiating issue during the SAICM development process. While the principle that developing countries and transition economies would need financial assistance in order to implement SAICM was generally accepted, there were varying viewpoints as to how such resources should be mobilized and delivered. Ultimately, a multi-faceted approach to financial considerations was agreed in paragraph 19 of the OPS, which states that

> SAICM should call upon existing and new sources of financial support to provide additional resources and should build upon, among other things, the Bali Strategic Plan for Technology Support and Capacity- building[[113]]. It should also include the mobilization of additional national and international financial resources, including through the Quick Start Programme and other measures set out in this paragraph,

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[112] The Strategy also indicates that: "SAICM does not cover products to the extent that the health and environmental aspects of the safety of the chemicals and products are regulated by a domestic food or pharmaceutical authority or arrangement."

[113] The Bali Strategic Plan for Technology Support and Capacity-building constitutes UNEP's approach to strengthen technology support and capacity building in developing countries, as well as countries with economies in transition. The Plan was approved by the 23rd session of the UNEP Governing Council in February 2005 and is available on www.unep.org/GC/GC23/documents/GC23-6-add-1.pdf.

> to accelerate the strengthening of capabilities and capacities for the implementation of the SAICM objectives.

The paragraph also recognizes that

> the extent to which developing countries, particularly least developed countries and small island developing States, and countries with economies in transition can make progress towards reaching the 2020 goal depends, in part, on the availability of financial resources provided by the private sector and bilateral, multilateral and global agencies or donors.

The financial arrangements for SAICM are described in a list of elements which includes, among other things:

A. Actions at the national or sub-national levels;

B. Enhancing industry partnerships and financial and technical participation in the implementation of SAICM;

C. Integration of SAICM objectives into multilateral and bilateral development assistance cooperation;

D. Making more effective use of and building upon existing sources of relevant global funding, including possibly with the Global Environment Facility (GEF)[114] and the Montreal Protocol on Substances that Deplete the Ozone Layer and its Multilateral Fund for the Implementation of the Montreal Protocol;[115]

E. Supporting initial capacity-building activities for the implementation of SAICM through the Quick Start Programme (QSP) and its voluntary, time-limited trust fund administered by UNEP; and

F. Inviting Governments and other stakeholders to provide resources to the SAICM secretariat.

While the financial considerations provide a comprehensive list of different opportunities and possibilities of support, only the QSP is specific to SAICM. ICCM resolution I/4 established the QSP "to support activities to enable initial capacity building and implementation in developing countries, least developed countries, small island developing States and countries with economies in transition." In the resolution, the ICCM also called for the QSP to include a trust fund, administered by UNEP, and multilateral, bilateral and other forms of cooperation. The trust fund will be open to receive contributions until 2011 ant to make disbursements until 2013.

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[114] The GEF is an independent financial organization that provides grants to developing countries for projects that benefit the global environment and promote sustainable livelihoods in local communities. GEF projects address complex global environmental problems under six focal areas: biodiversity, climate change, international waters, land degradation, the ozone layer and persistent organic pollutants (POPs).

[115] The Multilateral Fund, established in 1993, is a dedicated multilateral fund for a multilateral environment agreement. It meets the agreed incremental costs of compliance activities for elimination of ozone-depleting substances (e.g. financial and technical cooperation, and technology transfer).

The Global Plan of Action provides a list of 273 voluntary activities by stakeholders in order to pursue the commitments and objectives expressed in the Dubai Declaration and the Overarching Policy Strategy. The GPA is composed primarily of a table separated along 36 work areas consistent with the five categories of objectives defined of the OPS. For each activity, possible actors, targets and timeframes, indicators of progress and implementation aspects are suggested. Although the GPA was not adopted, the Dubai Declaration highlights its important role:

> We recommend the use and further development of the Global Plan of Action, to address current and ever-changing societal needs, as a working tool and guidance document for meeting the commitments to chemicals management expressed in the Rio Declaration on Environment and Development, Agenda 21, the Bahia Declaration on Chemical Safety, the Johannesburg Plan of Implementation, the 2005 World Summit Outcome and this Strategic Approach;

The ICCM at its first session also adopted four resolutions. Resolution I/1 on implementation arrangements which called on "all stakeholders, including Governments, intergovernmental and non-governmental organizations, regional economic integration organizations, representatives of civil society and the private sector, to take appropriate action to achieve the objectives of SAICM". Resolution I/2 paid tribute to the Government of the United Arab Emirates for the hosting of the Conference. Resolution I/3 on IFCS invited "the Forum to continue its important role in providing an open, transparent and inclusive forum for discussing issues of common interest and also new and emerging issues, and to continue to contribute through this to the implementation of SAICM and the work of other chemicals-related international organizations and institutions." ICCM resolution I/4 set the institutional arrangements for the QSP and its trust fund, including its objective, time frame and governing bodies.

2.3 Characteristics of the SAICM development process

The adoption of SAICM marked an important step in the definition of a comprehensive and global framework for the sound management of chemicals. While its implementation and performance against the 2020 goal of the sound management of chemicals will determine its effectiveness and adequacy, the way leading to its adoption provided a number of important features. Contrary to preceding efforts to tackle chemicals-related issues, SAICM was not conceived as a legal instrument but as a voluntary mechanism. This approach allowed for greater flexibility in the definition of its objectives, engagement of stakeholders and sectoral opportunities for implementation.

The 2020 goal of the Johannesburg Plan of Implementation allowed for SAICM to aim for an ambitious goal and a framework for achieving it. Instead of relying on state-centred international law, SAICM was conceived with the different elements needed to foster international action. Political commitment was provided for by the Dubai Declaration, the OPS defined SAICM's core arrangements and the GPA provided a suggested toolbox of concrete actions. The voluntary nature of the approach allowed for a more flexible participation of all stakeholders with a focus on objectives and activities, rather than solely on rights and obligations. Building upon

existing efforts, SAICM did not aim to replace or duplicate exiting programmes, organizations and treaties. Rather, SAICM aimed to provide an umbrella under which existing and future national, regional and international chemicals management work could be fostered.

The multi-stakeholder and multi-sectoral engagement was one of the successes of the development of SAICM.[116] The shift from a legal state-centred framework to voluntary framework allowed for international non-state actors to be involved in the development of SAICM. From its onset, SAICM was conceived as a means of linking the work of Governments, intergovernmental organization and civil society, including industry for the sound management of chemicals. In recognition of the important role played by all stakeholders, the SAICM PrepCom rules of procedure gave equal status to all participants with decisions requiring consensus from all representatives.[117]

Furthermore, the SAICM development process allowed for the engagement of a maximum of sectors to be engaged in the process. This was achieved among other things through the granting of travel funding for two representatives from different Ministries of developing countries and countries with economies in transition. Different sectors were also represented by different intergovernmental organizations, as well as relevant civil society organizations, including environment and health organizations, trade unions and industry.[118]

In this regard, one of the principal features of SAICM has been to link chemicals management in all sectors as an issue of sustainable development. While chapter 19 of agenda 21 and the WSSD had provided a general link, SAICM offered stakeholders from all sectors concrete opportunities to tie chemicals safety with the improvement of higher living standards or achievement of Millennium Development Goals. In the context of developing countries and countries with economies in transition, SAICM for example aims to encourage the *mainstreaming* of chemicals management into national development priorities and plans. Mainstreaming activities[119] aim to assist countries in demonstrating the need for chemicals management using economic tools, including cost benefits analysis.

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[116] The Overarching Policy Strategy provides that the main SAICM stakeholders and sectors are understood to be "Governments, regional economic integration organizations, intergovernmental organizations, non-governmental organizations and individuals involved in the management of chemicals throughout their life-cycles from all relevant sectors, including, but not limited to, agriculture, environment, health, industry, relevant economic activity, development cooperation, labour and science. Individual stakeholders include consumers, disposers, employers, farmers, producers, regulators, researchers, suppliers, transporters and workers."

[117] See for reference the rules of procedure in document SAICM/ICCM.1/6 available on http://www.chem.unep.ch/ICCM/meeting_docs/default.htm.

[118] See for example an analysis of the role played by industry in the negotiations in *Business in Economic Diplomacy* by Reinhard Quick, in *The New Economic Diplomacy* (second edition), Nicholas Bayne and Stephen Woolcock (ed.), Ashgate Publishing, Ltd., 2007. See also http://books.google.ch/books?id=ELDv-26byMwC&pg=PA112&dq=NEW+ECONOMIC+DIPLOMACY+SAICM&hl=en#PPA105,M1

[119] Activities for mainstreaming may include qualitative and quantitative analysis of links between priority chemical management issues and human health and environmental quality, research to assess the costs of inaction and benefits of action, using planning and economic terminology, of

The engagement of a large spectrum of stakeholders and sectors allowed for SAICM to receive inputs and take into account views from a variety of actors involved in chemicals management. In addition to being inclusive, SAICM's development remained transparent at all time, offering the opportunity for all participants and the external public to oversee information made available, outcomes of consultations, as well as preparatory and meeting documents.

Building on previous work and initiatives, the development of SAICM received strong high-level support. SAICM's development was endorsed by Heads of States and Government during the WSSD in Johannesburg in 2002 and during the 2005 World d Summit[120] as well by several Ministerial forums at the regional level.[121] During the first session of the ICCM, over 30 Ministers and senior representatives committed themselves to SAICM and the Dubai Declaration. Following its adoption, SAICM has also been formally acknowledged or endorsed by governing bodies of intergovernmental organizations and international forums.[122]

3. SAICM IMPLEMENTATION AND THE SECOND SESSION OF THE INTERNATIONAL CONFERENCE ON CHEMICALS MANAGEMENT

The adoption of SAICM by the ICCM closed over three years of a development process. However, this event only marked the very beginning of SAICM's implementation as its success will be measured against the 2020 goal of sound management of chemicals.

As the Dubai Declaration highlights, the implementation of SAICM will require the participation and work of all stakeholders: "We collectively share the view that implementation and taking stock of progress are critical to ensuring success…"

While SAICM provides the policy framework and can facilitate assistance, progress depends on the initiatives of individual actors, including Governments, intergovernmental organizations and civil society organizations.

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priority chemicals management issues, as well as integrating chemicals management priorities into each country's development planning processes and plans.

[120] In September 2005, more than 150 Heads of State and Government gathered in New York during the 2005 World Summit to follow-up to the outcomes of the Millennium Summit held in 2000. The High Level Plenary Meeting endorsed the 2005 World Summit Outcome, which endorsed the development of SAICM. See for reference: http://www.saicm.org/documents/positions/SAICM%20Para%2056k%20-%202005%20World%20Summit%20Outcome.pdf.

[121] See the international and regional positions on the development of SAICM on http://www.saicm.org/index.php?menuid=2&pageid=109&submenuheader=.

[122] Information on the consideration of SAICM by international forums' positions on SAICM can be found on: http://www.saicm.org/index.php?menuid=4&pageid=4.

3.1 The Enabling phase and the Quick Start Programme

SAICM can be considered as a process in which an initial enabling phase needs to be completed before full implementation can be achieved. This initial phase is aimed at addressing the needs of countries in the assessment of their capacities for the sound management of chemicals, in particular in developing countries and countries with economies in transition. While there is no definition of enabling activities, references are made in the OPS to initial activities stakeholders may undertake in preparation of their implementation of SAICM. Paragraph 22 of the Strategy provides that

> SAICM implementation could begin with an enabling phase to build necessary capacity, as appropriate, to develop, with relevant stakeholder participation, a national SAICM implementation plan, taking into consideration, as appropriate, existing elements such as legislation, national profiles, action plans, stakeholder initiatives and gaps, priorities, needs and circumstances.

The QSP was established to address some of these initial needs as its objective defined by ICCM resolution I/4 is

> to support initial enabling capacity-building and implementation activities in developing countries, least developed countries, small island developing States and countries with economies in transition.

The strategic priorities of the QSP, defined in ICCM resolution I/4, provide a further indication as to the scope of enabling activities, which are to be in keeping with the work areas set out in the strategic objectives of section IV of the Overarching Policy Strategy, namely risk reduction, knowledge and information, governance, capacity building and illegal international traffic, and relate in particular to the following strategy priorities:

a) Development or updating of *nation*al chemical profiles[123] and the identification of capacity needs for sound chemicals management;

b) Development and strengthening of national chemicals management institutions, plans, programmes and activities to implement SAICM, building upon work conducted to implement international chemicals-related agreements[124] and initiatives[125];

[123] National chemicals management profiles provide a comprehensive overview of the national chemicals management situation in a country. Their development or updating provides the opportunity to assess the existing national legal, institutional, administrative, and technical infrastructure for the sound management of chemicals. National profiles can serve as a basis for identifying national chemicals management priorities and for initiating targeted and coordinated follow-up action.

[124] International agreements provide a legal framework under which to address common concerns and/or transboundary issues with examples including the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the Stockholm Convention on Persistent Organic Pollutant, the International Health Regulations, the International Labour Organization Convention 170 on Safety in the Use of Chemicals at Work, the International Maritime Organization Convention for the Prevention of

c) Undertaking analysis, interagency coordination, and public participation activities directed at enabling the implementation of SAICM by integrating – i.e., mainstreaming – the sound management of chemicals in national strategies, and thereby informing development assistance cooperation priorities.

Since 2006, and as of January 2008, the QSP trust fund has received pledges for an approximate total of $18,782,000 from 21 donors. Existing arrangements provide that each year, two application rounds are held, during which Governments of developing countries and countries with economies in transition are eligible for projects valued between $50,000 and $250,000. Proposals may be presented by SAICM participating Governments that have given appropriate formal recognition to SAICM, at a minimum by having designated an official SAICM national focal point. On an exceptional basis, civil society networks participating in SAICM can also be eligible to present project proposals, which need to be endorsed by a SAICM national focal point. As of November 2008, 74 projects with a total value of $14,020,252 were approved. In addition, non-trust fund contributions have been provided to support bilateral and multilateral chemicals management programmes, projects and activities supporting the QSP objective and strategic priorities.[126]

3. 2 National and regional implementation

While the early successes of SAICM and of the QSP have been welcomed, the major objective of SAICM remains the achievement of the 2020 goal and full implementation by all stakeholders. At the national level, Governments are expected to take a number of steps to ensure that SAICM's framework is translated into concrete measures. As an initial step, Governments are invited by the OPS paragraph 23 to "establish arrangements for implementing SAICM on an inter-ministerial or inter-institutional basis so that all concerned national departmental and stakeholder interests are represented and all relevant substantive areas are addressed", as well as to nominate a national focal point "to facilitate communication, nationally and internationally." Furthermore, Governments can integrate SAICM into relevant programmes and plans, including those for development cooperation, as called for in OPS paragraph 19 (a).

National implementation is also aimed at other stakeholders and their engagement is important in order to cover a large scope of aspects of chemical safety. The OPS paragraph 22, for example, calls for the development, "with relevant stakeholder participation, [of] a national SAICM implementation plan, taking into consideration, as

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Pollution from Ships and the Vienna Convention on the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer.

[125] Examples of voluntary international initiatives emanating from intergovernmental processes include the International Code of Conduct on the Distribution and Use of Pesticides developed under the auspices of the Food and Agriculture Organization and the Globally Harmonized System of Classification and Labelling of Chemicals developed by the United Nations Economic and Social Council's Committee of Experts on the Transport of Dangerous Goods.

[126] Additional information on the QSP can be found on: http://www.saicm.org/index.php?menuid=22&pageid=252

appropriate, existing elements such as legislation, national profiles, action plans, stakeholder initiatives and gaps, priorities, needs and circumstances."

At the regional level, the ICCM decided in its resolution I/1 that intersessional work should be promoted through, among other things, regional meetings. The SAICM OPS, in paragraph 26, indicates that the functions of the regional meetings will include:

(a) To review progress on implementation of the Strategic Approach within the regions;

(b) To provide guidance on implementation to all stakeholders at a regional level;

(c) To enable technical and strategic discussions and exchange of information to take place.

Since the adoption of SAICM in February 2006, all five United Nations regions, namely the African, Asia-Pacific, Central and Eastern European and Latin American and Caribbean regions, and the Western European and Others Group, have had at least one regional meeting. The regional meetings during the first intersessional period have focused on agreeing on arrangements for regional coordination, establishing regional priorities and plans for SAICM implementation and preparing of the second session of the ICCM. The African region adopted a regional action plan, while the Asia-Pacific and Central and Eastern European regions made first steps in this regard.[127]

3. 3 The Second Session of the International Conference on Chemicals Management

The SAICM Overarching Policy Strategy, in paragraphs 24 and 25, sets out the functions and schedule of the ICCM, as follows:

The ICCM will undertake periodic reviews of SAICM. The functions of the ICCM will be:

(a) To receive reports from all relevant stakeholders on progress in implementation of SAICM and to disseminate information as appropriate;

(b) To evaluate the implementation of SAICM with a view to reviewing progress against the 2020 target and taking strategic decisions, programming, prioritizing and updating the approach as necessary;

(c) To provide guidance on implementation of SAICM to stakeholders;

(d) To report on progress in implementation of SAICM to stakeholders;

[127] Further information on regional activities can be found on: http://www.saicm.org/index.php?menuid=14&pageid=294.

(e) To promote implementation of existing international instruments and programmes;

(f) To promote coherence among chemicals management instruments at the international level;

(g) To promote the strengthening of national chemicals management capacities;

(h) To work to ensure that the necessary financial and technical resources are available for implementation;

(i) To evaluate the performance of the financing of SAICM;

(j) To focus attention and call for appropriate action on emerging policy issues as they arise and to forge consensus on priorities for cooperative action;

(k) To promote information exchange and scientific and technical cooperation;

(l) To provide a high-level international forum for multi-stakeholder and multi-sectoral discussion and exchange of experience on chemicals management issues with the participation of non-governmental organizations in accordance with applicable rules of procedure;

(m) To promote the participation of all stakeholders in the implementation of SAICM.

The OPS paragraph 25 also provides that the second session of the ICCM should be held in 2009 and that, "where appropriate, sessions of the ICCM should be held back-to-back with meetings of the governing bodies of relevant intergovernmental organizations in order to enhance synergies and cost-effectiveness and to promote SAICM's multi-sectoral nature." The secretariat has scheduled ICCM2 to take place in Geneva, from 11 to 15 May 2009, immediately before the 62nd World Health Assembly.[128] The second session of ICCM will itself be preceded by the 4th meeting of the Conference of the Parties of the Stockholm Convention.[129]

At its first session, the ICCM agreed that the groundwork for the second session on the issue of rules of procedure would be carried out by an open-ended legal and technical working group, which would meet a few months prior to the second session. The Open-ended Legal and Technical Working Group (OELTWG) met at FAO headquarters in Rome, from 21 to 24 October 2008. In conjunction with the OELTWG, stakeholders held informal discussions to assist preparation for the second session of the ICCM.[130] The OELTWG worked on the development of rules of procedure for the ICCM, which will be considered by the Conference at its second session. Informal discussions allowed stakeholders to hold preliminary discussions on issues to be considered by ICCM at its second session, including modalities for

[128] Information on the World Health Assembly can be found on: http://www.who.int/governance/en/.
[129] See www.pops.int.
[130] Information on both meetings can be found on: http://www.saicm.org/index.php?menuid=12&pageid=102.

reporting on implementation, emerging policy issues, financial considerations, the possible addition of new activities to the Global Plan of Action and the relationship of the IFCS to SAICM.

The second session of the ICCM will therefore be an opportunity for it to finalize institutional arrangements, such as the adoption of its rules and Bureau. In addition, however, the ICCM will be for the first time performing its function defined in paragraph 24 of the OPS. Among these issues, the main ones are expected to be the modalities for reporting on implementation, emerging policy issues and financial considerations.

3.4 Reporting on Progress in Implementation

Reporting on the implementation of the Strategic Approach will be a key tool in assessing progress towards the Johannesburg Plan of Implementation goal of achieving the sound management of chemicals by 2020. Paragraph 24 of the Overarching Policy Strategy provides for the Conference to carry out a number of key functions in relation to reporting, namely "to undertake periodic reviews of the Strategic Approach"; "to receive reports from all relevant stakeholders on progress in implementation of the Strategic Approach and to disseminate information as appropriate;" and "to evaluate the implementation of the Strategic Approach with a view to reviewing progress against the 2020 target and taking strategic decisions, programming, prioritizing and updating the approach as necessary."

In order to assist the development of appropriate reporting modalities, the Government of Canada has sponsored a project to develop a set of draft indicators for reporting progress on the implementation of SAICM and a baseline estimates report. The project was carried out by the consulting firm Resource Futures International, with guidance provided by an international project steering committee. Following the completion of the Government of Canada-sponsored project, the secretariat encouraged Governments and other organizations to test the questionnaires and share the experience obtained.

Stakeholders at the informal discussions held in October 2008 requested that a revised set of proposed indicators be prepared to simplify them, render them more user-friendly and less resource-intensive. They agreed that the international project steering group that had earlier provided assistance to the Government of Canada-sponsored project be reconvened, with additional new participants, and be requested to produce a single set of between 15-20 indicators taking into account the earlier proposed indicators and the results of the pilot testing. The revised proposal and arrangements for periodic reporting by stakeholders are to be considered at the second session of the ICCM to be held in May 2009. Following the adoption of reporting modalities and indicators, periodic reporting will be undertaken by the Conference at its future sessions in 2012, 2015 and 2020.[131]

[131] Additional information on reporting and modalities can be found on: http://www.saicm.org/index.php?menuid=32&pageid=297.

3.5 Emerging Policy Issues

One of the functions of the ICCM set out in paragraph 24 of the OPS is "to focus attention and call for appropriate action on emerging policy issues as they arise and to forge consensus on priorities for cooperative action." Paragraphs 14 (g) and 15 (g) of the OPS call, respectively, for new and emerging issues of global concern to be sufficiently addressed by means of appropriate mechanisms, and for an acceleration of the pace of scientific research on identifying and assessing the effects of chemicals on human beings and the environment, including emerging issues.

The Conference has not yet defined the term "emerging policy issue", but it may be understood to be an issue involving the production, distribution and use of chemicals, which has not yet been generally recognized or sufficiently addressed, but which may have significant adverse effects on human beings and/or the environment. Following consultation with the informal "Friends of the Secretariat" planning group,[132], the secretariat prepared a short questionnaire as a means for SAICM stakeholders to propose "emerging issues" for consideration by the Conference at its second session.

A compilation of the submissions received from stakeholders to the questionnaire on emerging policy issues[133] was considered by stakeholders at informal discussions held in Rome in October 2008. An overview and summary of the issues raised in the submissions was also taken into account. Present stakeholders decided that the next step would be for the secretariat, in consultation with the Friends of the Secretariat, to screen the nominated emerging policy issues in a transparent manner and select emerging policy issues that might be prioritized for detailed consideration at the second session of the Conference.

On the basis of this additional preparatory work, the Friends of the Secretariat group agreed to recommend that the following emerging issues be considered in detail by the second session of the Conference:

- Chemicals in products;
- Nanotechnology and manufactured nanomaterials;
- Electronic waste; and
- Lead in paints..

In addition to the information on each of the agreed selection criteria it was taken into account that these issues each reflected an emerging policy issue which was not yet addressed internationally, an issue about which the global chemicals community was not fully aware and/or issues of particular and immediate concern for developing countries.

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[132] The Friends of the Secretariat group was established in April 2008 to provide guidance to the secretariat on preparations for the second session of the ICCM, to be held from 11 to 15 May 2009. The group comprises regional focal points and representatives of Governments, non-governmental and intergovernmental organizations.

[133] Document SAICM/InfDisc/INF/1, available on http://www.saicm.org/documents/OELTWG/Informal%20discussions/ID%20INF1%20issues%20compilation.pdf

Opportunities for considering other nominated emerging policy issues at the second session of the Conference were also identified and it was recommended that the submission "Health-sector – prevention of chemicals-related adverse-health impacts" be included for discussion in a planned high-level round table to be held during the Conference. It was also recommended that a side event be planned for further information sharing on perfluorinated chemicals.

The second session of the Conference will also be invited to consider a longer-term procedure for the modalities of carrying out its functions with regard to emerging policy issues which would include revised criteria for priority setting, to be developed as necessary.[134]

3.6 Financial Considerations

In the course of the development of SAICM, financial considerations were a crucial element of the SAICM framework. During PrepCom 3, in September 2005, a study on financial considerations for SAICM was presented. It highlighted some gaps in financing, such as the following:

- International agreements and decisions encompassed by SAICM have limited access to funding from multilateral and bilateral funding sources (e.g. the Basel Convention, the Rotterdam Convention etc);
- Multilateral financial mechanisms with chemicals-related mandates address only partially broader governance issues that are central to SAICM;
- Existing multilateral financial mechanisms with chemicals-related mandates are restricted to provision of support for work on a relatively limited, although important, number of chemicals;
- Integration or "mainstreaming" of the sound management of chemicals in multilateral and bilateral development assistance programming has seen slow progress with certain key exceptions; and
- Despite the wealth generated by, and the growth of the chemical industry on a global basis, there are no significant mechanisms for industry financial contributions to the global agenda for the sound management of chemicals. [135]

Taking into consideration these elements, paragraph 19 of the OPS, which enshrines the financial arrangements for SAICM is a comprehensive list of sources of finance and technical cooperation means. Since 2006, however, a large majority of stakeholders considered that the scope of SAICM is such that the funding necessary to achieve significant progress toward the 2020 goal far exceeded that currently available, in particular through the QSP.

Over the course of regional meetings and consultations, many stakeholders welcomed the QSP and were positive as to its adequacy for meeting its limited objective. Some called for more resources to be made available, for an increase in

[134] Additional information on emerging policy issues can be found on http://www.saicm.org/index.php?menuid=9&pageid=331&submenuheader=.

[135] See document SAICM/PREPCOM.3/INF/28: www.saicm.org/documents/meeting/prepcom3/en/INF28.doc.

the funding available per project and per country, as well as the consideration of a possible extension of the duration of the QSP. Demand for QSP trust fund assistance has remained constant over the first three years of operation of the QSP and funds available were almost sufficient to meet the demand of all applicants. SAICM donors emphasized that broadening of the donor base was a crucial challenge for sustaining the Programme and its trust fund.[136] Some donor Governments highlighted burden-sharing as a precondition to allow present donors to maintain their contributions to the QSP and that the reliance on a limited number of important donors undermined the sustainability of the Programme. Some stakeholders noted that, thanks to the QSP, it had been possible to obtain development cooperation agency resources.

There is a shared view among a number of stakeholders that further consideration should be given to the financial framework of SAICM, in particular as the QSP will cease to receive contributions in 2011, one year before the third session of the ICCM. Among the options considered has been the need for better use of existing resources, linking of SAICM to the GEF, the development of a standalone financial mechanisms and better use of development assistance funding.[137]

Since 2008, an informal group of donors has undertaken to discuss financial matters in preparation of the second session of the ICCM and to present some options then. During the meeting of the OELTWG in October 2008, the Government of Sweden on behalf of an informal group of donor countries presented a thought-starter to stimulate discussion. A key point of the paper was that there was no single source of funding for all activities under SAICM, as they encompassed activities covered under other regimes, activities that pertained to the Millennium Development Goals and activities that conferred global benefits. This breadth of activities and the lack of a single source of funding meant that it was necessary to prioritize and, to that end, to identify which activities in the Global Plan of Action belonged in which group and what sources of funding already existed for each.[138] While no consensus can yet be reached on the way forward, the second session of the ICCM will be crucial in determining the future of the financial mechanism of SAICM. In addition to plenary discussions on the matter, it is expected that a high-level round table will also aim to address this question

4. CONCLUSION

The potential harmful effects on human health have gradually raised calls for their sound management. With increased use, production and transport of chemicals, awareness of a number of related problems has gradually been on the agenda of the international community. The development and adoption of SAICM was the

[136] Information and documents on SAICM donors meetings can be found on: http://www.saicm.org/index.php?menuid=5&pageid=22

[137] See also the thought starter on financial arrangements for the implementation of SAICM prepared by the Government of Switzerland for the second of EU-JUSSCANNZ countries in June 2007 http://www.saicm.org/documents/meeting/EU_Jusscanz/Feb%2008/Swiss%20SAICM%20finance%20paper%20-%20G293-0719.pdf

[138] See para. 28 of the report, available on: http://www.saicm.org/documents/OELTWG/Informal%20discussions/InfDisc%208%20final%20report%20E.doc.

cumulating point of the emergence of chemicals management as a global issue. The acknowledgement of chemicals as an issue of sustainable development and the involvement of all sectors and stakeholders have also raised the profile of SAICM. SAICM recognizes the special situation of developing countries, which increase their production and consumption of chemicals and require support for their sound management.

SAICM provides an innovative mechanism for action, which has the necessary components to address the 2020 goal of the sound management of chemicals. Its comprehensiveness in scope, high-level endorsement, voluntary nature and inclusiveness make it a possible. While SAICM is nor a convention, nor a forum, it may provide the example of future international multilateral initiatives. While it does not create legal obligations, it provides a framework which includes a recognized mandate, agreed texts and a flexible plan for action.

The success of SAICM will however require the participation and commitment of all stakeholders in its implementation. The initial phase of SAICM implementation will come to an end by the second session of the ICCM. The event will be an important milestone, as it is expected to decide on remaining institutional arrangements, while at the same time addressing the substantive matters of its mandate. Among the key issues during the second session will be emerging issues and financial considerations. While it can be expected that not all substantive matters will be concluded during the Conference, it will remain important that the SAICM process keeps its momentum. With the foundations now in place, the architects and builders will need to put a number of differences aside if they wish to meet the 2020 goal. The involvement of all stakeholders and sectors and the means for implementation may be the initial indicators of success of the process.

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ENVIRONMENTALLY SOUND MANAGEMENT – TOWARDS A COHERENT FRAMEWORK BRIDGING THE BASEL, THE ROTTERDAM, AND THE STOCKHOLM CONVENTIONS

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ABSTRACT

The objective of reducing the environmental footprint and adverse health effects of the materials we use and leave behind every day has been addressed with different policies and regulatory frameworks. These efforts can be subsumed under the overarching concept of "environmentally sound management" (ESM), a guiding principle of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. However, based on the understanding that the notion of "waste" generally consists of a mixture of materials and substances, the concept of ESM is deemed appropriate for a wider scope of applications. From a policy as well as a legal perspective, the principles of ESM should therefore link the different legal frameworks which are applicable, i.e. in addition to the Basel Convention particularly the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, and the Stockholm Convention on Persistent Organic Pollutants. Such a multilateral ESM policy framework could provide the foundation for the development of important cornerstones to ensure an international level regulatory playing field and for the enhancement of proper waste management globally. Its goal is to protect and secure both the environment as well as human health in the long run.

I. OVERVIEW

The generation of wastes has overshadowed economic growth and development throughout history. Vast production and unsustainable consumption patterns and the particularly fast growing waste quantities have lead to the widely shared realization that modern society is facing a waste crisis. Economic globalization additionally challenges the handling of increased flows of materials crossing borders. In order to lead the management of wastes into the right channels, the guiding objective has repeatedly been framed as the reduction of the environmental footprint and of adverse health effects which such materials potentially leave behind during their lifecycle. This goal has been aimed at through minimizing waste generation as such, as well as by managing inevitable wastes in a way that enables the re-introduction of usable materials into the production cycle (thus reducing disposable wastes as a consequence). This strategy facilitates the final treatment and disposal of residual waste materials in an environmentally compatible manner.

Such an approach is conceptualized under the notion of "environmentally sound management" (ESM) and represents the fundamental principle of the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal*.[139] Additional ESM frameworks encompass, *inter alia,* the Organization for Economic Co-operation and Development (OECD) Recommendation C(2004)100 on the Environmentally Sound Management of Waste. Furthermore, non-binding, voluntary agreements have been established both by the International Standards Organization with the ISO 14000 series and by the European Union with the EMAS standards for organizations. ESM has also been framed as an overall objective and guideline for current attempts to address ship dismantling. However, ESM is a broad framework concept in the existing normative structure. In order to enable the concept's effective implementation, a further elaboration of this substantive principle is necessary to provide for a starting point in improving the coherence between the different existing and emerging legal regulations. In terms of a second step, a new approach for the future could be provided by the introduction of an international ESM framework to enhance proper waste management globally. Such an approach would unhinge ESM from its somewhat conceptual regulatory origins and acknowledge ESM as an overarching core principle for the management of potentially harmful and polluting materials.

In framing the subject of ESM, particular attention should be given to the fact that wastes generally consist of a heterogeneous mixture of materials. Environmentally sound waste management encompasses the process of products' reduction to their individual components, in order to separate reusable resources from disposable wastes. Such a complex undertaking reveals the problematic of referring to "wastes" as a uniform and apparently clear term, since wastes consist of diverse materials (products or substances) that call for specific treatments. The

[139] Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, in U.N.T.S., vol. 1673; I.L.M., vol. 28, 125, 657 (1989). http://www.basel.int/text/con-e-rev.pdf

growing use of chemicals in production processes generates special challenges at the end of products' usefulness, particularly when hazardous components are involved. Persistent Organic Pollutants (POPs) for instance are organic compounds that resist environmental degradation and possess toxic properties. In light of these considerations, it makes sense to apply the concept of ESM broadly by striving towards improved coherence between the different frameworks. In light of the hazards of the substances in question, this implies an approach linking the applicable legal frameworks, i.e. the *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade* (hereinafter: RC),[140] the *Stockholm Convention on Persistent Organic Pollutants* (hereinafter: SC),[141] and the *Basel Conven[142]tion* (hereinafter BC). Such an approach would facilitate the concrete implementation of ESM, beyond the materials' classification under the Conventions, with a view to covering the entire life-cycle of harmful chemicals.

The elaboration of an international ESM framework could improve the implementation of such core standards globally. Since waste management operations are carried out at a national level, the developing and issuing of domestic legislation become an essential prerequisite for effective waste management schemes. Furthermore, the increased flow of materials across borders calls for more certainty, transparency, predictability and traceability worldwide. Enhanced transparency in particular improves predictability and thereby will help to build a coherent regulatory framework that is an essential precondition for international cooperation. An internationally harmonized legal framework is indispensable for the implementation of a level playing field of regulations and helps ensure that facilities which have invested in environmentally sound technologies maintain their competitiveness; it would also prevent the use and abuse of lower and less stringent waste management standards as pollution havens. Since effective legal frameworks for the protection of the global environment cannot be confined to national borders, the consolidation of domestic regulations and the eventual establishment of a comprehensive international legal framework represent a necessity for safety and sustainability.

Before addressing possible steps towards the development of a coherent international ESM framework, this contribution shall initially outline the concept of ESM within the existing regulations on an international level. After such a delineation of the concept's contents, the rationale for improving a linkage between the Basel, the Rotterdam, and the Stockholm Conventions shall be examined in more detail. Finally, the study is rounded off with a focus on important criteria that need particular consideration in view of the development of a coherent international ESM framework as well as with a conclusion.

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140 Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, in U.N.T.S., vol. 2244; I.L.M., vol. 38, 337; 1734 (1998). http://www.pic.int/en/ConventionText/ONU-GB.pdf

141 Stockholm Convention on Persistent Organic Pollutants, in I.L.M., vol. 40, 532 (2001). http://www.pops.int/documents/convtext/convtext_en.pdf

II. ESM IN EXISTING LEGAL FRAMEWORKS

1. *The Basel Convention Framework*

The *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal* (hereinafter: BC)[143] has become the central international legal framework addressing hazardous and other wastes. The BC regulates transnational movements of hazardous and other wastes with the general objective of reducing the generation of hazardous wastes to a minimum and to regulate transnational shipments of wastes when unavoidable. The Convention's guiding principle is the protection of the environment and human health.[144] The BC does not ban the export of hazardous wastes completely – indeed the entry into force of the Ban Amendment[145] is rather uncertain at present – but rather introduces the criterion of ESM as an underlying principle and benchmark for regulating transnational waste trade.[146] Article 2(8) of the Convention introduces the concept of "environmentally sound management" and defines it as

> "taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes."

The Preamble to the Convention holds that transboundary movements of hazardous wastes, especially to developing countries, establish a high risk of not constituting an environmentally sound management of hazardous wastes as required by the Convention (Preambular paragraph 7bis). As a consequence, transboundary movements of wastes should be reduced to a minimum by disposing of them within the states where they were generated, as far as this ensures an environmentally sound and efficient waste management (Preambular paragraph 8; Article 4(2.b) and 4(2.d)), and by enhancing the control over the international wastes' movements (Preambular paragraph 10). The responsibility to ensure the environmentally sound

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143 See supra note 139.

144 On the elaboration and guiding principles of the Basel Convention see KATHARINA KUMMER, International Management of Hazardous Wastes. The Basel Convention and Related Legal Rules, New York 1995, 38-77.

145 The Ban Amendment is contained in the Conference Decision II/12, adopted at the Second Conference of the Parties to the Basel Convention (COP2), 25 March 1994, Geneva, Switzerland. Once the decision was adopted, the next step would have been to include a new provision in the text of the Convention. Therefore it was proposed that the ban be incorporated in the Basel Convention as an amendment with the Conference Decision III/1, adopted at the Third Conference of the Parties to the Basel Convention (COP3), 22 September, 1995, Geneva, Switzerland. For further information see http://www.basel.int/pub/baselban.html.

146 PIERRE PORTAS, From Makers to Breakers: A New Dimension in World Wide Waste Management, in Sustainable Waste Management, Ravindra K. Dhir/Moray D. Newlands/Tom D. Dyer (eds.), London 2003, 1-7, 1; see also Basel Declaration on Environmentally Sound Management printed in Annex II of UNEP, Report of the Fifth Meeting of the Conference of the Parties to the Basel Convention, 10 December 1999, UNEP/CHW.5/29, para. 3 (p. 85).

waste management is thus primarily incumbent on the waste generating state;[147] only if the environmentally sound disposal is not possible in a generating state, the transboundary movement of such materials is allowed under the Convention (Article 4(9.a)).

Indeed, the environmentally sound transportation and disposal become a precondition for permitted transboundary movements of hazardous and other wastes under the BC (Preambular paragraph 23): The state parties to the Convention are obliged to prevent the importation or exportation of wastes if they have reasons to believe that the wastes in question will not be managed in an environmentally sound manner (Article 4(2.e), (2.g), and 4(8), as well as Article 6(3.b) and para. 20 of Annex V A). As a consequence, a duty to re-import exported waste arises if the transboundary movement cannot be completed in accordance with the agreement concluded between the parties, and if alternative arrangements securing an environmentally sound disposal are not possible (Article 8). Furthermore, the Convention calls for the cooperation between the parties to improve the environmentally sound waste management (Article 4(2.h), Article 10 and Article 16). In particular, in cases of illegal waste traffic under Article 9 of the Convention, the states concerned are required to ensure the environmentally sound disposal of the waste in question; all the parties are held to cooperate to this end (Article 9(3) and (4)).

The BC constitutes a legally binding agreement for its state parties and firmly roots ESM as a necessary condition to fulfill parties' obligations under the Convention. Nonetheless, the concrete content of the concept requires further clarifications. For example, the manner in which the state of export can verify the importing state's waste management scheme is not described by the BC. Indeed, the general principle of state sovereignty in international law and the principle of territorial integrity limit the extent of a state's permitted survey over a foreign state – over which it has no jurisdiction – to the verification of documentation and materials that the importing state provides by itself.[148] Furthermore, the BC does not stipulate a unique ESM standard. For this reason, every exporting state will rely on its own appreciation on what environmentally sound management means. Nevertheless, the BC has encouraged the use of standardized documents, which contain the information necessary under the Convention, such as the movement document for example, which is required to accompany waste shipments up to their disposal.[149] The ESM concept has been further advanced by technical guidelines adopted by the Conferences of the Parties which provide clear direction and assistance for states to regulate operations based on standards that are in accordance with the provisions of the BC.[150] Furthermore, generally accepted and recognized international rules and standards in the field of packaging, labeling, and transport, as well as internationally recognized practices associated with the materials in question may also provide for valuable approaches (see Article 4(7.b)).

The management of wastes entails many different operational methods. According to the waste strategy hierarchy, preference is given to waste minimization and avoidance. The second-best solutions of final disposal, re-use, recycling and re

147 KUMMER, supra note 144, 56.

148 Ibid., 22, 57.

149 See Article 4(7.c) and Article 6(9) as well as Annex V B on the information to be provided on the movement document.

150 See also KUMMER, supra note 144, 56-60.

are recommended mechanisms, preferable to landfilling or incineration.[151] ESM should be a guiding principle at every stage of the waste strategy hierarchy, with the objective that the products attain the longest life possible and cause minimum environmental impacts when reused and disposed of. However, the concrete measures that should be adopted to achieve the ESM objective are dependent on very different parameters: On the one hand the available local technical facilities have to be taken into account as well as the storage possibilities available. On the other hand, the storing or disposing state's climate will need particular consideration. Waste management operations will further depend greatly on the waste material in question. In order to tackle such challenges, the *Technical Guidelines* established by the Technical Working Group of the Basel Convention provide the tools to aim for achieving ESM: Technical Guidelines focus on waste streams such as wastes from the production and use of organic solvents, waste oils, wastes comprising or containing Polychlorinated Biphenyls (PCBs), Polychlorinated Terphenyls (PCTs), and Polybrominated Biphenyls (PBBs), as well as POPs, wastes collected from households, used tires, biomedical and healthcare wastes, waste lead-acid batteries, waste metals and metal compounds, etc. Additionally, Technical Guidelines have been elaborated on waste management operations such as landfill, incineration on land, oil re-refining, dismantling of ships etc.[152] The guidelines are intended to provide for a more precise approach to ESM in the context of specific waste streams including appropriate recommendations on treatment and disposal methods.

The Technical Guidelines form part of the overarching *Guidance Document on the Preparation of Technical Guidelines for the Environmentally Sound Management of Wastes Subject to the Basel Convention*,[153] which was accepted as the "*Framework Document*" by Decision I/19 of the first meeting of the Conference of the Parties to the Basel Convention in December 1992.[154] It follows the purposes of (i) providing information on waste avoidance and the management of wastes, (ii) guiding the national competent authorities in making the decision whether a proposed transboundary movement of waste should be consented to or rejected, and (iii) providing a framework for the further preparation of technical guidelines for the wastes subject to the Basel Convention. On this note, the Document provides some specifics on different elements of an environmentally sound waste management scheme. It addresses the wastes subjected to the Basel Convention,[155] the responsibilities of the concerned parties,[156] the elements of the Technical

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151 PAUL T. WILLIAMS, Waste treatment and disposal, 2nd ed., Chichester 2005, 10; see also Basel Convention, Guidance Document on Transboundary Movements of Hazardous Wastes destined for Recovery Operations, in Basel Convention series / SBC No 02/02, 2002, para. 32-33; see Article 3 Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste, OJ L 114, 27.4.2006, p. 9-21.

152 The Basel Convention Technical Guidelines are available at http://www.basel.int/meetings/sbc/workdoc/techdocs.html.

153 UNEP, Guidance Document on the Preparation of Technical Guidelines for the Environmentally Sound Management of Wastes Subject to the Basel Convention, Basel Convention Working Documents, Secretariat of the Basel Convention, available at http://www.basel.int/meetings/sbc/workdoc/techdocs.html (hereinafter: Framework Document).

154 See UNEP, Report of the First Meeting of the Conference of the Parties to the Basel Convention, 5 December 1992, UNEP/CHW.1/24.

155 Framework Document, supra note 153, para. 11 and 12.

156 Ibid., para. 12-13.

Guidelines,[157] strategic guidelines,[158] a comprehensive control system for ensuring the environmentally sound waste management,[159] the possibility of interim measures,[160] and further hazardous waste management options and good management practices.[161] According to the Framework Document, national legislation as well as a statutory regulatory framework is seen as an essential prerequisite for controlling the transboundary movements and the disposal of wastes[162]. Furthermore, the Document sets up criteria to help assess ESM[163] and lists principles that should be considered in the development of waste and hazardous waste strategies, which stem from different countries' national regulations.[164] They encompass the *source reduction principle*, the *integrated life-cycle principle*, the *precautionary principle,* the *integrated pollution control principle*, the *self-sufficiency principle*, the *proximity principle*, the *polluter pays principle,* as well as the *least transboundary movement principle*. The Framework Document explicitly emphasizes that these principles are not absolute and shall not be applied as definitions going beyond helpful guidance.

The Framework Document supports the understanding of hazardous waste management as an integrated activity connecting different players such as waste generators, carriers, disposers and other handlers, which all share the responsibility for ensuring environmentally sound management.[165] This approach acknowledges the fact that ESM may call for actions necessary prior to final waste disposal. For example, the proper waste classification is crucial for its environmentally sound management and relies primarily on the waste generators, which usually possess the necessary information and are in a position to properly separate waste materials. Furthermore, environmentally sound waste management also encompasses the transportation and storage of waste materials. The proper implementation of ESM therefore requires a multi-stakeholder approach, which takes into account the different stages from waste production until final waste disposal. An illustrative example for such a "cradle to grave approach" is given by the International Maritime Organization's (IMO) current undertaking to develop an international convention on the safe and environmentally sound recycling of ships, which will regulate, *inter alia*, the design, construction, and preparation of the ships, so that their safe and environmentally sound recycling is facilitated at the end of their life-cycle. Similarly, the Basel Convention Technical Guidelines for the Environmentally Sound

157 Ibid., para. 13-18.
158 Ibid., para. 19-22.
159 Ibid., para. 23-25.
160 Ibid., para. 31-32.
161 Ibid., para. 33-43.
162 Ibid., para. 7 and 8.
163 Ibid., para. 9(a-e). These include: An existing regulatory infrastructure and enforcement mechanism that ensures compliance with applicable regulations; sites and facilities that are authorized and equipped with adequate standards for technology and pollution control to deal with the hazardous wastes, in particular taking into account the level of technology and pollution control in the exporting country; sites' or facilities' operators at which wastes are managed are required to monitor the effects of those activities; appropriate action is taken in cases where monitoring gives the indication that the management of hazardous wastes have resulted in unacceptable emissions or in cases of accidental spillage; as well as adequate training of persons involved in the management of hazardous wastes.
164 Ibid., para. 10.
165 Ibid., para. 13 and 24.

Management of the Full and Partial Dismantling of Ships[166] lists preparatory procedures that should be implemented on the vessel prior to its voyage, as well as key tasks carried out by the ship dismantling facilities, the implementation of an Environmental Management Plan (EMP) that includes a mechanism on Environmental Impact Assessment (EIA) and an Environmental Management Scheme (EMS). The Guidelines thus address very different actors concerned with ESM issues in the lifecycle of a vessel.

The "International Strategy and Action Programme for the Environmentally Sound Management of Hazardous Wastes," an initiative undertaken by the Preparatory Committee to the United Nations Conference on Environment and Development (UNCED)[167] together with the Basel Convention Technical Working Group on Environmentally Sound Management, was influenced by the elaboration of Chapters 20 and 21 of *Agenda 21*.[168] The chapters' overall objective can be summarized as the prevention to the extent possible and the minimization of the generation of hazardous wastes, as well as the management of those wastes in such a way that they do not cause harm to human health and the environment.[169] Accordingly, the Chapters 20 and 21 further develop the fundamental principles contained in the notion of ESM (by outlining overall targets), the basis of actions and furthermore, propose effective activities and means of implementation.

At the fifth meeting of the Conference of the Parties of the Basel Convention in December, 1999, the *Basel Declaration on Environmentally Sound Management* was adopted together with its enabling *Decision V/33*, pursuing the objective to move towards concrete implementation of the ESM concept.[170] Activities were proposed to achieve ESM in the fields of (i) prevention, minimization, recycling, recovery and disposal of wastes, (ii) active promotion of cleaner technologies, (iii) reduction of transboundary movements of wastes, (iv) prevention and monitoring of illegal traffic, (v) improvement and promotion of institutional and technical capacity-building, and development as well as transfer of environmentally sound technologies, (vi) development of regional and subregional centers for training and technology transfer, (vii) enhancement of information exchange, education and awareness-raising, (viii) cooperation and partnership at all levels between countries, public authorities, international organizations, the industry sector, non-governmental organizations and academic institutions, and (ix) development of mechanisms for compliance with and the monitoring and effective implementation of the Convention and its amendments.[171] By focusing on the implementation through specific actions and by emphasizing a broad scope of application of ESM, this agenda provides for valuable inputs towards an ESM framework.

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166 Basel Convention Technical Guidelines for the Environmentally Sound Management of the Full and Partial Dismantling of Ships, 2002, UNEP/CHW.6/23.

167 The UNCED took place in Rio de Janeiro in 1992 under the name of the "Earth Summit".

168 UN Conference on Environment and Development, *Agenda 21: Programme of Action for Sustainable Development*, UN Doc. A/CONF. 151/26 (1992); see KUMMER, supra note 144, 56-60.

169 Chapter 20 of *Agenda 21*, supra note 168, para. 20.6. http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21toc.htm

170 The text of Decision V/33 is found in Annex I to the UNEP, Report of the Fifth Meeting, supra note 146; the text of the Basel Declaration on ESM is found in Annex II of UNEP; Report of the Fifth Meeting, supra note 146.

171 See Decision V/33 para. 1 (a)-(i), reiterated in Basel Declaration on ESM.

2. Bilateral, Multilateral and Regional Frameworks Adhering to ESM

According to Article 11 BC, ESM implies an overarching instrument crucial for the admissibility of legal agreements: Parties to the Convention are allowed to enter into bilateral, multilateral and regional agreements and arrangements regarding transboundary movements of hazardous and other wastes with individual parties or non-parties to the BC, provided that they respect the concept of ESM and do not conclude provisions which are less environmentally sound than those under the BC. As their names imply, such frameworks' applicability is limited to the geographical scope of their region and involved states' territories. Nevertheless, valuable inputs can be deduced from such approaches for a more coherent ESM concept.

An example for the incorporation of ESM as an overall objective in bilateral agreements is given by the *Bilateral Agreement between the Netherlands and the Netherlands Antilles concerning Transboundary Movements of Hazardous Wastes*.[172] The agreement was established in 2005 and allows the imports of wastes into the Netherlands, in order to ensure a more efficient and environmentally sound waste management scheme than is to be expected by the only available land filling methods applied in the Netherlands Antilles.

On 30 January, 1991, the *Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement of Hazardous Wastes within Africa*[173] was adopted and entered into force in 1994. Although this regional Convention adopted a more trade-restrictive approach, its concrete form was strongly influenced by the BC.[174] Indeed, the Bamako Convention refers to the overall objective of the protection of human health and the environment and adheres to "environmentally sound management" in the context of different waste management activities[175] by adopting the same definition of ESM as the BC in its Article 1(10). The *Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region (Waigani Convention)*,[176] adopted in 1995, also adheres to the ESM definition as provided by the BC (see Article 1 Waigani Convention) and implements it as an overall objective (see Article 4(4.c) Waigani Convention). Furthermore, the *Centroamerican Agreement on Transboundary Movements of Hazardous Wastes*[177] adopted on 11 December,

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172 Available at http://www.basel.int/article11/frsetmain.php.

173 Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, adopted 30 January 1991, available at http://www.basel.int/article11/multi.html.

174 For more information on the Bamako Convention see KUMMER, supra note 144, 99-107.

175 Such as transport and transboundary movements of hazardous wastes from the contracting parties (Article 4(3.k) and (3.o)), as well as in the context of the notification procedures (Article 6(3.b)), the duty to re-import (Article 8), the intra-African cooperation (Article 10 (2.c and d)), as well as the international cooperation in bilateral, multilateral and regional agreements (Article 11).

176 Available at http://www.basel.int/article11/frsetmain.php.

177 Acuerdo Centroamericano sobre Movimiento Transfronterizo de Desechos Peligrosos, available at at http://www.basel.int/article11/centroamerican.pdf.

1992, has also incorporated Article 4(2.e) of the Basel Convention by not allowing hazardous waste exports into countries which have prohibited such imports by national law or international agreements, or if the exporting party has reasons to believe that the wastes in question will not be treated in an environmentally sound manner according to the policies and principles adopted by the United Nations Environment Programme (UNEP) (Article 3(4) Centroamerican Agreement).

The concept of ESM has also become a fundamental principle for waste management in the European Union's secondary legislation:[178] Although the European Union has established a considerable legal framework related to waste, it has not elaborated further on ESM within a separate legal instrument. Nevertheless, many EC Directives and Regulations adhere to environmental protection and the protection of human health as underlying principles for waste management, and thereby apply ESM schemes. For example, directives on different waste streams, such as the Directive 94/62/EC of 20 December, 1994, on packaging and packaging wastes[179] as well as Directive 2000/53 of 18 September, 2000, on end-of life vehicles[180] use the notion of environmentally sound waste management.[181]

The more recently enacted Regulation No. 1013/2006 of the European Parliament and of the Council of 14 June, 2006, on shipments of waste[182] explicitly refers to Article 4(2.d) of the BC requiring that "shipments of hazardous waste are to be reduced to a minimum, consistent with environmentally sound and efficient management of such waste."[183] The regulation defines the principle of ESM in accordance with Article 2(8) of the BC,[184] however, applying a broader scope by referring to a definition of wastes according to Article 1(1.a) of Directive 2006/12/EC and not differentiating between "hazardous wastes" and "other wastes". In this regulation ESM is applied as a fundamental principle, particularly with regard to waste shipments within, exports from and imports into the European Community. In particular, Article 49 indicates that the necessary steps are to be taken to ensure that any waste shipped is managed "without endangering human health and in an environmentally sound manner throughout the period of shipment and during its recovery and disposal." Furthermore, the export of wastes to third countries is prohibited if there are reasons to believe that the waste will not be managed in accordance with ESM. The Regulation finally enumerates specific guidelines on ESM in its Annex VIII; this list includes references to the Technical Guidelines adopted under the BC as well as Guidelines established by the OECD on specific waste

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178 On EU legislation as a regional "arrangement" under Article 11 BC see KUMMER, supra note 144, 149-151.

179 European Parliament and Council Directive 94/62/EC of 20 December, 1994, on packaging and packaging waste, OJ L 365, 31.12.1994, p. 10-23.

180 Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of life vehicles, OJ L 269, 21.10.2000, p. 34 with several amendments.

181 Directive 94/62/EC refers to ESM in its Preamble as well as in Article 5. Directive 2000/53/EC mentions environmentally sound treatment in its preambular paragraph 10, Article 2(13), and Article 9(2).

182 EC Regulation No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste, OJ L 190, 12.7.2006, p. 1-98.

183 Ibid., Preambular Paragraph 8.

184 Ibid. Article 2(8) which states: "environmentally sound management means taking all practicable steps to ensure that waste is managed in a manner that will protect human health and the environment against adverse effects which may result from such waste."

streams. Furthermore, it refers to IMO's Guidelines on ship recycling[185] as well as the International Labour Organization's (ILO) Guidelines on safety and health in shipbreaking for Asian countries and Turkey.[186] Furthermore, the EU has applied ESM as a decisive element in its more recent approach regarding waste management and recycling strategies.[187]

ESM has also been addressed by the OECD in 2004 with the adoption of the Council Recommendation C(2004)100.[188] The objective of this recommendation is to provide for a level playing field for ESM among the OECD member countries, by providing for a clear definition and a common understanding of ESM.[189] This recommendation provides for valuable inputs when tackling an international normative ESM framework and will be of importance for the subsequent outline. A further advancement can be expected from the IMO International Convention for the Safe and Environmentally Sound Recycling of Ships, which shall presumably be adopted in Hong Kong in May 2009.[190]

III. RATIONALE FOR IMPROVING COHERENT AND EFFECTIVE LINKAGES BETWEEN THE BASEL, THE ROTTERDAM, AND THE STOCKHOLM CONVENTIONS

Chemicals and wastes can have the same harmful effects on human health and the environment. A hazardous waste can be a harmful chemical that has been used or discarded; end-of-life equipment containing toxic chemicals is characterized as a hazardous waste. Indeed, in many instances, it is not possible to distinguish between "chemicals" and "wastes" with regard to the chemical or physical properties. Without carefully linking hazardous waste issues with harmful chemical issues, it is unlikely

185 IMO Guidelines on Ship Recycling, adopted at the 23rd Assembly in November-December 2003, A.962(23) and amended in 2005 by Resolution A. 980(24) of the IMO Assembly, available at http://www.basel.int/ships/compilation.html.

186 ILO, Safety and Health in Shipbreaking: Guidelines for Asian Countries and Turkey, adopted at the 289th session of the ILO Governing Body in 2004, available at http://www.basel.int/ships/compilation.html.

187 See for example Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, Taking sustainable use of resources forward: A Thematic Strategy on the prevention and recycling of waste, 21.12.2005, COM(2005) 666 final.

188 OECD Recommendation of the Council on Environmentally Sound Management of Waste, 9 June 2004, C(2004)100, as amended by C(2007)97. The OECD Council therewith built upon the Basel Convention framework as well as other OECD Council Acts related to transboundary movements of wastes, which had previously already referred to ESM (see C(83)189/FINAL, C(85)100, C(86)64/FINAL, C(90)178/FINAL, C(92)39/FINAL, and C(2001)107/FINAL). On the question whether the OECD Council Decision C(92)39/FINAL could be qualified as an "arrangement" under Article 11 BC see KUMMER, supra note 144, 165-168.

189 For an overview on the background of the OECD Recommnedation C(2004)100 see OECD, Guidance Manual on Environmentally Sound Management of Waste: Guidance Manual for the Implementation of the OECD Recommendation C(2004)100 on Environmentally Sound Management (ESM) of Waste, 2007, 6.

190 IMO, Draft International Convention on the Safe and Environmentally Sound Recycling of Ships, Annex 1 to the Report of the Third Intersessional Meeting of the Working Group on Ship Recycling, MEPC 57/3, 25 January 2008.

that the quantity and hazardousness of wastes generated can be reduced. In light of these considerations, it makes sense to apply ESM practices broadly by trying to optimize coherence as a first step, before trying subsequently to introduce a comprehensive international ESM framework for addressing the proper management of waste materials potentially contaminated with POPs or other chemical substances. Such an approach would imply joining together the three Conventions addressing hazardous wastes in these terms, i.e. the *Basel Convention,* the *Rotterdam Convention,* and the *Stockholm Convention*.

The establishment of an ESM framework, sustained by binding legal rules, would represent an important step towards creating a level playing field of high environmental standards for the sound and safe management of the flow of wastes and recyclables worldwide and would help regulators address the implementation of ESM in a coordinated way, particularly avoiding contradictions or duplications between the three international Conventions. Furthermore, a comprehensive regulation of ESM can foster competition between the concerned enterprises,[191] and an ESM framework could constitute the backbone for a global ESM scheme, including, for example, ESM certification, international ESM standards, or traceability systems in order to strive toward improved implementation of ESM on a global scale.

A comprehensive legal framework should capitalize on the existing approaches undertaken so far, *inter alia*, by the Parties to the Basel Convention, the OECD members, or the Bureau of International Recycling.[192] The Basel Convention as well as the OECD Recommendation C(2004)100 pursue the overall objectives of enhancing the sustainable use of natural resources and the general aim of minimizing waste generation.[193] In addition, regarding wastes that cannot be avoided, the concept of ESM stipulates the protection of human health and the environment from adverse effects that may result from waste substances. This definition can be seen as an underlying principle, linking the Basel, the Rotterdam, as well as the Stockholm Convention.[194] All three Convention frameworks apply such a concept of ESM one way or another:

The RC was adopted and opened for signature on 10 September 1998; it entered into force on 24 February 2004. The Convention's elaboration has to be seen in light of accelerating growth in the production and trade of chemicals, which raised concerns about risks due to hazardous chemicals and pesticides. The Convention's objective is to promote shared responsibility and cooperative efforts among the parties with regard to international trade in certain hazardous chemicals in order to protect human health and the environment from potential harm. For this purpose, the Convention focuses on the information exchange between the parties. Informed decisions on import regulations based on the chemicals' characteristics are considered as important conditions for their environmentally sound use. Furthermore, the environmentally sound application is enhanced by the provision of a national decision-making process on the chemicals' import and export and by the dissemination of such decisions to the Convention parties (Article 1 RC). An initiative which had started as a voluntary information-exchange program promoted by UNEP

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191 See also OECD Council Recommendation C(2004)100, and its list of its three main objectives.

192 http://www.bir.org/

193 See Article 4(2.a) BC, Preambular paragraph 3 BC; see also Preamble of the OECD Council Recommendation C(2004)100, listing its three main objectives.

194 See Preambular paragraph 4 BC, Article 2(8) BC; Preambular paragraph 1 RC, Article 1 RC; Preambular paragraph 5 SC, Article 1 SC.

and the Food and Agriculture Organization of the United Nations (FAO) in the 1980s was developed to constitute a binding legal framework on the Prior Informed Consent (PIC) procedure, applicable to banned or severely restricted chemicals and severely hazardous pesticide formulations listed in Annex III of the Convention (Article 3(1) RC).[195]

The SC was adopted on 22 May 2001 and entered into force on 17 May 2004. Its objective is to protect human health and the environment from persistent organic pollutants (so-called "POPs") (Article 1 SC). POPs are organic compounds that resist environmental degradation for long time periods and are widely distributed geographically through air, water and migratory species. The accumulation of POPs in the fatty tissue of human beings and wildlife can lead to serious health effects, such as cancer, birth defects, or dysfunctional immune and reproductive systems.[196] The SC establishes different measures to minimize and eventually eliminate specific releases of POPs. Furthermore, provisions are applied to prohibit and eliminate the import and export of such specific chemicals. The Convention adheres to the notion of "environmentally sound management," however, without providing for a definition of the term. In similar ways as the BC, the SC allows the import and export of chemicals that should be eliminated or restricted according to the Annexes A and B for the purpose of their environmentally sound disposal.[197] Furthermore Article 6 SC establishes provisions to reduce or eliminate releases from stockpiles and wastes, with the overall objective of ensuring that they "are managed in a manner protective of human health and the environment," drawing on the concept of "environmental soundness" for the management of stockpiles (Article 6(1.c)), the handling, collection, transportation, storage and disposal of such wastes and materials becoming wastes (Article 6(1.d)), and the remediation of sites contaminated by chemicals listed in the Annexes A, B, or C (Article 6(1.c)). To determine whether a method is considered as compatible with principles of environmentally sound disposal, the Conference of the Parties is held to cooperate with the appropriate bodies of the Basel Convention (Article 6(2)).

In a nutshell, the BC has clearly influenced the chosen wording of the RC and the SC. Their purposes are very similar to those of the Basel Convention's; indeed, Article 1 RC and Article 1 SC reiterate Article 2(8) BC by emphasizing the same objectives. Furthermore, justification for the linkage of the three frameworks could stem from the associational elements inherent in all of them: For example, the SC explicitly refers to the pertinent provisions of RC and BC including the regional agreements developed under Article 11 BC. Similarly to the RC, the BC has also adopted a PIC-procedure (see Article 6 and 7 BC) for the transnational movements of hazardous wastes and other wastes. Additionally, the SC also enhances information exchange according to its Article 9. Furthermore, chemicals subject to Annex III of the RC and Annexes A, B and C of the SC are partly also contained in Annex VIII of the BC, thus implying hazardous characteristics of the wastes in

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[195] See the official website at http://www.pic.int; see also URS P. THOMAS, The International Management of Risk: An Overview of the Basel, Rotterdam and Stockholm Conventions, *EcoLomic Policy and Law, Journal of Trade & Environment Studies* 5 (1) 2008, 11-13. http://www.ecolomics-international.org/headg_ecolomic_policy_and_law.htm

[196] For further information see the official website at http://www.pops.int; see also THOMAS, supra note 195, 14-15.

[197] See Article 3(2.a.i), Article 3 (2.b.i), Article 3(2.c.), and Annex A Part II (c) and (d).

question, for example, Polychlorinated biphenyls (PCBs) are covered by all three Conventions.

Indeed, the Conventions' wording and contents do not forbid the implementation of an overarching ESM framework. The combination of their regulative elements seems appropriate in view of the fact that often enough the hazardousness of wastes can be traced back to the chemicals inherent in the materials disposed of. Since every imaginable substance is basically a chemical composition, a clear separation between waste materials possessing chemical elements, and chemicals is neither possible nor suggestive.[198] All three Conventions are administered under the auspices of UNEP, except for the RC which is administered jointly by FAO and UNEP. This organizational aspect additionally enhances coordination. Moreover, a harmonized course of action between the three legal frameworks in the field of ESM also corresponds to international attempts to enhance cooperation between the different instruments. When applying the concept of "environmental soundness," the SC already stipulates the close coordination between the SC Conference of the Parties and the appropriate bodies of the BC to determine the methods considered as ensuring environmentally sound disposal (Article 6(2.b) SC). In fact, the three conventions' Conferences of the Parties have established the Ad Hoc Joint Working Group (AHJWG), with the purpose of preparing joint recommendations on enhanced cooperation and coordination among the three legal frameworks.[199] However, attempts to enhance coherence between the three Conventions are challenged particularly by the different application fields they cover.

The BC has a very broad scope: It defines "wastes" as substances or objects which are disposed of or are intended or required to be disposed of by the provisions of national law (Article 2(1)). Two categories of wastes define the scope of the Convention according to Article 1 and the definition of ESM according to Article 2(8): "hazardous wastes" and "other wastes."[200] The applicability of the BC is fundamentally dependent on the classification and characterization of the wastes in question according to the Conventions' Annexes I, III, VIII, and IX; thereby the Convention draws on criteria regarding the intrinsic properties of waste.[201] The BC's scope of application encompasses waste pesticides and harmful chemicals, including POPs and doesn't distinguish between wastes generated on land or at sea, or between civil and military wastes, a differentiation adopted for example by the EU

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198 See also the Updated General Technical Guidelines for the Environmentally Sound Management of wastes consisting of, containing, or contaminated with Persistent Organic Pollutants (POPs), adopted at the Eight Conference of the Parties to the Basel Convention (COP8), available at http://www.basel.int/techmatters/code/techguid.php.

199 See the decision SC-2/15 of the Conference of the Parties to the Stockholm Convention, decision RC-3/8 adopted by the COP to the Rotterdam Convention and decision VIII/8 of the COP of the Basel Convention. For further information see the official website of AHJWG at http://ahjwg.chem.unep.ch.

200 "Hazardous wastes" are defined by the categories contained in Annex I, unless they do not possess any of the characteristics contained in Annex III. Furthermore, the Convention acts on the assumption of hazardousness if wastes that are not covered under the Convention are considered as hazardous by the domestic legislation of the party of export, import or transit. "Other wastes" according to the Convention have to belong to a category contained in Annex II.

201 See PIERRE PORTAS, The Basel Convention and Environmentally Sound Management – a Global Concept with Concrete Applications, Presentation held at the Second OECD Workshop on Environmentally Sound Management of Wastes Destined for Recovery Operations, Vienna 28-29 September 2000, Vienna, para. 7.

Directive 2000/59/EC.[202] The RC's field of application is limited to the hazardous chemicals and severely hazardous pesticide formulations contained in its Annex III. Article 3(2.c) RC explicitly excludes wastes from its application scope. The SC is applicable to the 12 POPs listed in its Annexes A and B.

Optimized coherence between the three Conventions is thus particularly challenged by the international "inter partes" principle, according to which a contract cannot create obligations or rights for a third state without that state's consent.[203] As a consequence, the adoption of a new coherent international framework on ESM could be a feasible option.

IV. Towards a Coherent International ESM Framework Based on Precaution and Risk Assessment

A coherent international ESM framework should adhere to the Conventions' shared objective of protecting human health and the environment from adverse impacts stemming from waste generation and management. This entails a *preventive approach*, which can be perceived as a fundamental principle in environmental law.[204] As a golden rule for the protection of the environment in view of the impossibility to remedy numerous instances of environmental damages, and given the prohibitive costs of rehabilitation, the preventive principle tries to anticipate damage, and in cases where damage has already occurred, it tries to ensure it does not spread.[205] Whilst prevention is based on the comprehension of an existing certain risk, the *precautionary approach* goes a step further in cases where no definitive scientific evidence or proof exists of any probabilities that a threat will materialize. In response to such situations the precautionary approach stipulates measures based on anticipation.[206] In light of the acknowledged risks inherent in the handling of hazardous materials, all three Conventions can be interpreted as essentially sharing a preventive approach.

Article 4(2.c) of the BC stipulates that persons involved in the management of wastes under the Convention are to take the steps which are necessary to prevent

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202 See Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste and cargo residues, OJ L 332, 28.12.2000, p. 81-89, amended by Directive 2002/84/EC of the European Parliament and of the Council of 5 November 2002 amending the Directives on maritime safety and the prevention of pollution from ships, OJ L 324, 29.11.2002, p. 53-58 and Commission Directive 2007/71/EC of 13 December 2007 amending Annex II of Directive 2000/59/EC of the European Parliament and the Council on port reception facilities for ship-generated waste and cargo residues, OJ L 329, 14.12.2007, p. 33-36.

203 Article 34 Vienna Convention on the Law of Treaties, United Nations Treaty Series (UNTS), vol. 1155, 331.

204 See also Chapter 20 of Agenda 21, supra note 168. See also Article 174 (2) of the Treaty establishing the European Community, as in force from 1 February 2003 (Nice Treaty consolidated version), OJ L 325, 24.12.2002, p. 33-159 framing the European environmental policy as adhering to a high level of environmental protection, thereby, "based on the precautionary principle and on the principles that preventive action should be taken…"

205 ALEXANDRE CHARLES KISS/DINAH SHELTON, International environmental law, 2nd ed., New York 2000, 263.

206 On the precautionary principle see NICOLAS DE SADELEER, Environmental Principles. From Political Slogans to Legal Rules, New York 2002, 91-223, see especially the section on distinguishing between Prevention and Precaution p. 74-75.

pollution and, in case such pollution does occur, to minimize its impact on human health and the environment. The principle of prevention is also mentioned by the Framework Document on ESM as a possible strategy to be considered in the context of waste management. It reads:

> whereby preventive measures are taken, considering the costs and benefits of action and inaction, when there is a scientific basis, even if limited, to believe that release to the environment of substances, waste or energy is likely to cause harm to human health or the environment. [207]

Additionally, a preventive approach can be seen in the PIC procedure stipulated both by the RC and the BC.[208] A particularly preventive approach is applied to transnational movements by the three Conventions: Article 4 BC stipulates that Convention parties are held to ensure the availability of adequate disposal facilities, "for the environmentally sound management of hazardous wastes and other wastes, that shall be located to the extent possible, within it, whatever the place of their disposal" (Article 4(2.b)). Transboundary movements of wastes are only permitted as an option in terms of a second step, "reduced to the minimum consistent with the environmentally sound and efficient management of such wastes" and if "conducted in a manner which will protect human health and the environment against adverse effects which may result from such movement" (Article 4(2.d)). These two provisions are referred to as an application of the *self-sufficiency principle* and the *proximity principle*. The former is considered to imply that countries should ensure that the disposal of the wastes generated within their territory is also undertaken there, corresponding to ESM criteria.[209] The latter principle is understood as stipulating that the disposal of hazardous wastes must take place as close as possible to their point of generation.[210] This corresponds to a broad comprehension of the *polluter pays principle* as reaffirmed by the preamble of the SC, which refers to Principle 16 of the Rio Declaration.[211] Accordingly, the polluter should generally bear the costs of the pollution he causes, by implementing a calculation which internalizes the environmental costs the pollution entails. In terms of pollution prevention, this principle stipulates that the potential polluter must actively endeavor to prevent pollution.[212]

Both the self-sufficiency principle as well as the proximity principle have been subjected to criticism in their absolute form.[213] This has led to an interpretation which recognizes that the management of some wastes may be more environmentally sound outside national territories, particularly depending on the availability of specialized facilities, even though they might be located at greater distances from the

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207 Framework Document, supra note 153, para. 10.

208 See KUMMER, supra note 144, 34.

209 See definition in Framework Document, supra note 153, para. 10.

210 See definition in ibid., para. 10.7.

211 UN Declaration on Environment and Development, Rio de Janeiro, 14 June 1992 (Rio Declaration on Environment and Development), see Preambular paragraph 17 SC. See also Chapter 20 of Agenda 21, supra note 168, para. 20.38 (b).

212 See wording in Framework Document, supra note 153, para. 10.

213 Amongst others see for example ELLI LOUKA, *Overcoming National Barriers to International Waste Trade: A New Perspective on the Transnational Movements of Hazardous and Radioactive Wastes,* Dordrecht/Boston 1994, 3-6, 24-29; see also Framework Document, supra note 153, para. 39.

point of generation.[214] In a nutshell, the two principles could be summarized as a "*least transboundary movement principle"*, according to which transboundary movements of wastes should be reduced to a minimum consistent with efficient ESM.[215] Such an approach constitutes another facet of the preventive approach and enables its application as a guiding element for consolidating different ESM approaches that are not without controversy.

The precautionary principle whose scope of application includes more uncertain forms of risk materialization is explicitly mentioned in Article 1 SC, which refers to Principle 15 of the Rio Declaration on Environment and Development. The objective of the SC is thus to protect human health and the environment from POPs in an anticipatory manner, i.e. independent of acknowledged hazards, thus addressing problems of irreversibility and scientific uncertainties.[216] Such a precautionary approach is also applied by the Bamako Convention, which provides for precautionary measures in its Article 4(3). Within the legal framework of international trade agreements this principle is adopted, for example, in the context of the provisional adoption of sanitary or phytosanitary measures on the basis of available pertinent information, in cases where relevant scientific evidence is insufficient. For a subsequent and more objective assessment of the risks in question, the parties are asked to seek to obtain the additional information necessary within a reasonable period of time (Article 5.7 of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures [SPS Agreement][217]). Appropriate risk assessment[218] entails the taking into account of (i) available scientific evidence, (ii) relevant processes and production methods, (iii) relevant inspection, sampling and testing methods, (iv) prevalence of specific diseases or pests, (v) existence of pest- or disease-free areas, (vi) relevant ecological and environmental conditions, and (vii) quarantine or other treatment.[219]

Since risk is a relative factor with changing perceptions on its extent, it is important to provide for a stable approach based on the intrinsic properties of the waste in question. As a consequence, the environmental conventions establish catalogues of hazardous substances. With this approach, the conventions base their classification of materials and their treatment on deliberations and on risk assessment: under the RC, banned or severely restricted chemicals have to be notified to the Convention's Secretariat. The information requirements for notifications made pursuant to Article 5 RC include the indication whether the national regulatory action was taken on the basis of a risk or hazard evaluation. Furthermore, the hazards and risk to human health or the environment presented by the chemicals in question are summarized as part of the notification.[220] The criteria for listing banned or severely restricted chemicals encompass a review mechanism ensuring that the final regulatory action has been taken as a consequence of a risk

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214 See corresponding supplementary formulation of the two principles in Framework Document, supra note 153, para. 10.

215 See ibid., para. 10.

216 KISS/SHELTON, supra note 205, 265.

217 Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), 15 April 1994, WTO Doc. LT/UR/A-1A/12. http://trade.wtosh.com/english/tratop_e/sps_e/spsagr_e.htm

218 The notion of „risk assessment" is defined in Annex A para. 4 SPS Agreement. http://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm

219 Art. 5.2 SPS Agreement.

220 Annex I RC.

evaluation and an assessment whether the regulatory action actually leads to risk reduction.[221]

The SC establishes certain information requirements and screening criteria for chemicals that are to be listed in the Annexes A, B and/or C of the Convention which specify the chemicals that are to be eliminated or restricted and that encompass chemicals which are subjected to measures to reduce or eliminate releases from their unintentional production. The criteria shall include information on the chemical's identity, its persistence, its bio-accumulation, its potential for long-range environmental transport, as well as its adverse effects.[222] The purpose of such a review is the evaluation whether the chemical is likely to lead to significant adverse human health and/or environmental effects so that global action is warranted. As a consequence, Annex E SC stipulates the development of a risk profile that further elaborates on the information and screening criteria provided by the party to the Convention.[223] Based on the risk profile as well as on the risk evaluation which includes an analysis of possible control measures for the chemical in question, the Persistent Organic Pollutants Review Committee shall then recommend whether the chemical should be considered for listing in the Annexes A, B and/or C.[224]

In sum, the risk evaluation in both Conventions is based on national standards; the impetus for amending the Convention's Annexes stems from the parties to the Conventions. The RC merely stipulates that the risk evaluation adopts a review of scientific data in the context of the conditions prevailing in the party to the Convention.[225] The SC provides for further information requirements for the establishment of a risk profile, including particular sources, such as production data, data on releases, hazard assessments, national and international risk evaluations etc.[226] It particularly does not stipulate full scientific certainty for considering a chemical's inclusion in its Annexes.[227]

In order to ensure compatibility between a prospective ESM framework and trade law, scientific know-how of the environmental and health impact of dangerous properties should be enhanced. Furthermore, the reliance on standardized, international corresponding risk assessment mechanisms would be an important asset. The adoption of an environmental impact assessment (EIA) procedure, for example, could seek to ensure the acquisition of information on environmental consequences that are likely to happen, on possible alternatives, and on measures to mitigate harm. In this function EIAs can provide for a valuable instrument for decision-making.[228] A science-based risk assessment mechanism could draw on the Conventions' Annexes for indications on the substances' potential hazardousness, regardless of the classification as waste, as a chemical or as a POP. The risk assessment should go beyond the lists provided and analyze parameters such as:

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221 Annex II RC.

222 Annex D SC.

223 Annex E SC.

224 Article 8 SC.

225 The documentation provided shall demonstrate that "(I) Data have been generated according to scientifically recognized methods; (II) Data reviews have been performed and documented according to generally recognized scientific principles and procedures; (III) The final regulatory action was based on a risk evaluation involving prevailing conditions within the party taking the action."

226 Annex E SC.

227 Article 8 para. 7 (a) SC.

228 On EIAs in general see, inter alia, KISS/SHELTON, supra note 205, 202-211.

- Dose responses for the assessment of the concentration and the effect of the substances in question,
- Routes of exposure which effect the exposure of the hazardous substance,
- Estimations of risks, and
- Reductions of risks by substitution of the materials, by reduced generation, by different product designs, and/or cleaner production and/or processes. [229]

Adherence to the integrated life-cycle principle could support such a mechanism, by stipulating that substances and products should be designed and managed in a manner enabling the longest product life possible and minimizing the environmental impact caused during their generation, use recovery, and disposal.[230] An integrated life-cycle principle implies that ESM has to be a leading guideline adopting a preventive approach throughout the life of any product, including its "after-life" once turned to waste. A coherent assessment of these factors could be facilitated, for example, by data compilations and the monitoring of materials' imports and exports.[231]

1. Scope of Application

An ESM framework, linking the three Conventions would need to apply a broad application scope, thus encompassing wastes independently of their physical form, based on their potential environmental or health risks, in order to take into account that the hazardousness of waste substances may be the consequence of contaminations with hazardous chemicals or POPs. On this note, the Basel Convention's ESM definition rightly addresses both waste objects as well as waste substances.[232] It should, however, be remembered that it is the intrinsic property of a material that will determine whether this material is a hazardous waste or not under the BC. A wide working definition of ESM has been applied by the OECD Council Recommendation C(2004)100. Accordingly ESM is defined as

> a scheme for ensuring that wastes and scrap materials are managed in a manner that will save natural resources, and protect human health and the environment against adverse effects that may result from such wastes and materials.

The OECD definition therefore addresses *all wastes* including scrap materials (except radioactive waste).[233] This broad scope supports a holistic perception of materials and promises a most effective approach that does not stop at semantics but provides for a more appropriate conceptualization. The application of a wide scope generally allows all wastes to be assessed. It also permits to take into account the fact that wastes which are not considered as hazardous according to the BC can still pose a risk for the environment when not managed in an appropriate manner;

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229 See PORTAS, supra note 62, para. 4.
230 See definition in Framework Document, supra note 153, para. 10 and 12.
231 See for example PORTAS, supra note 62, para. 9.
232 See Article 2(1) BC.
233 See also OECD, Guidance Manual on ESM, supra note 189, 11-15.

used tires for example fall in this category.[234] The BC ESM Framework acknowledges that every waste has to be managed in a safe and sound way.

As a consequence, the OECD ESM Recommendation also addresses a broad scope of waste management activities, making sure that every step in the waste management hierarchy adheres to the ESM objective.[235] Where further international regulations exist on specific waste management operations, such provisions will need appropriate consideration.[236]

2. Public/Private Addressees

As international multilateral agreements, the BC, RC and SC primarily address the state parties to the Conventions. These are expected to implement the provisions provided for internationally on the national level. The Basel Convention Framework Document for example lists criteria to assess ESM at the national level, which include the existence of a stringent regulatory infrastructure and enforcement mechanisms.[237] The OECD ESM Recommendation provides for inputs for its member countries in its first part, to elaborate and implement ESM policies and/or programs.[238]

Additionally, the importance of addressing the private sector and all of the stakeholders concerned with the complexities of implementing ESM criteria has been recognized: The Basel Convention has implemented a Partnership Program for improving cooperation with industry.[239] Furthermore, the OECD ESM Recommendation in its second part lists Core Performance Elements for the Environmentally Sound Management of Waste (CPEs) in its Annex I; the CPEs

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234 See PORTAS, supra note 63, para 8.

235 Such activities encompass disposal, collection, separation, transport, recovery such as reuse and recycling activities, as well as final disposal including the disposal of residues from recovery operations.

236 See OECD Council Recommendation C(2004)100, which does not address waste transport, however, since transportation is subjected to regulations on the domestic and international level (see OECD, Guidance Manual on ESM, supra note 189, 15).

237 Framework Document, supra note 153, para. 9.

238 These include: (1) the establishment of an adequate regulatory and enforcement infrastructure at an appropriate governmental level, (2) the development and implementation of practices and instruments that facilitate the monitoring and implementation of the Core Performance Elements for the Environmentally Sound Management of Waste (CPEs) and control compliance, (3) the insurance that waste management facilities operate according to best available techniques, (4) the encouragement of information exchange between the different actors concerned, (5) the integration of the CPEs into national policies and/or programs, (6) the consideration of incentives and/or relief measures for facilities that fulfill the CPEs, (7) the implementation of technical guidance for ESM, (8) the movement towards internalization of environmental and human health costs in waste management, (9) the provision of incentives to take part in ESM schemes, (10) the encouragement of the development and implementation of an environmental liability regime, and (11) the insurance that the CPEs do not discourage recycling in OECD member countries.

239 See COP6, "Partnership with Industry: Elements of a framework for cooperation with industry", 31 October 2002, UNEP/CHW.6/32/Add.1, available at: http://www.basel.int/meetings/cop/cop6/english/32a1e.pdf.

encompass six measures, which should be implemented at the facility level.[240] The Recommendation specially addresses small and medium-sized enterprises (SMEs) in its Annex I, since most waste management activities are conducted by them.[241] As a first core performance element according to the OECD ESM Recommendation, waste management facilities should have an applicable Environmental Management System (EMS) in place, certified by a recognized party.[242] CPE 1 refers to EMS systems as provided by the ISO 14001 Environmental Management or the European Community Eco-Management and Audit Scheme (EMAS) for example:[243] The ISO 14001 voluntary standards are the most widely accepted international standards for EMS. EMAS was established as a voluntary EU Program that provides for instruments helping to improve enterprises' environmental performances.[244]

To conclude, such instruments enable ESM implementation for the private sector, thereby providing for individual but related approaches to ESM as an overarching concept. As a consequence, the expansion of the ESM concept towards an international framework seems achievable and appropriate. The development of a level regulatory or standard-setting playing field, encompassing public as well as private entities, would go a long way in ensuring the competitiveness of businesses adhering to environmental standards.[245] Indeed, the recognition of adhering to ESM principles would enhance the quality image of today's businesses. This objective can be enhanced, where necessary, by a coherent and stringent regulatory ESM mechanism, the main purpose being to facilitate, accompany and stimulate the corporate sector to improve its environmental performance. In certain situations, a flexible framework may be preferable to enable enterprises and other actors from different industry sectors and regions to apply adequate mechanisms for their

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240 These are: (i) The facility should have an applicable Environmental Management System in Place, (ii) the facility should take sufficient measures to safeguard occupational and environmental health and safety, (iii) the facility should have an adequate monitoring, recording and reporting program, (iv) the facility should have an appropriate and adequate training program for the personnel, (v) the facility should have an adequate emergency plan, (vi) the facility should have an adequate plan for closure and after-care.
For an outline see also Bureau for International Recycling (BIR), Tools for Environmentally Sound Management, Version 7.0, 2006, available at http://www.basel.int/industry/compartnership/GuideESMBIR.pdf, 33-36.

241 OECD, Guidance Manual on ESM, supra note 189, 15.

242 According to CPE 1 OECD Council Recommendation C(2004)100 such an EMS would include:
"Measurable objectives for continual improvements in environmental performance, including periodic review of the continuing relevance of these objectives;
Regular monitoring and re-examination of progress toward environmental, health, and safety objectives;
Collection and evaluation of adequate and timely environmental, health and safety information regarding facility activities;
Provisions included in CPEs 2-6, and, Applicable ESM technical guidance."

243 On Environmental Management Systems (EMS), see for example BIR, Tools for ESM, supra note 240, 10-31.

244 See Regulation (EC) No 761/2001 of the European parliament and of the council of 19 March 2001 allowing voluntary participation by organizations in a Community eco-management and audit scheme (EMAS), OJ L 114, 24.4.2001, p. 1-29.

245 See OECD, Guidance Manual on ESM, supra note 189, 14-15.

businesses, and to work together in public/private multi-stakeholder partnerships.[246]

3. A Two-Tiered Mechanism

Environmentally Sound Management still is a concept that means different things to different people, depending on various factors such as geographical locations, the level of economic development, or the technologies and scientific disciplines involved. In order to establish a single international ESM framework bridging the BC, the RC and the SC, a design would be required which is comprehensive enough to accommodate different perceptions but also provides for a practical mechanism to ensure concrete, effective and efficient implementation.[247] For this purpose, a two-step approach could be outlined:

- The first part of such an ESM framework should stipulate the overarching objective of protecting human health and the environment from the adverse impacts stemming from hazardous waste materials, including waste pesticides and harmful chemicals such as POPs. The preventive approach should be implemented as a guiding principle for the environmentally sound management of the respective materials. Generally, this instrument would address all types of wastes and waste management operations on all levels of the waste hierarchy, providing for helpful guidance to all the stakeholders involved. By adopting a voluntary approach, such a framework could take account of the complexities and differences in geographical, social, economical and industrial specificities and situations within the countries or between countries or regions. As a first step, a guiding document could be issued to clarify the scope and content of the ESM framework.

- The second part of an ESM framework should be more specific and focus on the use of ESM norms. As an international regulatory framework, the state parties could consider a risk assessment mechanism, based on the intrinsic properties of the specific materials, as a first step. On one hand guidance towards the application of the appropriate waste management activities should be provided by the waste management steering bodies and on the other hand the emphasis should be placed on references to the different Technical Guidelines adopted by the Technical Working Group under the Basel Convention. Such an approach would lead to a better understanding on how ESM provisions should effectively be addressed nationally within a global context. Stipulating a risk assessment mechanism as a starting point could also endorse the preventive approach necessary for handling such hazardous materials in question. It would help industry to become more familiar with the ESM purpose.

Such a two-tiered framework corresponds to developing incentives and regulatory tendencies in international environmental law that substantiate non-legally binding, flexible framework conventions with subsequently adopted protocols:[248] The adoption of a flexible, non-binding and overarching framework as a first stage facilitates wide-spread acceptance and agreement by the state parties and their industries on the

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246 See also BIR, Tools for ESM, supra note 240, 37; PORTAS, supra note 63, para. 12-15.

247 PORTAS, supra note 63, para. 11.

248 This approach has been adopted particularly in the context of the United Nations Framework Convention on Climate Change (UNFCCC), which was further concretized by different protocols such as the Kyoto-Protocol for example.

international level and enables the gradual development of equitable and fair basic mechanisms. The second stage which may imply the development of a regulatory mechanism would assist states to build their work on standards incorporated in specific guiding documents such as the Technical Guidelines. Through this mechanism states would be responsible and liable regarding the application of ESM obligations. The actual ESM operations would, however, be left to the different entities in charge, operating on a national level. By referring to existing Convention mechanisms, the establishment of a new competing instrument could be avoided and the present legal frameworks could be supported by consolidating common resources and approaches under a single roof.

V. CONCLUSION: MOVING FORWARD

Industry relies heavily on hazardous materials for its prosperity and has not yet undertaken a significant U-turn to move towards a world free of harmful chemicals. It may happen but when? Climate change disturbances, biodiversity loss, soil erosion, pollution of the oceans are common features of our way of life; we live with the risk of breathing polluted air and eating food contaminated with toxic chemicals. In a society often named a "throw-away society," fed by products and substances that leave a negative environmental footprint, coherent and forward-looking action is necessary. Consequently, it is important to revisit existing successes such as the multilateral environmental agreements to see how to make them stronger and more forceful in their objectives through advocacy and by proposing workable and sustainable solutions. For this purpose, we have opened a discussion on the feasibility of enlarging the concept of Environmentally Sound Management to bridge, in an operational way, the chemicals and waste conventions. By addressing the entire lifecycle of harmful chemicals it is possible to improve the way such chemicals are handled and disposed of. The idea is to create a sense of solidarity between those responsible for the marketing and use of chemicals with those who treat, recycle or eliminate these chemicals at the end of their usefulness in a sound and safe manner.

We share the opinion that the three conventions could be implemented within a coherent common ESM framework that would enhance their effectiveness and make them stronger individually and together. Improving transparency, certainty, predictability and traceability are key factors when implementing ESM standards and also constitute important cornerstones for the functioning of international trade. Such an ESM approach could thus be forged into two phases: first, the development of the tools that could enable the waste operators to increase their environmental performance by a joint initiative of both governments and industry. Designing an international ESM standard supporting a certification scheme could be a possible option for the effective implementation of ESM practices. At a next stage, and in order to ensure a level playing field in the use of universal ESM norms, concrete rules and procedures could be enacted when needed to guide and monitor the process. Cooperation between the BC, RC and SC is an ongoing process that should not be limited to a certain time limit but should be linked to the ongoing negotiations on enhancing cooperation and coordination among the three Conventions through the Ad Hoc Joint Working Group (AHJWG) process.[249] The broader implications that

[249] The AHJWG has held three meetings in 2007/08, for further information please consult: http://ahjwg.chem.unep.ch/index.php?option=com_frontpage&Itemid=49

their strengthened coordination entails include a reformulation of the multilateral environmental system and the manner in which to address global environmental issues in general.

Tomorrow the Basel Convention might be weakened by short-sighted policies aiming at reducing its operational dimension. The Stockholm Convention could be blocked due to a push to include in its scope currently manufactured POPs. The Rotterdam Convention risks becoming irrelevant in a world where 83 000 chemicals are in use. Undermining one convention will negatively impact the others. The tool of ESM on the other hand could help nurture a solid base for implementation in which each convention will bring its added value, mutually reinforcing the others. The choice is evident.

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ENCOURAGING ENVIRONMENTALLY SOUND AND ECONOMICALLY VIABLE RECYCLING OF USED VEHICLE BATTERIES: LESSONS FROM THE PHILIPPINES

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ABSTRACT

Vehicle population in developing countries, notably in developing Asia, is projected to increase significantly in the next few years. As the lion's share of current vehicles are equipped with lead-acid batteries, this development will require a stepping up of recycling efforts of used lead batteries, a process that can lead to major material and energy as well as carbon emission savings, but is also not free from important health and environmental risks. This article discusses the key conceptual issues, main policy recommendations and practical findings of the design and implementation of a national strategy on environmentally sound and economically viable recycling of used lead-acid batteries in the Philippines and their implications for the development of similar strategies at national and regional level in other developing countries.

1. INTRODUCTION

According to the projections of the OECD's International Transport Forum and the World Business Council for Sustainable Development, global vehicle population is projected to increase more than six times in the period 2000-2050. Particularly buoyant will be the growth in the Asian developing countries, where the vehicle stock is expected to almost double every five years. Associated with this spectacular growth is another economic and environmental challenge: the generation of a rapidly expanding mountain of used lead-acid batteries (ULABs) and a high replacement demand for vehicle batteries.

The link between scrap generation and battery replacement is provided by the recycling of old, used batteries, a process that recovers and refines the lead-content of old batteries, thus providing refined lead input to plants that manufacture new batteries (large battery recyclers are often also battery manufacturers, i.e. so called integrated recyclers). So far, vehicles have been virtually exclusively equipped with lead-acid batteries (so called starter, lighting and ignition (SLI) batteries).[250] The recycling of used batteries can almost completely and indefinitely recover and recycle the lead content of SLI batteries. Furthermore, the recovery and recycling of ULABs is far less waste and energy-intensive than primary lead production. Every ton of lead concentrates mined generates about 20 tons of mining waste (i.e. tailings), whereas the production of refined lead from ULABs generates about 300 kg of slag per ton of refined lead output. The production of primary lead takes about four times as much energy as the production of refined lead from scrap (Henstock, 1996: 172). Enhanced recycling of ULABs can therefore make a tangible contribution to energy efficiency and lower carbon emissions apart from also creating job and income-generating opportunities in ULAB collection.

However, the recycling process, notably in developing countries, can have significant occupational safety, public health and environmental risks. These risks concern the proper drainage and handling of the electrolyte of ULABs, avoidance of lead dust and fume poisoning in the pyro-metallurgical recycling process as well as the proper handling of furnace slag (for more information, see: Basel Convention, 2003 and 2004).[251] 40 per cent of the lead in a ULAB is in metallic form, whereas 60

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[250] With the advent of hybrid and electrical vehicles in the recent past, a new battery technology, based on lithium-ions has been introduced for more energy-demanding uses. While such batteries are likely to conquer an increasing share of the SLI battery market, lead-acid batteries are likely to remain important for cars in the next 10-15 years. According to a recent projection by Honda, till 2030 the share of (conventional) combustion-engine-propelled vehicles in global registration of new cars is likely to fall to one third. They will completely disappear by 2050 (Honda, cited in: ADAC, 2009: 26). With falling prices, it is not unlikely that lithium-ion batteries will also be increasingly used in vehicles with conventional engines in the not-too-distant future.

[251] So far, pyro-metallurgical processes dominate the recycling of ULABs worldwide. Only recently, hydro- and electro-metallurgical processes have received more attention. Compared to pyro-metallurgical processes, these alternative technologies have the potential of significantly simplifying environmental and occupational control systems and thus reducing environmental costs compared to the traditional processes. While grids of scrap batteries will most likely continue to be treated by pyro-metallurgical processes, hydro and electro-metallurgical processes are likely to be used for recovering

per cent is in oxide form. Recovering the latter requires a complex process, which is usually beyond the technical capabilities of small (s)melters.[252]

2. HIGH RISK AREAS IN THE RECYCLING SECTOR IN DEVELOPING COUNTRIES

In the Philippines, the ULAB recycling sector falls into three segments:

(i) a small number of large recyclers that are part of integrated battery manufacturing facilities;
(ii) a large number of small and backyard/cottage (s)melters; and
(iii) a large number of battery reconditioners, which are often related to car repair and maintenance operations.

Many, if not most of the latter two categories of recycling agents do not have a valid environmental compliance certificate and thus operating license and are therefore part of the informal, unauthorized sector. Against this background it is important to distinguish between formal recycling with collection and controlled smelting, and informal activities involving “reconditioning” and “melting”. The latter is perhaps more accurately described as “uncontrolled melting” or “uncontrolled partial recovery”.

Estimates suggest that up to 2000 “uncontrolled partial lead recovery” units may exist in the informal sector in the Philippines. A reconditioner seems to employ some 4 people, whereas “backyard or cottage melters” may employ up to 10. On the basis of these assumptions, almost 20,000 people might earn a living by uncontrolled partial lead recovery in the country.

Table 1 summarizes the input-output balance of the various segments of the Philippine battery recycling industry. It is important to appreciate the differences in terms of feedstock material and lead recovery rate because this has major implications for the occupational, public health and environmental effects, on the one hand, and the national supply-demand material balance of lead for SLI battery manufacturing, on the other.

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the lead from battery sludge in ULABs and lead-bearing waste from pyro-metallurgical treatment, i.e. slack and dross.

[252] The term "(s)melting" is used, because small lead recovery units apply a large variety of pyro-metallurgical methods. Most small, cottage units typically work from the backyard of domestic premises or on a larger scale from abandoned industrial premises. None of these cottage businesses are licensed lead recyclers and it is also probable that lead melting is not the only metal recovery activity. The recovery is largely confined to the 40% metallic lead content of ULABs. This is why these businesses melt, rather than smelt the battery grids of ULABs, as distinct from sophisticated, licensed recyclers that smelt the lead oxide at much higher temperature for lead recovery.

Table 1
Input-output overview of the segments of the battery recycling industry in the Philippines

Segments	Large Smelters	Small Smelters	Reconditioners/ Cottage Melting
Feedstock	Domestically collected and imported drained and undrained ULABs	Battery cells from broken batteries; minor percentage of whole undrained, domestically collected ULABs	Domestically collected ULABs for reconditioning; cannibalized scrap batteries of reconditioners for cottage (s)melting
Output	Refined lead bullion	Unrefined lead bullion	Unrefined lead bullion
Lead recovery rate	At least 98%	Some 90%	About 40%

Against this background, it is economically, health wise and environmentally imperative to reduce unlicensed recycling activities of small and cottage smelters as well as reconditioners. In this regard, however, one should not overlook the fact that SLI battery reconditioning activities are largely driven by social, rather than mere economic causes. Large segments of the Philippine population do not dispose of sufficient income to buy a new SLI battery; there is therefore a propensity to buy or temporarily lease reconditioned batteries. Without effectively drying out that demand, it is difficult to significantly reduce unlicensed ULAB reconditioning.

Domestic collection of ULABs falls into three segments:

(i) collection by private individuals for battery reconditioners and “backyard (s)melters” in the informal sector;
(ii) ULAB collection by licensed smelters, primarily on a buy- or take-back basis; and
(iii) ULAB handling by scrap dealers that serve as intermediaries by purchasing ULABs and then selling them on to large or small smelters, depending upon who offers the best price.

The Philippines has several environmental laws and regulations that provide a framework for ULAB recycling. The Toxic Substances, Hazardous and Nuclear Wastes Control Act implements the Basel Convention requirements. The Philippine Clean Air Act imposes more stringent emissions standards and, more importantly, bans all forms of incineration. The Pollution Control Law, aside from the requirements for mandatory pollution control devices, requires community acceptance of environmentally critical projects. The more recent Solid Waste Management Act mandates the institutionalization of recycling programs in local governments. However, there are no specific government regulations or incentive systems that encourage collection, safe temporary storage and transport of ULABs in the Philippines.

3. DEVELOPING AN ECONOMICALLY AND ENVIRONMENTALLY SOUND NATIONAL RECYCLING STRATEGY

Based on an in-depth analysis of material flows, industry structure, economic factors, incentive systems and occupational, health and environmental impacts of ULAB collection and recycling, the secretariat of the UN Conference on Trade and Development (UNCTAD), in close collaboration with the International Lead Management Center (ILMC), Philippine Recyclers Inc. (PRI, the largest lead recycling company in the country) and the Philippine Environmental Management Bureau, developed the contours of a sound national recycling strategy. According to this draft strategy, there are principally three policy packages that could be employed by the government and the private sector as part of a public-private partnership to restructure (or encourage restructuring of) the industry with a view to enhancing collection of ULABs, assuring their sound and economically viable recycling, and leading to a better management of lead as a natural resource.

Possible Packages of Policy Approaches

1	2	3
Significant Government Intervention and Financial Support	**Allowing High Capacity Utilization at Licensed Smelters**	**Combination of Approaches 1 and 2**
a) collection b) R&D for prolonging battery life c) production of low-price battery line d) facilitating use of environmentally sound technologies	a) supplementary regulation and public financial support for collection b) private sector investment in new smelting technology and R&D for prolonging battery life c) public support for improving sales conditions of inexpensive battery line d) allowing scrap imports by suitable and certified secondary smelters	a) if international lead price fell much below US $500 for quite some time b) if foreign or domestic battery demand significantly shrunk

4. POSSIBLE PACKAGES OF POLICY APPROACHES

A) Significant government intervention

This policy approach aims at enhancing sound collection of domestic ULABs and making the battery scrap largely available to licensed recyclers. The following regulatory measures were recommended to this effect:

- mandatory return of scrap vehicle batteries to licensed battery dealers;
- strict control of operating permits of recycling facilities;
- regular control of environmental performance of recycling facilities; and
- trade and auctioning of ULABs shall be limited to operators with a valid license.

In addition, the government might consider the introduction of a carefully calibrated deposit-refund scheme for enhancing collection volume and the imposition of a tax on new batteries, which can be used for lowering collection costs of licensed recyclers. To be effectively levied, administered and used, the battery tax may require the forging of a consortium by the government or in a government-assisted way, rallying smelters, battery manufacturers, importers, and scrap traders. Such a battery tax may be replaced by direct public financial support funded by a surcharge on gasoline or car sales taxes.

To drastically reduce the demand for reconditioned batteries, the government would have to provide significant financial support to (i) research and development into new batteries with an extended life under tropical conditions;[253] and (ii) enable licensed battery manufacturers to produce and sell an inexpensive battery line, which competes with reconditioned batteries. Besides subsidizing production, there will also have to be provisions for running a credit scheme, which offers very attractive sales conditions to cope with the cash flow problem of many Philippine customers preventing them from purchasing new SLI batteries. There will also be the need to financially support the transformation of battery reconditioners and "backyard" (s)melters into collection and service points for licensed secondary lead smelters.

As far as the facilitation of the restructuring of the formal sector is concerned, the geographical relocation of some small modern smelters will have to be financially eased. In light of the low capacity utilization and therefore investment reluctance of the formal recycling sector, public financial support will also be required for more costly process improvements and the deployment of new process technology. In this regard, tax and duty free import of recycling equipment might be one measure to be considered by the government.

The overall amount of public financial support inversely correlates with the level of international lead prices.[254] This policy package is likely to be the most effective, but also the most expensive.

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[253] Lead SLI batteries tend to have a useful average life of up to two years only in tropical areas, compared to 4-6 years in temperate zones. For prolonging battery life, there is considerable scope for South-South co-operation, which may significantly reduce R&D costs per country. Reconditioned ULABs have no guaranteed life time, which may last from a few weeks to several months or a year.

[254] The international lead price, which also bears on the lead-scrap price level, has been subject to very high volatility in recent years. While at the turn of the century lead prices oscillated around US$ 500 a metric ton, in early 2008 they reached a level of over US$ 3,000, falling back to slightly below US$1,000 at the end of 2008 and again climbing to over US$2,000 at the end of 2009. This roller coaster has a significant influence on ULAB collection (i.e. scrap purchasing) costs and recycling profits. Any viable and sustainable national recycling strategy needs to take the volatility into account, shielding some of its undesirable impact, in particular at times of a very low international lead price level.

B) Allowing high capacity utilization at licensed smelters and battery manufacturers

This package of policy measures aims at allowing high capacity utilization among licensed secondary smelters and battery manufacturers so that generated profits can be reinvested into:

- enhancing ULAB collection;
- R&D into prolonging SLI battery life;
- the production of an inexpensive SLI battery line;
- process improvement for pollution abatement; and
- the use of new process technology.

Such reinvested private profits by licensed recyclers substitute for public financial support under policy package one. Profits tend to increase with capacity utilization because overheads, such as salaries and wages, maintenance costs, pollution control and abatement costs as well as depreciation remain unchanged, thus lowering production costs per unit of refined lead output. The higher the capacity utilization and the international price of refined lead, the lower the need for public financial support.

The government would however still have to provide some supplementary regulation and public financial support. The former concerns the imposition of mandatory return of ULABs to licensed battery dealers and strict control of operating and scrap trading licenses, whereas the latter implies support to battery reconditioners and “backyard” smelters for easing their gradual integration into the collection infra-structure of licensed smelters and the sales and service infrastructure of licensed battery manufacturers. The government may also consider the use of some economic instruments for enhancing collection of domestically generated scrap batteries, such as a well-calibrated deposit-refund scheme and the imposition of a battery tax, or alternatively surcharges on gasoline and car sales taxes.

Although that policy package will enlarge the collection volume of domestically generated battery scrap for licensed smelters, domestic lead supply will still fall short by at least about 20 per cent of meeting demand for SLI battery manufacturing. Furthermore, to achieve high capacity utilization among the principal recyclers and battery manufacturers, additional supply of lead will most likely be required. As closing this supply and demand gap by imports of refined (primary) lead or new batteries is undesirable, both from an environmental and economic point of view, some import of battery scrap will be required.

C) Combination of approaches one and two

This package of policy measures should be regarded as partial shield for assuring the continuity of the restructuring of the battery recycling industry against the worst whims of international lead prices and economic recession.

To avoid any misunderstanding, the economic rational for recycling, i.e. being more cost efficient than primary lead extraction and refining, cannot be uncoupled from the medium-term trend of international lead prices. Therefore, the government can only provide some assistance so that the drive towards environmentally sound

recycling and management of lead as a natural resource is not jeopardized by brief periods of very low international lead prices.

5. TURNING CONCEPT INTO ACTION: A REALITY CHECK

Only part of the above-outlined draft national collection and recycling strategy has been implemented in recent years. While the Philippine government has largely taken an observer seat, the private sector and several NGOs have been very proactive. This reflects health and environmental pressures, as for the NGOs, and the key interest of large recyclers in drastically increasing the domestic collection volume of ULABs, and, simultaneously, luring battery scrap away from battery reconditioners and small cottage (s)melters. In this way, large recyclers aim at enhancing capacity-utilization and driving down recycling costs.

In the absence of specific government regulation or incentives encouraging collection, safe temporary storage and transport of ULABs, Philippine Recyclers Inc. (PRI), the largest recycling company in the Philippines, has significantly expanded its domestic battery collection in recent years. Since 1995, PRI has concluded buy back-arrangements with retailers, through the company's Balik Baterya (battery return) programme. This serves as both a marketing tool for new batteries and as a means of ensuring feedstock for the company's smelter and downstream manufacturing operation. The programme encourages licensed retailers of new batteries to insist on returning a used battery for every new piece sold. In addition, purchasing prices of ULABs were significantly increased to encourage private individuals, scavengers or waste buyers to turn in ULABs without replacing them. Walk-in prices of ULABs varied from 75 to 155 Pesos for car and truck batteries (some 2-4 US dollars). To put this in perspective, such purchasing prices are virtually the equivalent of an average daily salary in the provinces of the country. Apart from attractive purchasing prices, relatively high margins for the battery retailers for collected ULABs (some 30%) were also offered. PRI's Balik Baterya programme guarantees that all collected scrap batteries are purchased by the company. The programme exploits economies of scale by turning the sales network into an effective collection infrastructure, covering much of the archipelago at little additional costs. PRI's network of over 800 collection points virtually covers the whole archipelago.[255]

In the last few years, PRI has supplemented its Balik Baterya programme by another initiative. The company has teamed up with a large NGO, ABS-CBN Foundation, providing financial incentives to local communities interested in stepping up ULABs collection. Apart from offering attractive scrap purchasing prices, the programme offers an interesting margin to community collection groups that is being used for investment in improving local social and physical infra-structure.

The small licensed secondary smelters do not run comparable collection programmes as cells of broken batteries from reconditioners are their principal feedstock material. In fact, none of the small smelters visited during field trips had the necessary plant and equipment to receive and process whole case scrap batteries in an environmentally and occupational health acceptable manner.

[255] Although 29 provinces of the 95 of the Philippines are not included in the collection network, these 29 provinces concern sparsely populated parts of the country, accounting altogether for 17 per cent of the population only.

While information is scarce, battery reconditoners are widely regarded to be very successful in collecting ULABs. They appear to offer slightly higher purchasing prices for scrap batteries than recyclers in the formal sector - including PRI's Balik Baterya and ABS-CBN Foundation-supported collection programmes - for those few battery sizes, which make up the bulk of reconditioned batteries. The reason for being able to offer such attractive ULAB purchasing prices is the particular profitability of reconditioning. Reconditioners have low operating costs as they usually do not pay any taxes and have low or no expenses on environmental and occupational safety equipment. Furthermore, reconditioners do not incur significant transport costs for collected ULABs as their catchment area is locally-focused.

To dry out supply of ULABs to unlicensed battery reconditioners and cottage (s)melters, PRI has introduced specific physical purchasing requirements for ULABs. The company only acquires used batteries that are still intact, i.e. unbroken. This requirement makes it impossible for battery reconditioners to sell cannibalized ULABs to PRI.

For the sake of completeness, it should also be mentioned that PRI pursued a multi-year programme to significantly improve its environmental and occupational performance, in tandem with its economic one. New recycling technology was deployed, existing equipment upgraded, staff trained and production processes reorganized. An integral part of that effort was the certification to the ISO 9000 and 14001 quality and environmental management standards (the first recycler in Asia obtaining the latter standard).

6. LESSONS FROM THE PHILIPPINE APPROACH

Although the measures outlined in the previous section fall far short of the elements recommended for a coherent national collection and recycling strategy for the Philippines, they have nevertheless been rather effective in stepping up the collection and thus supply volume of domestic ULABs. Purchasing price incentives, multi-stakeholder partnerships and specific purchasing requirements have gone a long way in driving more lead scrap volume into the licensed recycling sector of the country. However, the effectiveness of these measures has largely been underpinned by a gradually increasing level of international lead prices, which put licensed recyclers in a rather comfortable and flexible position to offer lucrative purchasing incentives and improve the collection network (although the international lead price level fell by two thirds at the end of 2008, compared to its peak in early 2008, it again soared by more than 50 per cent to over US$ 2,000 per metric ton at the end of 2009, thus being at a very high historical level).

The above-described bottom-up approach has been remarkably effective and so far sustainable, despite government inaction. However, it remains vulnerable to volatility of the international lead price level as no shield has been part of the employed toolbox. An effective shield against a very low international lead-price level would have to include a mandatory deposit-refund system for SLI batteries and a recycling tax that assures viable rates of return for ULAB recyclers.

Apart from the shielding function, governments also need to support the stepping up of recycling efforts for public social and environmental reasons. As regards the latter, climate-change mitigation and the associated need for enhancing energy and material efficiency require a proactive government support to higher material recovery and recycling. The same logic applies to reducing public health and

environmental risks emanating from unsafe recovery and recycling activities of ULABs.

With regard to public social interest, governments in developing countries need to recognize that ULAB reconditioning and cottage melting activities are mostly driven by social, rather than mere economic or technical causes. Large segments of the population in developing countries do not dispose of sufficient income to buy new SLI batteries; there is therefore a propensity to buy or temporarily lease reconditioned ones. Without effectively drying out that demand, it is difficult to significantly reduce unlicensed ULAB reconditioning. Such drying out strategies require proactive government action on (i) devising concessional funding mechanism that overcome the cash-flow problem of poor segments of the population in order to put them in a position to buy new SLI batteries; and (ii) assistance to SLI battery manufacturers for developing and producing low-cost batteries for the most common standard battery types (regional co-operation would offer many synergies in this regard).

Governments also need to provide guidance and assistance to restructuring the ULAB recycling industry. A network of small, but licensed smelters should be set up covering all parts of a country with a view to assuring safe handling of collected ULABs, in particular battery electrolyte and sound pre-processing of the lead content (grid metal and lead oxide in the battery sludge of ULABs) converting it into unrefined lead bullion. The latter can be easily and more cost-effectively shipped to large-scale battery recyclers, either at national or regional level.

Finally, the government needs to support awareness-raising and information campaigns of the private sector for unlicensed small (s)melters and battery reconditioners on occupational safety and health hazards and short-term opportunities for effectively reducing these risks.

7. FOLLOW-UP ACTIVITIES WITH THE BASEL CONVENTION

The key findings and recommendations of assisting the Philippines in conceptualizing and implementing an environmentally sound and economically viable national recycling strategy for ULABs have been recognized by the Basel Convention, and they have found their way into the Basel Convention Training Manual on National Management Plans for Used Lead Acid Batteries (Basel Convention, 2004). The Philippine approach was also much looked at when conceptualizing a Regional Strategy for the Environmentally Sound Management of Used Lead-acid Batteries in Central America, Colombia, Venezuela and the Caribbean Island States (Basel Convention 2008). Preparatory activities for the development of this regional strategy started in 2001 as a collaborative effort of the Basel Convention Regional Center for Central America and Mexico, the Regional Center for the Caribbean, the Basel Convention secretariat, UNCTAD, ILMC and the US Environmental Protection Agency. A series of national and regional consultations led to the development of the regional strategy, which will be implemented in nine pilot countries (Colombia, Costa Rica, Dominican Republic, El Salvador, Mexico, Panama, St. Lucia, Trinidad and Tobago, and Venezuela). South American countries have already indicated their interest in using a similar approach and are asking for assistance by the implementing agencies.

The findings on the Philippine case were particularly useful for the development of the regional strategy for Central America and the Caribbean,

because the Philippines is an archipelago with conditions similar to that in the Caribbean, i.e. a large number of islands, on which small quantities of ULABs are generated, which however have to be transported over long distances to sound recycling hubs.

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THE ROTTERDAM CONVENTION ON PRIOR INFORMED CONSENT

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ABSTRACT

The Rotterdam Convention on Prior Informed Consent (PIC) has created a PIC procedure which is legally binding for the Convention's Parties. It builds on the experience gathered thanks to a preceding voluntary procedure introduced jointly by UNEP and FAO in 1986. The experience gained over twenty years has been helpful in launching the work under the Convention; the biggest challenge consists arguably in the introduction of new chemicals which are still economically significant, such as chrysotile asbestos and the pesticide endosulfan. UNEP and FAO continue to administer jointly the Convention's Secretariat. The Convention covers certain hazardous chemicals which are listed in Annex III to protect human health and the environment. The emphasis is placed on facilitating information exchange on the characteristics of these substances, on assisting Parties in establishing an effective national decision-making process regarding relevant trade policies, and on sharing the responsibility for trading these chemicals among importers and exporters. The Convention has played an important role far beyond the area of hazardous chemicals in the development of Public International Law thanks to its pioneering introduction of the principle of Mutual Supportiveness. This principle is based on the policy of striving toward sustainable development by attaining a non-hierarchical and complementary relationship between trade and environmental agreements. The principle has subsequently been introduced also in other multilateral environmental agreements and has important legal ramifications for the Parties of both kinds of agreements.

1. THE EMERGENCE OF THE ROTTERDAM CONVENTION

1. The Antecedents of the Rotterdam Convention

The multilateral regulation of the transport, the environmentally sound management, and the disposal of chemicals and wastes through UN administered instruments consists of three multilateral environmental agreements (MEAs), namely the so-called Basel (BC),[256] the Rotterdam (PIC or RC),[257] and the Stockholm (POPs or SC)[258] Conventions. The Basel Convention is the oldest one among the three, it was adopted 1989, whereas the latter two were adopted in 1998 and 2001 respectively. For completeness' sake, one should also mention as a fourth chemicals convention the 1985 Vienna Convention for the Protection of the Ozone Layer with its 1987 Montreal Protocol.[259]

These conventions were negotiated as a result of the chemicals and waste streams which have enormously increased over the past thirty or forty years, and the concomitant public awareness of the potential health hazards resulting from the accumulation of these chemicals. Reports in the media of serious, sometimes deadly, incidents caused by toxic chemicals repeatedly shook up public opinion. The public started to realize that the increasing trade in food products linked to the mechanization and globalization of agriculture worldwide was only possible thanks to a growing use of pesticides and fertilizers. Industrial chemicals also experienced a huge growth after World War II. There are presently over 70,000 chemicals in use with 1,500 being added every day. A brutal wake-up call occurred in the mid 1950s in Minamata, Japan, with a mercury poisoning disaster in which this metal, originating from a local plastic ingredient factory, permeated the sediments of a bay. Methyl mercury thus entered the food chain via sea food. This catastrophe caused officially over 400 deaths and unofficially over 3000 with thousands more victims suffering from damage especially to the brain, kidney and lungs through a range of diseases.[260] It is a sobering realization to reflect upon the fact that the international community is starting negotiations on a mercury convention only now, half a century later.

The need for regulations covering transports, environmentally sound management and disposal of chemicals and waste was furthermore made more urgent due to the fact that trade in pesticides and other chemicals was booming, with some of them banned in certain countries but not in others. Developing countries

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[256] The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
http://www.basel.int/

[257] The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC)
http://www.pic.int

[258] The Stockholm Convention on Persistent Organic Pollutants (POPs)
http://chm.pops.int/

[259] Vienna Convention for the Protection of the Ozone Layer, with its Montreal Protocol
http://ozone.unep.org/

[260] *Protecting human health and the environment : A guide to the Rotterdam Convention on hazardous chemicals and pesticies.* FAO and UNEP, 16 p. (4), 2004

often do not have the scientific information and the technical equipment required to handle these pesticides and industrial chemicals with the appropriate care. Thus two historical precursors to the Rotterdam Convention (RC) were established in the 1980s. The UN Environment Programme (UNEP) and the Food and Agriculture Organization of the UN (FAO) developed and promoted voluntary information exchange programs: FAO pioneered an International Code of Conduct on the Distribution and Use of Pesticides in 1985 which includes – among numerous other objectives -- recommendations regarding the management and testing of pesticides. UNEP followed with the London Guidelines for the Exchange of Information on Chemicals in International Trade in 1987. The foundation of these Guidelines consisted in the notion of a shared responsibility between exporting and importing states for the stewardship of industrial chemicals and pesticides. These rules were not primarily intended as a first step for a binding set of legal commitments even though UNEP already at that time aimed for such an agreement as a medium or long term goal. For the time being, they were designed pragmatically to serve as a framework which would be useful for countries in the development of national policies, rules, and decision tools in cases where the import of chemicals was to be banned or restricted. Furthermore, they aimed at promoting transparency and information exchange in activities which later became to be known as the environmentally sound management of chemicals and wastes.[261]

Subsequently, in 1989, the two organizations jointly introduced a Prior Informed Consent (PIC) Procedure to facilitate governments' access to information on toxic chemicals. National authorities used these in order to facilitate the assessment of the potential for hazardousness of certain substances. This procedure constituted at that time one of the most successful interagency programs.[262] An important step in joining together these early beginnings occurred at the 1992 Rio Conference on Environment and Development which called in its *Agenda 21* for the negotiation of a binding convention on the PIC procedure by 2000.[263] Then in 1994 and 1995 the FAO Council and the UNEP Governing Council mandated their executive heads to initiate negotiations which officially started in 1996. The fact that it took only a little over two years for the completion of a mandate to negotiate a Convention, two years before the deadline stipulated in *Agenda 21,* can to some extent be explained by the level of urgency which the international community attributed to the establishment of an initial framework governing the international regulation of trade in hazardous chemicals.[264] The most arduous task, however, was still ahead: a relatively very high number of preparatory negotiations through the so-

[261] Katharina Kummer. 1999. Prior Informed Consent for Chemicals in International Trade: The 1998 Rotterdam Convention. *RECIEL* 8 (3): 323-331 (323-24).

[262] Paarlberg, Robert L. 1993. Managing Pesticide Use in Developing Countries. In *Institutions for the Earth*, edited by Peter M. Haas, Robert O. Keohane, and Marc A. Levy, 309-351. Cambridge, MA: MIT Press.

[263] Chapter 19:
Environmentally Sound Management Of Toxic Chemicals, Including Prevention Of Illegal International Traffic In Toxic And Dangerous Products
http://habitat.igc.org/agenda21/a21-19.htm
Chapter 20:
Environmentally Sound Management Of Hazardous Wastes, Including Prevention Of Illegal International Traffic In Hazardous Wastes
http://habitat.igc.org/agenda21/a21-20.htm

[264] *Rotterdam Convention. Share Responsibility – Overview.* 2005. FAO and UNEP, 6 p.

called International Negotiations Committees – eleven meetings – were required in order to achieve the adoption of the Convention through this INC procedure which is the normal diplomatic process for the establishment of an MEA.

2. The Adoption of the Rotterdam Convention

These efforts have led to the successful adoption of the Convention – also called the PIC Convention – by a Conference of Plenipotentiaries in September 1998 in Rotterdam, and to its entry into force in February 2004 after the deposition of the 50th instrument of ratification. The original voluntary PIC procedure continued to be used between the adoption and the entry into force of the Convention. The initial list of chemicals covered by the PIC procedure includes five industrial chemicals and 22 pesticides;[265] a number of others have been added since then and further additions will follow undoubtedly. An original feature, explained by the process which led to its finalization as sketched out above, consists in the fact that the PIC Convention's Secretariat functions are carried out jointly by FAO in Rome and by UNEP in Geneva.

Thanks to the initial impetus of the 1992 Rio Conference, further sustained by the successful conclusion of the RC, a new generation of multilateral environmental agreements has emerged as we shall discuss below, such as the Cartagena Protocol on Biosafety (CPB), the Stockholm Convention (SC), or conventions regulating mercury, lead, and cadmium which are presently being negotiated. As Katharina Kummer Peiry, current Executive Secretary of the Basel Convention, has observed after the adoption of the Rotterdam Convention and the initiation of negotiations on the POPs Convention, these two achievements "may well herald the emergence of an international chemicals management regime."[266]

The objectives of the Rotterdam Convention are the following:

- 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;
- to contribute to the environmentally sound use of those hazardous chemicals, 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.[267]

The Convention's Annex III[268] contains a list of three kinds of chemicals which are subject to the PIC procedure which is legally binding for the Parties to the Convention:

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[265] Catherine Redgwell. 2003. Regulating Trade in Dangerous Substances : Prior Informed Consent under the 1998 Rotterdam Convention. In *Economic Globalization and Compliance with International Environmental Agreements*, edited by Alexandre Kiss, Dinah Shelton and Kanami Ishibashi, 75-88. The Hague: Kluwer Law International (82).

[266] Katharina Kummer. 1999. *Op. cit.* 323.

[267] http://www.pic.int/home.php?type=t&id=5&sid=16

[268] http://www.pic.int/home.php?type=t&id=49&sid=16

- pesticides
- severely hazardous pesticide formulations
- industrial chemicals

The criteria and the process of the inclusion of additional chemicals are politically sensitive due to economic ramifications, therefore they are subject to a rather complex process. The RC's Chemical Review Committee (CRC) is at the core of this process, it makes recommendations to the Conference of the Parties (COP) regarding the inclusion of additional chemicals in Annex III. The CRC as a subsidiary body of the COP is composed of government-appointed experts in chemicals management. The final decision is taken by the COP.

The core of the Convention consists of the PIC procedure which is characterized by extensive information exchanges between the Secretariat and the Designated National Authorities (DNAs):

> The PIC procedure is a mechanism for formally obtaining and disseminating the decisions of importing Parties as to whether they wish to receive future shipments of those chemicals listed in Annex III of the Convention and for ensuring compliance with these decisions by exporting Parties.
> For each of the chemicals listed in Annex III and subject to the PIC procedure a decision guidance document (DGD) is prepared and sent to all Parties. The DGD is intended to help governments assess the risks connected with the handling and use of the chemical and make more informed decisions about future import and use of the chemical, taking into account local conditions.
> All Parties are required to take a decision as to whether or not they will allow future import of each of the chemicals in Annex III of the Convention. These decisions, known as import responses, are sent to the Secretariat by the DNA. A listing of the import responses given for each chemical subject to the PIC procedure is circulated by the Secretariat to all DNAs every six months via the PIC Circular. Import decisions taken by Parties must be trade neutral, that is, if the Party decides not to accept imports of a specific chemical, it must also stop domestic production of the chemical for domestic use and refuse imports from any source, including from non-parties.
> All exporting Parties are required to ensure that exports of chemicals subject to the PIC procedure do not occur contrary to the decision of each importing Party. They should ensure that import responses published in the PIC Circular are immediately communicated to their exporters, industry and any other relevant authorities, such as the Department of Customs.[269]

The Rotterdam Convention does not make recommendations to ban international trade or use of the chemicals included in its Annex III. Rather, it provides importing Parties with the necessary decision tools for making informed assessments regarding which of the chemicals included in the list they are able to manage safely, and which ones they chose to exclude. Furthermore, the safe use of chemicals that are traded is supported through requirements for labeling and the provision of information on potential threats to public health and the environment through the bi-annual Circulars.[270]

[269] http://www.pic.int/home.php?type=b&id=24&sid=16&tid=5
[270] http://www.pic.int/home.php?type=t&id=50

2. THE NEGOTIATION OF THE ROTTERDAM CONVENTION

1. The International Negotiations Committee

The negotiation of the Rotterdam Convention differs from that of most other multilateral environmental agreements (MEA) by the fact that the negotiators were able to build the Convention on the basis of the voluntary PIC procedure, jointly having been implemented by FAO and UNEP, The voluntary PIC procedure had been in existence for nearly ten years when negotiations started officially in 1996 through the formation of an International Negotiation Committee. Another distinctive feature of the PIC Convention consists in the fact that from the beginning FAO and UNEP have been administrating the negotiations jointly, upon a clear mandate from their respective governing bodies which in both cases took its root in *Agenda 21* as mentioned above. We may therefore note that the 1992 Rio Conference not only produced, among other achievements, the Climate and the Biodiversity Conventions as well as the Forest Principles and the call to initiate negotiations on desertification, but it has also generated the political consensus necessary for the commencement of negotiations of the Rotterdam and Stockholm Conventions as well as for the Basel Ban Amendment to the then already existing Basel Convention. The INC held five sessions between 1996 and 1998 which included, in addition to about a hundred national delegations, numerous intergovernmental and non-governmental organizations active in the domain of chemicals management.[271]

In spite of the above-mentioned relatively well-prepared negotiation terrain, there were still major hurdles to be overcome. Thus, at INC-3 in May 1997 brackets in the draft text indicating disagreements proliferated, even on fundamental questions such as the purpose or the scope of these PIC negotiations. In any negotiation, when the participants do not agree on the purpose of a legal instrument, then one may assume that they are still far distanced from a consensual solution. A voluntary agreement is one thing, but converting this status into a legally binding instrument is a very different matter. The EU especially argued that in order to benefit from the experience of the voluntary guidelines it was necessary to aim for a broad scope. Many developing countries argued, however, that for them the administrative and technical requisites even with a limited scope would be a major challenge. These matters were made more complicated by the fact that both industrialized and developing countries are often importers and exporters at the same time, depending on the chemicals under consideration. As always in negotiations involving technical assistance and capacity building there were difficult questions to be resolved over the financing of the Convention's activities, which were made more complicated by the double-headed structure of the Secretariat.[272]

NGOs were particularly concerned over the – unsuccessful – attempts of a group of countries under the leadership of the US which had advocated during INC-5 the introduction of a WTO savings clause, i.e. a provision that the rights and obligations of the Parties under "other agreements" shall not be constrained by the PIC procedure. It means in practice that an exporter's rights to market access under the trade regime normally cannot be limited based on the PIC procedure. This

[271] Katharina Kummer. 1999. *Op. cit*.p. 323-325

[272] Earth Negotiations Bulletin, IISD. 1997. Vol. (15) 2:11-12. http://www.iisd.ca/download/pdf/enb1502e.pdf

perspective was strongly opposed by another group under the leadership of the EU.[273] NGOs furthermore expressed misgivings about the effect of such a precedent on future negotiations on the ban of certain persistent organic pollutants. Any such wording would represent a major weakening of the whole idea of effective environmentally sound management since it would be clear from the beginning that the WTO's and other trade agreements' provisions would prevail over those of the PIC Convention – a phenomenon which obviously would diminish the effectiveness of an MEA and which is often called a 'chilling effect.' [274] [275] After their defeat on the savings clause, the US and its allies were nevertheless successful in narrowing down the scope of the Convention against the resistance of a EU-led group which wanted to include in the Convention's scope a third category of products comprised of consumer chemicals.[276] Furthermore, Article 3 lists a number of important product categories which are exempt from the Convention, such as radioactive materials, narcotic and medical drugs, wastes, or food products.

2. The First Four Conferences of the Parties

The eleventh and last INC was held as a one-day closing session back-to-back with the first Conference of the Parties in September 2004 in order to facilitate the transformation of the voluntary to the binding PIC procedure. Among the chemicals which have been added to Annex III during the interim period there are five kinds of asbestos. It turned out to be impossible, however, to include also the most vigorously contested and defended form of asbestos, chrysotile, which is by far the commercially most important variety. The world's largest asbestos mine is situated in the town of Asbestos in Québec, Canada. The independent Paris-based environmental news agency Cogiterra/Actu-Environnement provides some background on this long-standing situation:

> As reported by the Canadian Member of Parliament Pat Martin,[277] who is known for his opposition to asbestos, Canada, one of the most important exporters of chrysotile asbestos seems to have managed to convince its key clients (India, Pakistan, Philippines and Vietnam) to oppose the inclusion of this product in Annex III. While asbestos is prohibited in the European Union, FAO and UNEP have emphasized that *numerous governments have expressed their*

[273] Katharina Kummer. 1999. *Op. cit.* p. 325-26.

[274] Stilwell, Matthew, and Elizabeth Tuerk. 1999. Trade Measures and MEAs - Resolving WTO Uncertainty. A paper prepared for WWF International (Geneva/Gland) by the Center for International Environmental Law, Geneva, 22 p. www.ecolomics-international.org/tandea_chill_meas_and_wto_stilwell_tuerk_ciel_wwf_int_1999.pdf

[275] Urs P. Thomas, The CBD, the WTO, and the FAO: the Emergence of Phytogenetic Governance. In *Governing Global Biodiversity: The Evolution and Implementation of the Convention on Biological Diversity*, edited by Philippe G. Le Prestre, 177-207 (200-203). Aldershot, Hampshire UK: Ashgate.

[276] Katharina Kummer. 1999. *Op. cit.* 325.

[277] New Democratic Party, elected in Winnipeg Centre 1997, re-elected 2000, 2004 and 2006. http://www.ndp.ca/patmartin

> *strong concerns* (italic in the original) regarding this non-listing (author's translation).[278]

At the time of this writing after RC COP-4, chrysotile asbestos is still not listed in Annex III in spite of the fact that concerns over the use of asbestos fibers are one of the oldest known and scientifically supported threats to public health caused by an industrial chemical:

> … the first medically accurate description of the harm done to the lungs by asbestos was published by a British factory inspector in 1898! By 1918, some insurance companies in the United States and Canada were already refusing to cover asbestos workers because of their occupational health risks. By the 1930s, articles in the medical literature in several countries linked asbestos to lung cancer, … Most of the exposure that caused hundreds of thousands of cancer deaths and massive corporate losses occurred decades after there were credible warnings of the dangers of asbestos.[279]

As we can see, the Convention started its official existence as an MEA in 1998 with an unusual amount of practical experience from its interim period but at the same time with some important unfinished business. Progress is slow whenever environmentally sound management has to be balanced with economic interests.

Most importantly, however, in spite of these hurdles, COP-1, in Geneva in 2004, managed to operationalize the legally binding PIC procedures including Annex VI on Settlement of Disputes. A smooth beginning was facilitated thanks to a focus on relatively consensual procedural matters while more contested question such as non-compliance were postponed for another day. Furthermore, it began its activities with the incorporation of fourteen new chemicals into Annex III thanks to the preparations carried out during the interim period. The political will of *a priori* openness toward the addition of new chemicals was expressed in the decision to use seven geographical regions for notification purposes instead of the usual five UN regions, which makes it somewhat easier to obtain the required two regions which must support a chemical's review process in order to trigger the listing process.[280]

In spite of these encouraging signs, it has become clear at COP-2, in Rome in 2005, that the addition of new chemicals to Annex III will be an arduous process requiring intensive negotiations. As far as non-compliance with the PIC procedure is concerned, this was expected to be a difficult issue; the debates therefore were prepared through an Open-ended *ad hoc* Working Group prior to the COP. This group divided this conundrum up into four sub-issues: (I) who will be able to make non-compliance submissions and to trigger this procedure; (II) what are the relevant sources of information to be considered? (III) the composition of the compliance committee; (IV) measures to be taken in case mediation should be unsuccessful. In spite of these preparations, divergent views resulted in a deadlock. Australia was not willing to continue the discussion as long as the question of the trigger was not resolved, whereas many developing countries expressed serious concern about any

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[278] http://www.actu-environnement.com/ae/news/convention_rotterdam_amiante_chrysotile_TBT_endosulfan_liste_PIC_6130.php4

[279] Frank Ackermann. 2008. *Poisoned for Pennies - The Economics of Toxics and Precaution.* Washington and London: Island Press, 318 p. (86).

[280] Earth Negotiations Bulletin, IISD. 2004. Vol. (15) 105: 9-11. http://www.iisd.ca/process/chemical_management.htm#pic

such provisions as long as financing for the fulfillment of their commitments was not ascertained. These concerns were well founded because the debates on financing the Convention's activities ran into serious problems without a solution in sight at COP-2.[281] Both the finance and the non-compliance issues will undoubtedly continue to preoccupy future COPs as they do in other MEAs especially in their early stages.

After a relatively smooth and well prepared start, it is nevertheless fair to say that COP-3, in Geneva in 2006, has shown no easy solution should be expected for those issues which could not be resolved earlier, especially non-compliance and chrysotile asbestos. The listing of chrysotile asbestos was adamantly resisted by the major producer countries which are, according to the International Ban Asbestos Secretariat, in decreasing order Russia, Kazakhstan, China, Canada, and Brazil; India as the third biggest user after China and Russia is also among the key asbestos advocates.[282] Many delegates reminded these countries of the fact that listing a chemical in Annex III does not represent a trade ban but only a requirement for enhanced information exchange. Be that as it may, the failure of listing this carcinogenic chemical could undermine the Convention's primary objective of facilitating the information exchange between exporting and importing countries regarding potentially toxic substances. The International Ban Asbestos Secretariat went a step further in dramatizing this point by distributing a brochure entitled "Chrysotile Asbestos – Hazardous to Humans, Deadly to the Rotterdam Convention."[283] As far as the continuing stalemates over a non-compliance procedure, especially over the triggers which may launch such a step, and over reliable funding commitments are concerned it was pointed out that these two issues are connected because without adequate funding the Secretariat cannot effectively administer non-compliance issues.[284]

Given these disappointments and tensions in the preceding meeting, COP-4, in Rome in 2008, started off with real apprehensions over the very effectiveness of the Convention with regard to those chemicals which embody major industrial and economic stakes, so-called *live chemicals* as opposed to obsolete chemicals which can be banned without major ramifications because their use has already been substantially reduced or discontinued as is more or less the case with those twelve persistent organic pollutants which are banned under the Stockholm Convention. Chrysotile asbestos and endosulfan are classical examples of *live chemicals* and this Conference of the Parties again failed to put them onto Annex III, although another chemical, tributyltin compounds (TBT) has been listed. Endosulfan is a pesticide which the PIC negotiators have discussed for a long time.[285] It is banned in the US and the EU and many other countries, but presently still being used extensively in others such as China and India. The NGO Pesticide Action Network expects that it will be banned under the Stockholm Convention by 2011.[286]

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[281] Earth Negotiations Bulletin, IISD. 2005. Vol. (15) 129: 10-11. http://www.iisd.ca/process/chemical_management.htm#pic

[282] International Ban Asbestos Secretariat http://ibasecretariat.org/

[283] http://www.lkaz.demon.co.uk/chrys_hazard_rott_conv_06.pdf

[284] Earth Negotiations Bulletin, IISD. 2006. Vol. (15) 147: 10-12. http://www.iisd.ca/process/chemical_management.htm#pic http://www.iisd.ca/download/pdf/enb15147e.pdf

[285] RC-4/6: Inclusion of endosulfan in Annex III of the Convention http://www.pic.int/RC4_6/Decision%20RC4_6.pdf

[286] http://www.panna.org/resources/panups/panup_20081023

The whole debate at least had the benefit of a much needed diplomatic soul searching on the question of *live chemicals* as delegates were forced to squarely face the question of the appropriate balance between short term economic interests and long term environmental and health damages. In this sense these debate marked an important beginning, it is to be expected that the question of the appropriate balance between the two priorities will continue to preoccupy negotiators for a long time to come. Some delegations such as especially the EU and Switzerland, and also staff from the Secretariat, pointed to the difficulties in listing economically important chemicals as *the most important obstacle* to the Convention's meaningful implementation and ultimate effectiveness. Throughout these debates it was not quite clear whether the obstacles to listing these two chemicals are tantamount to immovable political interests, or whether stricter notification procedures regarding regulatory action would make it more difficult to oppose the listing based on arguments which emphasize scientific uncertainty, and whether therefore such enhanced procedures might in the end facilitate the addition of *live chemicals*.

COP-4 was successful in making a contribution toward efforts in improving the synergy among the three chemicals and waste conventions. The mechanism which had been designed for this purpose was the *Ad Hoc Joint Working Group on Enhanced Cooperation and Coordination between the Basel, Rotterdam and Stockholm Conventions* (AHJWG). The AHJWG numbers 45 members in total; each Convention has 15 representatives, three for each of the five regional groups of the United Nations. The representatives were nominated by a process of consultations within the regional groups.[287] Three meetings were held in 2007 and 2008, and the conclusions of this process were to be submitted to the three Conventions. Following the example of the Basel Convention, the oldest and largest of the three, the RC also supported the AHJWG's recommendation.[288] There was in fact a somewhat surprising ease with which the Parties supported the proposals of this Working Group in the hope that it will contribute to achieve enhanced synergies in environmentally sound management.[289]

3. SOME POLICY AND LAW ASPECTS

1. The Principle of Mutual Supportiveness and the PIC Convention

Contrary to the traditional (and oft-criticized) focus of general international law which is based on *ex post* remediation of harm, the Rotterdam Convention represents an *ex ante* preventive mechanism aimed at avoiding, managing and resolving conflict.[290] It can be described as a 'first line of defense' against dangerous chemicals particularly in developing countries. The RC rests on three pillars: (I) prior informed consent: (II) exchange of information; (III) national decision-making processes. It is interesting to note that these elements are present also in the Basel Convention and the

[287] http://ahjwg.chem.unep.ch/

[288] The Stockholm Convention will address these recommendations at its forthcoming COP-4 in May 2009.

[289] Earth Negotiations Bulletin, IISD. 2006. Vol. (15) 168: 10-12. http://www.iisd.ca/process/chemical_management.htm#pic

[290] Redgwell *Op. Cit.* 75.

Cartagena Protocol on Biosafety. Unlike for instance the Stockholm Convention, the RC does not constitute a ban on the import or export of any chemicals. The rationale for this relatively permissive regime is that factors such as socio-economics and geographic conditions may vary greatly among the Parties, and in any case governments in different countries often have very different perceptions on issues like toxicity or threats to human health or the environment. Thus the requirement of the prior informed consent of the importing Party before shipment of listed banned or severely restricted industrial chemicals or pesticides may take place represents this Convention's fundamental regulatory tool. Its definition of banned substances is relatively wide and includes the withdrawal of a chemical by industry where there is clear evidence that the protection of human health or the environment was the reason for the withdrawal.[291] This relatively flexible approach indeed was presumably the only pragmatic and feasible strategy. It is nevertheless regrettable that – contrary to the BC and the CPB -- the Convention does not contain a re-import obligation in cases of non-compliance by the exporter.

The RC represents an interesting case of one of those multilateral environmental agreements which embody important trade ramifications, in other words it is one of those MEAs that the WTO includes in its discussions and negotiations on trade and environment. Ever since its first Ministerial meeting in Singapore in 1996 the WTO Members have *discussed* trade and environment issues informally and on a non-binding basis in the Committee on Trade and Environment (CTE). This situation changed with the fourth Ministerial meeting in Doha in 2001: the *Doha Development Agenda* (DDA) for the first time provides a blueprint for *binding negotiations* which are organized separately in the meetings of the CTE in Special Session (CTESS). The most important negotiating provision of the DDA for the RC is paragraph 31 on trade and environment:

> With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on:
>
> **(i)** the relationship between existing WTO rules and specific trade obligations set out in multilateral environmental agreements (MEAs). The negotiations shall be limited in scope to the applicability of such existing WTO rules as among parties to the MEA in question. The negotiations shall not prejudice the WTO rights of any Member that is not a party to the MEA in question;
> **(ii)** procedures for regular information exchange between MEA Secretariats and the relevant WTO committees, and the criteria for the granting of observer status;
> **(iii)** the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.

These negotiations are presently, like the rest of the Doha Round, suspended. Nevertheless, it is important to note that intensive negotiations have been carried out in the domain of trade and environment from 2002-2007 which have shown where progress may be expected once negotiations will resume again. Negotiations on the relationship and information exchange between the WTO and MEAs have been mired in political and inter-organizational sensitivities. The most intensive negotiations have been carried out on paragraph 31(iii) to facilitate trade in environmental goods and services including products like laboratory or testing

[291] Catherine Redgwell. 2003. *Ibid.* 81-82 ; 84-87.

equipment and services which are important for the implementation of the PIC Convention.[292]

Whatever happens to the DDA's environmental provisions and to the Round as a whole, the trade-related aspects of the Rotterdam Convention (and also of the Stockholm Convention) are very significant milestones in the evolution of the whole trade and environment issue area. Professor Laurence Boisson de Chazournes and Makane Moïse Mbengue[293] have demonstrated through an innovative and in depth legal analysis that the RC represents the starting point of an ongoing evolution in the relationship between trade-related MEAs and the WTO agreements. It is linked to the above-mentioned attempts during the International Negotiating Committee phase of the negotiations to introduce a WTO savings clause. Such a clause, which has also been attempted elsewhere, e.g. in the negotiations leading to the adoption of the Cartagena Protocol on Biosafety (CPB) to the Convention on Biological Diversity would establish a hierarchy in the legal weight between WTO agreements and a specific MEA, perhaps with the intention of generalizing this lopsided legal relationship for all MEAs in the long term. This state of affairs is what the drafters of the RC have been able to avoid through the introduction of the concept of 'mutual supportiveness' in the preamble. This concept has subsequently been used also in the 2000 CPB and in the 2001 POPs Convention.

As Boisson de Chazournes and Mbengue point out, the fundamental rationality of this approach is the goal of avoiding of legal conflicts between the trade regime and MEAs. In a wider sense it can serve as an interpretative principle capable of guiding the Parties in a conflict-avoiding implementation of their respective rights and obligations under their MEAs and trade agreements. For good order's sake it should be mentioned that the term *mutually supportive* which in the English version of the RC and SC as well as in the CPB is used as such, and which the title of the article translates correctly as *soutien mutuel* is translated in the respective preambles of the French versions three different ways: *devraient être complémentaires* in the RC,[294] *concourent au même objectif* in the SC,[295] and *devraient se soutenir mutuellement* in the CPB.[296] A correct translation of the above article's fine points would represent a real challenge but the original text is a legal as well as a linguistic masterpiece.

As we have seen above, the WTO also uses mutual supportiveness in the DDA's paragraphe 31 in order to explain the purpose of these trade and environment negotiations. The mutually supportive principle has been described as follows:

> Therefore, while each regime should focus on its primary competence, it is not prevented from adopting measures having an effect on the other regime. However, it should take into account the concerns and interests of the other regime, and it should pay deference to the competence of the other regime.

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[292] For an up to date detailed account of these Environmental Goods negotiations see: Matthew Stilwell. 2008. Advancing the WTO Environmental Goods Negotiations: Options and Opportunities. *EcoLomics Occasional Paper Series* No. 08-1. http://www.ecolomics-international.org/headg_eops.htm

[293] Laurence Boisson de Chazournes and Makane Moïse Mbengue. 2007. A Propos du principe du soutien mutuel -- les relations entre le Protocole de Cartagena et les accords de l'OMC. *Revue Générale du Droit International Public.* Numéro 4: 829-863 (832-834).

[294] http://www.pic.int/en/ConventionText/ONU-FR.pdf

[295] http://www.pops.int/documents/convtext/convtext_fr.pdf

[296] http://www.cbd.int/doc/legal/cartagena-protocol-fr.pdf

> This deference requires that each regime does not judge the legitimacy or the necessity of measures adopted by the other regime. Hence, WTO should not try to decide whether an environmental goal pursued by an MEA is legitimate or whether a measure adopted by MEAs for the realization of such goal is necessary.[297]

The significance of Boisson de Chazournes and Mbengue's analysis lies in the contextualization of the RC within the wider evolution of Public International Law with regards to MEAs and trade law because the drafting of the Convention represents a pioneering step in the arduous process of surmounting the politically very sensitive predicament of the relationship between the rights and obligations which the Parties have acquired under trade agreements and environmental agreements respectively. The binding nature of the RC is strengthened by its call to develop and to implement non-compliance procedures and institutional mechanisms.[298] These highlight the need of finding new ways in bridging the gap between trade-related and environmental perspectives:

> Controversy on this point appears to be inherent in multilateral environmental negotiations addressing transboundary transfer of potentially hazardous substances, since they deal with the interface of environment and trade considerations. The same conflict contributed to the temporary failure of the negotiations on a protocol on the international transfer of GMOs to the UN Convention on Biological Diversity in February 1999.[299]

In the conclusion of their analysis Boisson de Chazournes and Mbengue point out that the principle of mutual supportiveness has two kinds of implications: First of all, it confers the qualities of harmony, coherence and coexistence to the relationship between an MEA containing these clauses in the preamble and other international agreements, especially those of the WTO. Most importantly, the relationship between such MEAs and trade agreements is non-hierarchical and without a legal subordination of either agreement, it is a relationship between agreements of equal weight.[300] Secondly, the relationship between MEAs containing the mutually supportive principle and trade agreements can be considered as legally balanced.[301] This principle therefore, as they point out, is situated at the heart of the sustainable development principle or concept,[302] a connotation which is clearly articulated by the PIC Convention.[303]

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[297] Franz Xaver Perrez. 2000. The Cartagena Protocol on Biosafety and the Relationship between the Multilateral Trading System and MEAs. In "The Biosafety Protocol: Regulatory Innovation and Emerging Trends," edited by Laurence Boisson de Chazournes and Urs P. Thomas, *Swiss Review of International and European Law* 10 (4): 518-528. http://www.ecolomics-international.org/biosa_lbc_upt_etal_bp_regulatory_innov_emerging_trends_rsdie_00_4.pdf

[298] Article 17 - Non-Compliance: The Conference of the Parties shall, as soon as practicable, develop and approve procedures and institutional mechanisms for determining noncompliance with the provisions of this Convention and for treatment of Parties found to be in non-compliance.

[299] Katharina Kummer. 1999. *Op. cit.* p. 326.

[300] Boisson de Chazournes et Mbengue. 2007. *Op.cit.* 853-857.

[301] Boisson de Chazournes et Mbengue. 2007. *Op.cit.* 857-859.

[302] Boisson de Chazournes et Mbengue. 2007. *Op.cit.* 859.

[303] The Preamble of the PIC Convention expresses the principle of mutual supportiveness as follows:

> Recognizing that trade and environmental policies should be mutually supportive with a view to achieving sustainable development,
>
> Emphasizing that nothing in this Convention shall be interpreted as implying in any way a

Last but not least, the authors see the mutually supportive principle as *the compass* guiding the relationship between trade and environmental agreements. Based on this function they call for new legal strategies in the international legal order, especially an *ex ante* and an *ex post* coordination. The former requires that the coherence and the coexistence between an MEA being negotiated and relevant trade agreements be taken into consideration from the very beginning, especially if there is a possibility that the rights and obligations between the two kinds of agreements might stumble over each other ("peuvent achopper avec"). The *ex post* coordination strategy in the development of Public International Law also refers to efforts of making trade and environment agreements coherent among each other, but instead of being aimed at the elaboration of rules in the relevant agreements it is concerned with the establishment of inter-institutional conduits and cooperation as well as inter-institutional norms and standards with the intention of facilitating the coherent implementation of both categories of agreements. Thus Boisson de Chazournes and Mbengue summarize and wrap up their extensive legal analysis by noting that the negotiation of multilateral agreements which has been mushrooming lately needs to apply a new approach based on the mutually supportive relationship between different systems of legal instruments.[304]

2. Conclusion

In this context the situation of the US is a particular case thanks to its economic, not to mention political, importance. The United States has used the same stratagem in several MEA negotiations: it participates very actively in the initial negotiations, often diluting the thrust of the treaty, but in the end it refuses to ratify it, as happened in the RC. It is then up to the other key delegations to decide which concessions are worth or not worth the signature of the US. The price to pay at the end of the day may be a WTO ruling like the one in the case *EC-Biotech* where the Panel ruled that since the US is not a Party to the Biosafety Protocol the latter is not relevant in interpreting the WTO rules at issue in this dispute.[305] It remains to be seen if under President Obama the US negotiators will effectuate what he promised to do in general terms: to change… Be that as it may, the WTO itself is undoubtedly also in the process of undergoing change due to the pressures arising from the global financial crisis – be it for better or worse with regard to its position on environmental questions. Steve Charnovitz, a long time and insightful observer of trade and environment-related issues summarizes the WTO's first ten years by noting "many positive (and a few negative) features of the key Appellate Body decisions," especially by reversing some of the GATT and early WTO panel holdings that "threatened to render the environmental exceptions unusable." [306] On the whole Charnovitz expects an increase in environmental disputes over the next ten years.

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change in the rights and obligations of a Party under any existing international agreement applying to chemicals in international trade or to environmental protection,

Understanding that the above recital is not intended to create a hierarchy between this Convention and other international agreements, …

[304] Boisson de Chazournes et Mbengue. 2007. *Op.cit.* 859-60.

[305] Andrew Green and Tracey Epps. 2007. The WTO, Science, and the Environment: Moving towards Consistency. *Journal of International Economic Law*. 10 (2):285-317 (299).

[306] Charnovitz, Steve. 2007. The WTO's Environmental Progress. *Journal of International Economic Law*. 10 (3): 685-707. (685; 695).

To conclude, we note that this Convention is not only located at the center of the tensions between the opposite priorities and stakes which apply to all trade-related MEAs to some extent, but that it has indeed been pioneering a new era of MEAs emphasizing mutual supportiveness and the absence of a hierarchical relationship with trade agreements. The PIC Convention, even though it is "a modest treaty," and limited in scope, is nevertheless "procedurally complicated" with regard to its operation; furthermore it is "filled with vague language, susceptible to divergent interpretation."[307]

That vagueness of course is not the prerogative of the RC, one may say it is the prerogative of diplomacy and very often it represents the diplomatic strategy to overcome a deadlock in a way which does not frustrate any of the key negotiators to the point that they prevent the adoption of a negotiating text or refuse to sign on to it. This incidentally is an observation that is made frequently also with regard to the WTO which then leaves the challenge of making sense out of a cryptic paragraph to its Dispute Settlement Body.

[307] Ted L. McDorman. 2004. The Rotterdam Convention on Prior Consent: Some Legal Notes. *RECIEL* 13 (2): 187-200 (199-200, also footnote 154).

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IMPLEMENTING THE STOCKHOLM CONVENTION: AN INCREASINGLY EXPENSIVE CHALLENGE

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ABSTRACT:

The Stockholm Convention on Persistent Organic Pollutants (POPs), which entered into force in 2004, addressed the production and use of 12 listed chemicals. In this article we first provide an overview of the origins, and a brief history of the Stockholm Convention, and related negotiations. We then examine progress made in implementing the Convention's provisions, and the financial implications of recent developments under the Convention following parties' decision, in May 2009, to add nine chemicals to the treaty's scope. Finally we look forward to the likely finance scenarios under the upcoming fifth replenishment of the Global Environment Facility (GEF), and related activities on expanding the available financial resources for implementing the Convention.

1. INTRODUCTION

Persistent organic pollutants (POPs) as a class of pollutants have been the focus of international negotiations since the early 1990s. A POP is a chemical exhibiting several characteristics, including persistence and bioaccumulation once released in the environment, a propensity for long-range environmental transport, and adverse effects on human health and/or the environment. The Stockholm Convention on POPs, which entered into force in 2004, set out control measures for twelve POPs known as the "dirty dozen." These include pesticides, such as DDT, industrial chemicals, such as PCBs, and unintentional by-products, such as dioxins and furans.

In this article we first provide an overview of the origins, and a brief history of the Stockholm Convention, and related negotiations. We then examine progress made in implementing the Convention's provisions, and the financial implications of recent developments under the Convention following parties' decision, in May 2009, to add nine chemicals to the treaty's scope. Finally we look forward to the likely finance scenarios under the upcoming fifth replenishment of the Global Environment Facility (GEF), and related activities on expanding the available financial resources for implementing the Convention.

2. THE STOCKHOLM CONVENTION

Origins of the Convention

Concerns with the potential health and environmental effects of chemicals being released in the environment were brought to the fore with the publication of Rachel Carson's *Silent Spring* in 1962 which warned against the far reaching impacts of DDT use. Since then, the ever growing number of chemicals in use and being released into the environment has outpaced regulations on many chemicals' production and use. Nevertheless, the use of chemicals has long been the focus of international regulatory responses. In 1972, the UN Conference on the Human Environment resulted in the creation of UNEP, and it adopted the Stockholm Action Plan, which addressed hazardous chemicals, in particular calling on states to minimize their environmental releases, and, twenty years later, as countries prepared for the 1992 UN Conference on Environment and Development, chemicals management was the focus of Chapters 19 and 20 of Agenda 21[308] (Selin, 2010). This emphasis on chemicals management continued into the 1990s as several institutions were established providing fora for a broad range of stakeholders to address issues related to chemicals management, including for example through the Intergovernmental Forum on Chemical Safety (IFCS) in 1994.

A regional treaty, the 1979 Convention on Long-Range Transboundary Air Pollution (CLRTAP), played a significant role in bringing the issue of POPs to the fore of international attention. This Convention, which entered into force in 1983, was negotiated under the auspices of the UN Economic Commission for Europe

[308] Available at http://www.un.org/esa/dsd/agenda21/res_agenda21_20.shtml

(UNECE), and brings together parties from Europe and North America. The CLRTAP includes several protocols, including a Protocol on Persistent Organic Pollutants adopted in 1998. In particular the CLRTAP played an essential role in providing a forum for framing the problem of POPs, and in 1990 a Task Force on POPs began assessing the issue (Selin 2010). This agenda item was at first largely driven by Canada and Sweden as researchers in those countries had begun detecting unexpectedly high concentrations of organic substances in their Arctic areas (Fenge 2003, Selin 2010). In 1991, Arctic countries also came together to establish the Arctic Monitoring and Assessment Programme (AMAP) to "monitor the levels of pollutants and to assess their effects in the Arctic environment" (Reiersen et al, 2003; N. Selin and H. Selin, 2008). By late 1994, the CLRTAP Executive body decided to form a preparatory working group to discuss potentially drafting a Protocol, and negotiations on the CLRTAP Protocol on POPs were concluded in June 1998 (Selin 2010).

At the global level, POPs too were rising in salience. In 1995, the UNEP Governing Council began assessing a list of 12 POPs (this list was based on assessments carried out in the CLRTAP context) and negotiations on a global POPs Convention began in 1998. Arctic indigenous peoples, who research was demonstrating to be particularly vulnerable to POPs contamination (Selin, 2010), also played an active role in negotiating a global POPs treaty. While arctic indigenous groups had not participated in the early CLRTAP POPs negotiations, they had played an active role in the AMAP process and in March 1997 formed a coalition (the Northern Aboriginal Peoples' Coordinating Committee on POPs) to participate in the later CLRTAP negotiations (Fenge, 2003). Several coalitions of arctic indigenous groups played a significant role in the global POPs treaty negotiations, including the Russian Association of Indigenous Peoples of the North (RAIPON) and the Inuit Circumpolar Council (ICC). In particular Sheila Watt-Cloutier, then vice-president of the ICC, representing the Inuit of Greenland, Alaska, Russia and Canada, is credited with emphasizing the public health threat from POPs, through interventions but also by presenting the Executive Director of UNEP with an Inuit carving of a mother and child. This carving was present on the dais at all subsequent negotiations (Watt-Cloutier, 2003; Fenge, 2003; Selin, 2010).

In 1998, over 400 advocacy groups came together to form the International POPs Elimination Network (IPEN). IPEN was established with the aim of supporting the elaboration of global POPs controls and also played a key role in bringing together arctic indigenous groups and indigenous peoples of Africa (Watt-Cloutier, 2003). These connections proved significant in bridging two key concerns surrounding the POPs negotiation: the adverse health impacts of POPs in arctic indigenous populations, and the adverse health impacts of malaria in countries still relying on DDT for malaria vector-control.

In Stockholm in May 2001, 92 States and the European Community signed the final text of the Convention on Persistent Organic Pollutants. The preamble to the Convention addresses several key elements shaping the Convention, including acknowledgments that "Arctic ecosystems and indigenous communities are particularly at risk because of the biomagnification of [POPs] and that contamination of their traditional foods is a public health issue," and that "precaution underlies the concerns of all the Parties[309]."Furthermore, it emphasizes an awareness of "the health concerns, especially in developing countries, resulting from local exposure to

[309] The full text of the 2001 Stockholm Convention on Persistent Organic Pollutants is available at www.pops.int.

[POPs], in particular impacts upon women and, through them, upon future generations." Another key element of the final Convention was that, while nine of the substances in the "dirty dozen" were listed for elimination (under Annex A), and while Annex C identifies those POPs subject to control from unintentional production, Annex B provides for restrictions on the production and use of DDT. In particular, the Annex identifies disease vector control in accordance with WHO recommendations and guidelines as an acceptable purpose for both the production and use of DDT.

A precautionary and Dynamic Convention

The Convention lists the "dirty dozen" in three different annexes according to Parties' responsibilities for control measures. Annex A lists nine substances slated for elimination.[310] Annex B lists DDT as a substance for restriction, and Annex C lists three substances that are produced unintentionally[311] and outlines guidance for preventing their production. The Convention was structured so as to allow for additions to each of these Annexes.

The preamble to the Stockholm Convention[312] acknowledges "that precaution underlies the concerns of all the Parties and is embedded within this Convention." There are several references to precaution in the Convention, especially relating to the listing of new chemicals, and Article 8 (Listing of chemicals in Annexes A, B and C) concludes by stating that "[T]he Conference of the Parties, taking due account of the recommendations of the Committee, including any scientific uncertainty, shall decide, in a precautionary manner, whether to list the chemical, and specify its related control measures, in Annexes A, B and/or C."

The Convention provided for COP1 to establish a POPs Review Committee (POPRC) to undertake the review of any chemicals nominated for listing under the Convention. The Intergovernmental Negotiating Committee extensively negotiated the terms of reference of this expert body, and at COP1 parties agreed to establish a 31-member Committee (Kohler, 2006). Members are government-designated experts: eight from African States, eight from Asian and Pacific States, three from Central and Eastern European States, five from Latin American and Caribbean States, and seven from Western European and other States. The UN's five regional groups are entrusted with identifying the countries eligible to designate experts to the Committee, and provisions were made to ensure half the membership of the Committee would rotate every two years.

The POPRC terms of reference agreed at COP1 left much of the organization of work to the discretion of the Committee itself. The salient points of the COP guidance include: that meetings shall be open to parties and other observers, the establishment of open *ad hoc* working groups, a conflict of interest procedure, annual meetings and timelines for making documents available, and interpretation at meetings (Decision SC-1/7).

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[310] It is important to note here that the Stockholm Convention commitments do not provide differentiated timelines nor differentiated targets for developed and developing countries, in contrast to other well-known treaties such as the Montreal Protocol on ozone depleting substances and the Kyoto Protocol on climate change.

[311] PCB (polychlorinated biphenyl) is listed both under Annex A and Annex C.

[312] The full text of the 2001 Stockholm Convention on Persistent Organic Pollutants is available at www.pops.int.

The POPRC follows a three-stage review process detailed in Annexes D, E and F of the Convention, beginning with an assessment of whether a chemical nominated for listing meets initial screening criteria set out in the Convention. The Committee decides whether a global ban is warranted prior to taking into account socio-economic considerations, therefore in practice potential health and environmental adverse effects essentially trump adverse socio-economic consequences of a global ban. From 2005 to 2008, the POPRC met four times and completed the review process for 9 nominated chemicals, recommending their listing under the Convention to COP4 in May 2009.

Financial Mechanism

Financing the implementation of the Convention was a key dimension of the negotiations leading to the finalization of the Convention. Prior to the Convention's entry into force, a POPs Club, which attracted funding from governments and from non-governmental actors, provided funding for activities under the Convention (Earth Negotiations Bulletin, 2002). Throughout the negotiation process, developing countries and countries with economies in transition raised concerns regarding their access to the financial and technical assistance necessary for them to be able to implement the Convention's requirements. In particular, under Article 13.4 of the Convention, signatories agree that

> [t]he extent to which the developing country Parties will effectively implement their commitments under this Convention will depend on the effective implementation by developed country Parties of their commitments under this Convention relating to financial resources, technical assistance and technology transfer.

This provision would later have implications for compliance with the Convention, as at COP4 countries argued they could not agree to establishing a compliance mechanism without being satisfied adequate resources are available to comply.

During the negotiations, developing countries were vocal in calling for a stand-alone financial mechanism, akin to the Multilateral Fund under the Montreal Protocol on Ozone Depleting Substances. In contrast, developed countries much preferred working with existing international institutions, including the Global Environment Facility (GEF). From the perspective of developing countries, a stand-alone financial mechanism would ensure that the Conference of the Parties itself would assess the needs for replenishing the fund and would set priorities for activities and countries eligible for financial assistance (Selin 2010). This concern was addressed in part by the requirement, under Article 13.6 of the Convention, that "[C]ontributions to the mechanism shall be additional to other financial transfers" to developing countries and countries with economies in transition. The Convention also sets out, in Article 14, provisions for the GEF to serve as the Convention's interim financial mechanism until the Conference of the Parties should decide upon another structure to serve as the financial mechanism.

Following the Convention's adoption in 2001, the GEF established a POPs focal area in 2003 and the GEF reported to COP1 on progress achieved in putting in place procedures for serving as the financial mechanism to the Convention. At COP1 the question of whether GEF would remain the financial mechanism as parties began

their implementation process remained controversial. In the end, with some countries noting that GEF was the "only game in town," the GEF remained as the Convention's interim financial mechanism, a role discussed in greater detail below. The COP routinely provides guidance to the GEF, yet developing countries have repeatedly raised concerns relating to the financial mechanism, including relating to the lengthiness of the funding process (the project pipeline) and the difficulty of meeting co-financing requirements (Earth Negotiations Bulletin, 2005; Earth Negotiations Bulletin, 2009).

Implementation and Compliance

Article 7 of the Convention states that parties must develop and transmit a National Implementation Plan (NIP) setting out the activities planned to meet their obligations under the Convention, to the Conference of the Parties within two years of the date on which the Convention enters into force for that party. NIPs are intended to assess the presence of scheduled POPs in each country, as well as the legislative measures in place to regulate POPs use, and to develop a list of prioritized actions to meet the requirements of the Convention. NIPs generally include an assessment of POPs import, export and production data, inventories of POPs stockpiles, and calculations of POPs produced unintentionally through incomplete combustion processes. Guidance on the development of NIPs was provided by the Stockholm Convention Secretariat, and funding for these "enabling" activities was provided by the GEF.

Parties' obligations under the Convention require them to institute measures to: reduce or eliminate unintentional production of POPs; manage POPs contaminated sites, and POPs stockpiles and wastes; eliminate or reduce intentional production of POPs chemicals; and increase information exchange and public awareness.

As nine of the "dirty dozen" chemicals (aldrin, endrin, dieldrin, chlordane, heptachlor, hexachlorobenzene, mirex, toxaphene and PCBs) were considered to be "dead," that is, they are chemicals with very little remaining production and use, elimination was considered to be feasible, and therefore required for these chemicals which are listed in Annex A of the Convention. It is important to note that the Convention provides for identifying acceptable purposes for chemicals. The 2001 Convention text identifies the production and use of DDT for disease vector control as the acceptable purpose for the chemical, this is the only chemical of the "dirty dozen" listed under Annex B. A register of specific exemptions is also maintained by the Stockholm Convention Secretariat and specific exemptions expire after five years, but can be renewed. Parties must justify continuing need for the registration of exemptions.

Regarding those chemicals listed under Annex C arising from unintentional production, COP1 established an expert group on Best Available Techniques (BAT) and Best Environmental Practices (BEP) to continue work on draft guidelines on BAT and provisional guidance on BEP prepared by an expert group established by INC6 in 2002. These guidelines on BAT and provisional guidance on BEP were adopted by COP3 (Decisions SC3/5) in 2007 to assist parties in implementing their NIPs.

3. COP4: FROM "DIRTY DOZEN" TO "TOXIC 21"

The fourth meeting of the Conference of the Parties (COP4) in Geneva in May 2009[313] represented the first occasion on which parties were required to consider adding chemicals to the scope of the Stockholm Convention. The Persistent Organic Pollutant Review Committee concluded that nine chemicals met the criteria to be considered as POPs, and recommended these chemicals for scheduling in the Stockholm Convention.

As well as the addition of nine new chemicals to the Convention, parties at COP4 also considered: financial matters, based on the outcomes of a needs assessment, and the opportunity to provide guidance for the 5th GEF replenishment (addressed in greater detail below), as well as the development of a compliance mechanism. These issues were negotiated in parallel working groups, but it was widely acknowledged by delegates that the interlinkages between them were significant. Addressing the links was fundamental to enabling a decision on each of the issues, as adding chemicals to the Convention meant additional finance was necessary for Convention implementation, and finance is also directly linked to the ability to comply (the Convention's Article 13 [Financial resources and mechanisms], which makes developing countries' abilities to comply contingent on financial and technical assistance). While Parties eventually agreed to add chemicals to the Convention, no progress was made on the development of a compliance mechanism (Earth Negotiations Bulletin, 2009).

Taking Stock of Implementation

As noted above, the Convention requires parties to prepare and submit NIPs within their first two years as parties. Special provisions were put in place (at COP1) to provide technical and financial assistance to developing countries and countries with economies in transition in meeting this commitment (Earth Negotiations Bulletin, 2005). The Stockholm Convention Secretariat developed guidance on the development of NIPs and funding for these enabling activities, that is the development of NIPs, was provided by the GEF.

As of March 2010, 116 NIPs had been submitted to the Secretariat of the Stockholm Convention. Up to 31 October 2008, the GEF financed development of 135 NIPs. The total value of NIP funding was USD58 million (Stockholm Convention, 2009a), 12% of GEF funds over the five year period from 2003 to 2008. Despite the low percentage of funding, NIP activities represented the majority of GEF-funded POPs Focal Area activities.

Between January 2007 and October 2008 the focus of GEF funding shifted from NIP development to implementation. In this time period, GEF approved USD129.4 million in funds, across 22 full-sized projects (FSPs), and a further 11.5 million, across 11 medium-sized projects. Just under a quarter of FSP funding was approved for four activities in China.

313 http://chm.pops.int/Convention/COP/hrMeetings/COP4/tabid/404/mctl/ViewDetails/EventModID/870/EventID/23/xmid/1673/language/en-US/Default.aspx

Broadening the Convention's Scope

Nine chemicals were recommended for addition to the Convention by the Convention's scientific assessment body, the Persistent Organic Pollutant Review Committee. The chemicals included pentabromodiphenyl ether (pentaBDE), chlordecone, hexabromobiphenyl (HBB), alpha-hexachlorocyclohexane (alphaHCH), beta-hexachlorocyclohexane (betaHCH), lindane, commercial octabromodiphenyl ether (c-octaBDE), pentachlorobenzene (PeCB) and perfluorooctane sulfonate (PFOS).

Delegates agreed to list all of them except PFOS in Annex A of the Convention, for elimination, they will therefore be added to parties' implementation commitments. On the other hand, parties agreed to list PFOS in Annex B (for restriction) of the Convention. As well representing the first time that Parties considered adding new chemicals to the Convention, the chemicals nominated also provided additional challenges, as three of them remain produced for industrial use and in products, unlike the original "dirty dozen," which included chemicals that are in fact already mainly phased out of use.

Negotiations on pentaBDE and octaBDE (the BDEs) were fraught with resistance. Although production of these chemicals has essentially been phased out, they are ubiquitous in plastics and foam rubber products. Therefore these chemicals are "live" in many commonly used products. As Article 6(d)iii of the Stockholm Convention prevents recycling of POPs, negotiators were left to grapple with the impact of listing the BDEs in light of the difficulty of separating BDE-containing plastic, from BDE-free plastic and the potential widespread fallout on the plastics recycling industry. Discussions on recycling, reuse, and trade of BDE-containing products, and the need to reduce the risks posed by new POPs in the waste stream, were extensive, and parties eventually agreed to list the BDEs and, with certain provisions, to permit recycling of products containing BDEs (Chemicals Watch, 2009). This was disappointing to many environmental NGO representatives, who stressed the danger of recycling BDEs into more products and therefore continuing to expose people and the environment to these POPs (Earth Negotiations Bulletin, 2009).

The listing of PFOS presented the challenge of listing a truly "live" chemical. PFOS is still widely produced and found extensively in products. The EU, supported by most developed countries called for immediate listing in Annex A of the Convention, but developing countries, led by China, argued that without the availability of cost-effective and environmentally-friendly alternatives they would not support the listing. Eventually Parties agreed to list PFOS in Annex B (for restriction) of the Convention. The decision on PFOS outlines several acceptable purposes including for fire-fighting foam and insect baits for leaf-cutting ants. It also outlines specific exemptions for metal plating, leather, textiles, paper, and plastics and rubber (Chemicals Watch, 2009).

Similar to the 'acceptable purpose' identified for DDT for disease vector control, parties also agreed to a framework for acceptable purpose relating to PFOS, under which Parties must register uses for acceptable purposes with the Stockholm Convention Secretariat, and report every four years on the progress made to eliminate PFOS. A review of acceptable purposes will be undertaken in 2015 by the Conference of the Parties, and every four years thereafter in an effort to make progress on the phase out of PFOS (Stockholm Convention, 2009b).

Synergies

Another factor impacting the Stockholm Convention implementation is the ongoing international concern over the proliferation of issue-specific chemical and waste conventions, prompting calls to synergize activities and management to reduce the administrative burden, and to increase resources available for implementation. COP4 granted the final stamp of approval for increasing synergies among the Basel, Stockholm and Rotterdam Conventions,[314] and to convening an Extraordinary Meeting of the Conferences of the Parties (ExCOPs) of each of the Conventions to consider joint decision making and budgeting. The ExCOPs convened in February 2010 back to back with the UNEP Governing Council Special Session and Global Ministers Environment Forum.

The ExCOPs agreed to joint activities, joint managerial functions, joint services, synchronization of budgets, and joint audits of the three chemicals and wastes conventions. Perhaps most significant is the decision to undertake joint managerial functions. Parties agreed to establish a joint head position of the three conventions. The Executive Director of the United Nations Environment Programme (UNEP) was requested to immediately proceed with the appointment. It is anticipated that the joint head will lead the "synergyzation" process and act as a figure head to raise the profile of the chemicals and wastes conventions among donors, and to coordinate fund-raising efforts (Earth Negotiations Bulletin, 2010).

Non Compliance

The extent of capacity building and technical assistance available to parties, and the mechanisms through which it is made available, is closely tied to the question of non-compliance. At COP4 in May 2009, parties were considering several related issues. Article 17 of the Convention calls upon the COP to

> as soon as practicable, develop and approve procedures and institutional mechanisms for determining non-compliance with the provisions of [the] Convention and for the treatment of Parties found to be in non-compliance.

The question of non-compliance had been tackled by the COP at its third meeting and agreement remained elusive on a variety of questions, including on who would be able to trigger non-compliance procedures, what measures to apply in cases of non-compliance, and the decision-making process (Earth Negotiations Bulletin, 2007). In particular, several developing countries underscored that under the Convention in instances of non-compliance, developed countries should bear the responsibility for failing to provide adequate additional funding for developing countries' and countries with economies in transition's lack of implementation (Earth Negotiations Bulletin, 2009).

[314] The other two chemicals-related Conventions are the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal and the 1998 Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

4. PAYING FOR POPS

Disagreement remains on the scale of funding warranted for developing countries and countries with economies in transition to be able to meet their obligations. A needs assessment had been commissioned for submission to COP4, which estimated the funding needs of developing countries and countries with economies in transition to implement the provisions of the Convention from 2010—2014[315]. This needs assessment was carried out based on implementation plans submitted between June 2005 and December 2008. While as of December 2008, 137 Parties would be eligible for the Convention's financial mechanism, the needs assessment was completed based on information from only 68 parties. Further, in the needs assessment, the authors stress that the estimated demand of USD 4.49 billion for 2010-2014 for these 68 parties is likely underestimated. Nevertheless this total estimate was the focus of extensive discussions, with some parties questioning the methods used in calculating projected costs of activities and the uncertainties involved. Others underscored that this needs assessment was based on activities relating only to the original "dirty dozen" and not the expanded scope of 21 chemicals likely to apply at the close of COP4 (Earth Negotiations Bulletin, 2009).

Many held this estimate in stark contrast to the USD 360 million contributed to POPs projects under GEF since 2001 (GEF, 2009), and concerns were raised about previously unmet needs likely to compound future needs. The scale of the cost burden of implementing the Convention remained as a backdrop as a contact group at COP4 discussed a range of financial issues, including a review of the financial mechanism (which parties agreed would be conducted at COP6) and elements of guidance to the GEF. In examining the GEF track record, disagreement arose on co-financing requirements. China and other developing countries raised concerns that the co-financing requirement was too high, flagging projects that were unable to move forward for failing to secure the necessary co-financing. Several developed countries heralded co-financing as a key means of meeting the needs for implementing the Convention, through the forced leveraging of additional funds, underscoring that co-financing should be sourced from donors and development partners other than governments (Earth Negotiations Bulletin, 2009).

The fact that the 5th Replenishment of the GEF was under negotiation as COP4 convened also shaped discussions on guidance to the GEF. Disagreement arose over the message to convey as to the scale of funding warranted under the POPs window, several countries also raised concerns over the potential application of the Resource Allocation Framework (RAF)[316] to the POPs focal area. A compromise decision on guidance to the financial mechanism was reached, calling on developed countries, to make all efforts to make adequate financial resources available (Earth Negotiations Bulletin, 2009).

As of March 2010, the negotiations for the 5th Global Environment Facility were ongoing, and are expected to be completed by June 2010. The revised programming document (GEF, 2009) acknowledged that the international chemicals agenda has expanded considerably in quantity and scope, requiring an enhanced response from the GEF. The document also acknowledges that the GEF's mandate as financial mechanism of the Stockholm Convention will require addressing the

[315] (UNEP/POPS/COP/4/27)

[316] http://www.gefweb.org/operational_policies/Resource_Allocation_Framework.html

newly listed chemicals under the Convention. It also notes there are complex and challenging issues related to these chemicals throughout their life-cycle and eligible countries will require assistance to address these, and that this extends to environmentally sound disposal of POPs-containing waste.

Regarding the RAF, the revised programming document provides that, should the GEF Council decide to extend the resource allocation system to the POPs focal area, countries will be able to access the focal area set-aside funds (FAS) to implement enabling activities for an amount up to USD 500,000 on an expedited basis, including for support to developing or updating NIPs and national reports. Should the resource allocation system not be extended to the POPs focal areas, enabling activities as well as regional and global projects will continue to be supported as in the past. The document envisages that under GEF-5 at least 50 countries will receive support for NIP updates.

Under the GEF-5 replenishment negotiation, three replenishment scenarios (total replenishments of USD 4.5 billion, USD 5.5 billion and USD 6.5 billion respectively) are being considered (GEF, 2009). Under these scenarios the Chemicals focal area is allocated USD 450 million, USD 550 million, and USD 650 million respectively. All of these scenarios represent a significant increase on the GEF-4 allocation of USD 300 million to the POPs window.

Under the USD 550 million scenario the additional resources available for POPs would also make it possible to start addressing the challenges posed by the "new" POPs recently added under the control of the Convention (GEF, 2009), with at least 10 countries implementing pilot "new" POPs reduction activities. Under the USD 650 million scenario it is envisaged at least 12 countries would implement pilot "new" POPs reduction activities.

Under the replenishment scenarios, synergies between ozone-depleting substances (ODS) containing waste and the need to manage other hazardous wastes are also considered. Efforts to manage ODS wastes in an environmentally sound way can be supported, in parallel with managing wastes from other hazardous chemicals and efforts to mitigate climate change (GEF, 2009). Pilot destruction activities are planned for under the USD 550 million and USD 650 million scenarios.

5. CONCLUSION

Despite likely significant increases in GEF finance for Stockholm Convention implementation, available funds will be nowhere near the estimated demand of USD 4.49 billion for 2010-2014 (for these 68 parties), a figure which is itself, likely to be significantly underestimated.

There is a clear need for innovative measures to respond to these needs that outweigh current financing resources. To be sustained in the long-term, the cost of managing chemicals requires internalization. The economic instruments to achieve this generally require institutionalization at the national level. In response to this need, UNEP Chemicals are developing a guidance document on economic instruments for chemicals and wastes management. The guidance will be tested in six national workshops in developing countries and countries with economies in transition in 2010, and pilot projects are planned thereafter (UNEP, 2010a). Capacity building activities funded under GEF will be vital in order to enable sufficient capacity in developing country governments to facilitate such internalization.

Additional efforts to increase resources for chemicals and waste management, that is resources under the Stockholm, Rotterdam and Basel Conventions, and the Strategic Approach to International Chemicals Management (SAICM), was initiated by the UNEP Executive Director amid growing concerns by parties at COP4, where developing countries and countries with economies in transition stressed the importance of adequate financial and technical assistance as essential requirements for the establishment of an effective compliance mechanism (UNEP, 2010b). The Consultative Process on Financing Options for Chemicals and Wastes was initiated to seek advice from governments and other stakeholders on how to respond to the growing recognition of the urgent need to secure adequate financial means and strengthened capacity building, including institutional strengthening, and technical assistance towards the implementation of the chemicals and wastes agenda, and the importance of linking obligations to financial and technical assistance (UNEP, 2010b). This informal process is occurring in parallel with the synergies process discussed above.

This informal consultative process has made several recommendations for the financing of chemicals and wastes, including the potential to leverage greater donor funding by "packaging" chemicals and wastes issues more attractively by linking the issue with with human health, livelihoods, and poverty reduction. Non-traditional financing options were also considered, including the potential to: extend pilot programmes on chemicals leasing, currently being trialled through National Cleaner Production Centres; developing incentives to encourage industry to reform and build on the Green Economy; and instituting economic instruments (UNEP, 2010b).

While at this stage none of the policy recommendations have been implemented, the Consultative Process is set to continue, and to report to the Third Session of the International Conference on Chemicals Management (ICCM3) in 2012. This process is likely to increase awareness and raise the profile of the financing needs of the chemicals and wastes conventions, as well as the potential to use innovative financial mechanisms to begin to bridge the mismatch between chemicals and waste management "needs" and available "resources."

While the above activities are promising, there is a need to mobilize additional financial resources for implementation expeditiously, and to prioritize the use of these resources with an eye towards the Stockholm Convention's implementation goals. Most parties have now completed their NIPs setting out how they intend to meet Convention obligations, yet some of these NIPs were completed as early as 2005. There is a risk that delayed finance will lead to the temptation to update NIPs, especially as these NIPs will have to be updated to include the newly listed POPs. Rather, a two-track process may be necessary to maximize available financial resources: one that can ensure revised planning (to address new POPs) while also prioritizing the implementation of already identified country plans.

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CHEMICALS AND WASTES: A MODEL FOR CLUSTERING MEAS, OR MORE COMPLICATED THAN APPEARANCES?

Urs P. Thomas•

• Urs P. Thomas, PhD is the Administrator of EcoLomics International. This research has emerged from earlier research carried out in 2007/08 at the Law Faculty of the University of Geneva under the direction of Prof. Anne Petitpierre thanks to financing from the Geneva International Academic Network. It has benefitted from discussions with a number of experts in the relevant secretariats and other (inter)governmental organizations, and with academic researchers. I am very thankful for this support. All errors and omissions are my sole responsibility. An early version of this paper has been presented at the 2009 Convention of the International Studies Association in New York, NY. Comments on this ongoing research are very welcome. Contact: Urs P. Thomas <trade.env@EcoLomics-International.org>

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ABSTRACT

The Basel, Rotterdam and Stockholm Conventions on the environmentally sound management of international shipments of hazardous chemicals and wastes are all located in Geneva which facilitates their cooperation in many ways. This paper first discusses specific aspects of these conventions: technical cooperation as a key component of capacity building for the environment, and trade-related environmental measures. I shall argue that in this domain where technology-related issues are often impossible to quantify and to illustrate, activities like awareness-raising, identification of problems and planning possible solutions, as well as communication and public information, must precede the actual technology transfer. Despite a wide consensus on the importance of capacity building and technology transfer, relatively little research has been undertaken on the effectiveness of existing legal and institutional arrangements for promoting the development and dissemination of environmentally beneficial technology and on related trade issues, especially with a focus on these conventions. In the same sense, the literature on trade and environment has paid relatively little attention to these three conventions.

This may change as efforts to strengthen the effectiveness of these conventions are being discussed and negotiated more extensively. A crucial step in this direction of furthering cooperation and coordination has been realized very recently thanks to a joint Extraordinary Conference of the Parties (ExCOP) of all three conventions in Bali, Indonesia, in February 2010. This Conference which very significantly took place back-to-back with the 11th Special Session of UNEP's Governing Council represents a successful, even historic event in the negotiation of Multilateral Environmental Agreements (MEAs) because it has been preceded by a very thorough preparatory process focused on increasing synergies among these conventions. As a result, the outlook for an improved management of these three chemicals and wastes conventions – supported significantly through UNEP's leadership - looks better now than ever. UNEP in fact has been successful, through the achievements of these two meetings, to re-launch is *International Environmental Governance* initiative which was launched in 2002, but which has failed so far to show major results. The conclusion of this analysis emphasizes the need to make a clear distinction in these clustering and governance efforts between those MEAs which contain significant trade-restricting measures and those which don't. In the same spirit, the creation of a high profile hub in Geneva mandated to focalize, support and facilitate the interactions of these trade-related MEAs with the WTO is advocated in order to provide MEAs with a more even playing field vis-à-vis the centralized and tightly organized trade regime.

1. INTRODUCTION: CHEMICALS AND WASTES AS A GLOBAL ENVIRONMENTAL ISSUE

The question of the Environmentally Sound Management (EMS) of hazardous chemicals and wastes[317] represents undoubtedly one of humanity's greatest challenges in the domain of global environmental governance, regulation, and management. The importance and gravity of this challenge can be compared only with the most serious environmental concerns such as climate change and energy, the water/oceans/fisheries complex, or factors affecting biodiversity. It is not exaggerated to say that Rachel Carson's classic 1962 *Silent Spring*[318] has "launched the environmental movement" as the book cover of one of the recent reprints states. In spite of the seriousness, the increasing, stealthy and ubiquitous spreading of chemical pollution, and in spite of the related widely recognized threats to public health and the environment, such issues are situated very low in the priority list of public concerns. The attention given to this burden on the planet due to human activities and indifference does not come close to the media coverage given to the other above-mentioned environmental hazards. Nevertheless, some excellent publications have recently appeared on the bookshelves which will hopefully contribute to a heightened awareness of these perils.[319]

The city of Geneva is at situated at the very center of this challenge given that its *International Environment House*[320] accommodates the three most important Multilateral Environmental Agreements (MEAs) in this issue area. The mandate of each one of them is distinct, but they all operate in the same broad sector. This related mandate has of course been the most important reason for the decision of their parties to locate these conventions in the same place, given also that such a decision was favored by the Swiss government and supported with financial and other incentives. These three MEAs are

- the Convention on Transboundary Movements of Hazardous Wastes and Chemicals, i.e. the Basel Convention,[321] [322]
- the Rotterdam Convention on Prior Informed Consent,[323] [324] and
- the Stockholm Convention on Persistent Organic Pollutants.[325] [326]

[317] See the article on Environmentally Sound Management by Mirina Grosz and Pierre Portas in this publication.
[318] Carson, Rachel. 1962, reprint 2002. *Silent Spring, Fortieth Anniversary Edition.* New York NY: Mariner Books/Houghton Mifflin Co., 380 p.
[319] See e.g. Colborn, Dumanoski and Myers 1996, Ackermann 2008, Selin 2010.
[320] International Environment House: http://www.environmenthouse.ch/
[321] Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Text of the Convention: http://www.basel.int/text/con-e-rev.pdf
[322] See the article on encouraging the environmentally sound and economically viable recycling of car batteries in the Philippines by Ulrich Hoffmann in this publication.
[323] The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. Text of the Convention: http://www.pic.int/en/ConventionText/ONU-GB.pdf
[324] See the article on the Rotterdam Convention by Urs P. Thomas in this publication.

Thanks to important commonalities, there are many areas where their tasks are to some extent similar. These similarities require patterns of cooperation which need to be well structured and carefully planned, because of the potentially huge dangers which may result from leaks, spills and other accidents and incidents related to the international transport of hazardous substances. The three conventions are administered by the United Nations Environment Programme (UNEP), except the Rotterdam Convention which is administered jointly by the UN Food and Agriculture Organization (FAO) and UNEP because FAO has accumulated a very extensive expertise on the use of pesticides over numerous years.

In addition, one should keep in mind four important bodies with complex interconnected mandates, as well as two others which are discontinued now but which played important roles until very recently:

- UNEP Chemicals in Geneva is a Branch of the Paris-based UNEP Division of Technology, Industry and Economics UNEP-DTIE.[327]
- The *Strategic Approach to International Chemicals Management* (SAICM, Geneva)[328] [329] is a relatively new ambitious comprehensive institutional framework being developed with the objective of becoming an effective instrument of international chemicals policy.[330] It has developed a Quick Start Program that has its own trust fund.[331] Its Secretariat in Geneva is administered by UNEP,[332] which is mandated to support SAICM's implementation.[333]

  It should be emphasized that SAICM has been given a key role in the development and implementation of regulations regarding nanomaterials (for details see Annex 2 containing an in depth report on this issue prepared by the Center for International Environmental Law [CIEL]).[334]
- The Inter-Organization Programme for the Sound Management of Chemicals (IOMC), whose Secretariat is administered by the World Health Organization (WHO), Geneva.[335]
- The Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. The Aarhus Convention is not a global agreement, it pertains to the UN Economic Commission for Europe (UNECE which includes e.g. the US, Canada, and the Russian Federation). This convention's key mandates influence the

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[325] Stockholm Convention on Persistent Organic Pollutants. Text of the Convention: http://www.pops.int/documents/convtext/convtext_en.pdf

[326] See the article on the Stockholm Convention by Pia M. Kohler and Melanie R. Ashton in this publication.

[327] http://www.chem.unep.ch/

[328] http://www.saicm.org/index.php?menuid=-1&pageid=300&submenuheader=

[329] See the article on SAICM by Hamoudi Shubber in this publication.

[330] Franz Xaver Perrez. 2006. The Strategic Approach to International Chemicals Management: Lost Opportunity or Foundation for a Brave New World? *RECIEL* 15 (3): 245-258.

[331] http://www.saicm.org/index.php?menuid=25&pageid=259

[332] http://www.saicm.org/index.php?ql=h&content=home

[333] http://www.chem.unep.ch/unepsaicm/default.html

[334] http://www.ciel.org/Publications/CIEL_NanoStudy_May09.pdf

[335] http://www.who.int/iomc/en/

negotiations of all agreements and bodies involved in the regulation and management of chemicals and wastes. [336]

- The Intergovernmental Forum on Chemical Safety (IFCS, WHO, Geneva),[337] whose activities were wrapped up, at least provisionally, subject to a later confirmation, in SAICM in 2009. The intention is to integrate the IFCS into SAICM functioning as an advisory body of SAICM's governing body, the International Conference of Chemicals Management (ICCM).[338] Its origins go back to a Resolution of the World Health Assembly in 1977.[339]
- The Ad Hoc Joint Working Group (AHJWG)[340] whose mandate consisted, from 2007 to 2008, in enhancing cooperation, coordination and synergies among the three conventions.

2. TECHNICAL COOPERATION: ADDRESSING THE PRECONDITIONS FOR ENVIRONMENTALLY SOUND MANAGEMENT

Capacity must Precede Implementation

The least developed countries and developing countries in general tend to suffer from lack of preparedness, awareness, scientific and technological knowledge, training and infrastructures with regard to the environmentally sound management of hazardous chemicals and wastes at all levels. These shortcomings include e.g. equipment such as sampling instruments, analytical laboratories, protective clothing, construction machinery for the preparation of disposal sites and so forth. These difficulties of course can be explained by the lack of available funding. In light of what is arguably a reality, namely that enough financing will never be available, it is particularly important to address this problem in the most efficient way. In order to maximize efficiency and effectiveness, these shortcomings need to be identified as exactly as possible. Whatever funding is available can then be applied where it is most effective in order to work toward this goal.

Sagar and VanDeveer introduce the term *capacity development for the environment* (CDE) for which they imply a very comprehensive meaning. The authors have reviewed the literature on CDE and summarize it by noting that "capacity" is a central factor. They note, however, that too often the concept of capacity is treated too lightly simply as a background condition, and the range of capacities which are required to institute long-term environmental management policies tends to be overlooked.[341] They also take issue with what they consider the wrong emphasis on implementation. Developing domestic processes to implement international

[336] http://www.unece.org/env/pp/
[337] http://www.who.int/ifcs/en/
[338] This decision was taken at the 2009 International Conference on Chemicals Management (ICCM-2) in Geneva, subject to confirmation at ICCM-3, see http://www.saicm.org/index.php?content=meeting&mid=42&def=1&menuid=9
For details see: http://www.iisd.ca/vol15/enb15175e.html; http://www.iisd.ca/download/pdf/enb15175e.pdf
[339] Rune Lönngren. 1992. *International Approaches to Chemicals Control, a Historical Overview.* Stockholm: Keml, 254.
[340] http://ahjwg.chem.unep.ch/
[341] Ambuj D. Sagar and Stacy D. VanDeveer. 2005. Capacity Development for the Environment: Broadening the Scope. *Global Environmental Politics* 5 (3): 14-22.

agreements is one thing, they point out, more important for environmental management, however, is to strengthen public-sector capacity in a broader sense:

> While a focus on implementation capacities remains important, an emphasis on such issues effectively "puts the cart before the horse" if equal attention is not paid to capacity issues associated with the "upstream" aspects of policy-making, including agenda-setting, framing, analysis, and policy development and design. The growing (generally Northern-driven) focus within CDE discussions on implementation may fail to accurately diagnose and resolve potential sources of incapacities associated with problem framing, knowledge generation and use, and making joint, well-informed, and equitable policy decisions – all of which can significantly hobble the effectiveness of environmental (or sustainable development) policies.[342]

In order to strengthen these "upstream" aspects of policy and regulatory frameworks Sagar and VanDeveer emphasize factors such as the capacity to recognize and analyze environmental problems and their causes, and the technical and managerial capacities required to implement MEAs. This view may depend on the MEA in question; in the case of the chemicals and wastes conventions it is particularly pertinent due to the often significant levels of scientific and technical knowledge required, due to the importance of a clear understanding of the regulatory and other legal procedures and provisions, and due to the potentially huge and long-term dangers posed to humans, animals and plants by toxic substances, and the sometimes very far reaching, long lasting unforgivable consequences of spills or other accidents.

Sagar and VanDeveer therefore emphasize that in many cases institutional models and expertise from industrialized countries cannot be easily transposed to a developing country context where the technical and scientific wherewithal is often not up to the task of implementing the provisions of an MEA. They argue, as a consequence, that a comprehensive, multidisciplinary and integrated approach is often most effective:

> Thus, assessing environmental problems and their potential solutions may require multiple types of expertise – scientific, technical, economic, legal, social science – and their utilization in an integrated approach.[343]

The handling of hazardous chemicals and wastes requires this kind of an integrated and comprehensive approach which includes a good understanding of the dangers at stake based on a clear communication of the risks involved in handling certain materials.[344] In many cases of capacity building it would be more appropriate to speak of the transfer of technological systems; these include all *software* and *hardware* components, starting with the capacity to realize that there is indeed a problem thanks to the specific knowledge of the nature of the problem and the solutions which are available. Public authorities need to achieve a systemic understanding of toxicity issues before they are in a position to discuss and negotiate the acquisition of appropriate technical tools, as well as their installation and the

[342] *Ibid.* 16.
[343] *Op. cit.* 17.
[344] For an up to date and in depth discussion of risk management with regard to Chemicals see: Chapman, Anne. 2007. Democratizing Technology - Risk, Responsibility and the Regulation of Chemicals. London: Earthscan, 181 p.

required training. In light of the enormous needs in many instances, the term of capacity development for the environment is very appropriate even though somewhat too broad in the context of chemicals and wastes management. I would therefore suggest the use of the term *technical cooperation* which has been suggested by UNCTAD (See Annex 3 for the Main Analytical Points of UNCTAD's 2009/2010 Trade and Environment Review).[345] It is broader than technology transfer but more focused than capacity development. Technical cooperation includes all those elements which are required as prerequisites and as accompanying measures in order to make technology transfer focused on the actual transmission of specific technologies ultimately successful. Technical cooperation as such of course would be much too wide a focus; we are limiting ourselves here to the domain of the chemicals and wastes conventions. An important point is that technical cooperation differs from technical assistance in its focus on the implication of several organizations involved in education and training activities:

> UNCTAD´s technical cooperation is provided in partnership with other agencies providers of trade related technical assistance, in consonance with respective mandates, expertise and areas of comparative advantage. This partnership and co-operation helps to minimize the incidence of duplication, results in the creation of synergies and insures sequencing of activities.[346]

The focus on trade mentioned in this citation is not a prerequisite for the use of the term technical cooperation but it happens to be very pertinent in our case because, as we shall see, the trade-related aspects of these three conventions are very important and pose serious challenges to developing countries. This focus on technical cooperation, as the term is used by UNCTAD, rather than the more one-to-one orientation of technical assistance, seems particularly appropriate for capacity building activities in the waste and chemicals field because several organizations and organisms in addition to the three convention secretariats are involved in these activities, and their cooperation and maximization of synergies is therefore particularly important.

This focus on capacity building in our particular domain has received strong support from two chapters of the 1992 Rio Conference's *Agenda 21;*[347] at the same time one may observe that capacity building has become a dynamic and important sector of official development assistance. Nevertheless, VanDeveer and Dabelko consider that important questions in capacity building remain neglected in academic research, especially (1) the various types of lack of capacity, and (2) the evaluation of the domestic impact and the effectiveness of various types of capacity-building programs (including the training and education of technical personnel).[348] They have

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[345] For an in depth discussion of Green Economy practices see UNCTAD. 2009/2010. *Trade and Environment Review. Promoting Poles of Clean, Growth to Foster the Transition to a more Sustainable Economy*. New York and Geneva: United Nations. 231 p.
http://www.unctad.org/Templates/WebFlyer.asp?intItemID=5304&lang=1

[346] UNCTAD´s technical cooperation at the service of trade and development:
http://www.unctad.org/Templates/Page.asp?intItemID=1479&lang=1

[347] Chapman, *op. cit.* Chapter 19 : Environmentally sound management of toxic chemicals, including prevention of illegal international traffic in toxic and dangerous products. Chapter 20: Environmentally sound management of hazardous wastes, including prevention of illegal traffic in hazardous wastes.

[348] Stacy D. VanDeveer and Geoffrey D. Dabelko. 2001. It's Capacity, Stupid: International Assistance and National Implementation. *Global Environmental Politics* 1 (2): 18-30, 19.

studied a number of official development assistance programs in two specific issue areas, namely
Combating Marine Pollution, and cleaning up nuclear legacies from the Cold War.
Their conclusion is that there is a lack of understanding in the policy literature regarding what works, why it works, and what we can learn from pilot programs.[349]

The Importance of Tacit Knowledge

Both technology transfer in a specific and focused sense and technical cooperation in its more comprehensive meaning are crucial parts of the capacity building process. Of particular relevance for technical cooperation, as Lynn Mytelka emphasizes, is the notion of *tacit knowledge*[350] which would undoubtedly deserve more attention. The significance of tacit knowledge, introduced by Giovanni Dosi,[351] is subsumed as follows:

> Some aspects of knowledge are well articulated and can be codified into drawings and plans, written up in books and taught in schools. Others are largely tacit, learned in the course of doing an activity such as research or operating a machine. Transfer of tacit knowledge takes place through training and apprenticeship.[352]

Tacit knowledge plays a crucial role in technical cooperation with regard to hazardous waste and chemicals because of the importance of the awareness of workers and local residents of toxicity which is often invisible. Such awareness which may be generated through brief and informal discussion may prevent serious health problems or even fatalities.

An increasingly important role is being played by industries in the various sub-domains of the management of hazardous chemicals and wastes. In some instances industry cooperation with regulatory agencies and convention Secretariats has been constructive and benefiting from international linkages and in-depth technological capacities:

> Multinational waste management firms have made considerable efforts to be seen as a "green" industry, part of the environmental technology solution, not part of the problem, and have taken advantage of their expanded global reach to push for stronger regulations in many cases.[353]

A more and more globalized waste management "template" is emerging in some regions such as in South East Asia. Such templates are characterized by attempts to harmonize regulatory frameworks as well as technological solutions to similar

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[349] VanDeever and Dabelko, *op. cit.* 27.

[350] Mytelka, Lynn. 2007. Technology Transfer Issues in Environmental Goods and Services - An Illustrative Analysis of Sectors Relevant to Air Pollution and Renewable Energy. Geneva: ICTSD Issue Paper No. 6, pp. 3 and 26. http://www.ictsd.org/pubs/ictsd_series/env/2007-04-L.Mytelka.pdf

[351] Giovanni Dosi. 1988. The Nature of the Innovative Process, in *Technical Change and Economic Theory,* edited by Giovanni Dosi, Christopher Freeman, Richard Nelson, Gerald Silverberg and Luc Soete. London: Pinter Publishers, 656 p.

[352] Mytelka *op. cit.* footnote 4, referring to Dosi, 1988.

[353] Kate O'Neill, 2001. The Changing Nature of Global Waste Management for the 21st Century: A Mixed Blessing? *Global Environmental Politics* 1 (1): 77-98, 78.

problems through public-private partnerships (PPPs) and the construction of modern, integrated disposal facilities.[354] The large Western market leaders are in a position to supply an integrated package of financing, technological know-how and experience in the construction of waste treatment and disposal installations. Governments have been pushed into action and forced to assume the responsibility for environmental crimes in some cases, as for instance in 1998, when a Taiwanese firm dumped hazardous waste in Cambodia in a populated area, and Taiwan was obliged to accept the return of these wastes after several other countries including France and the US refused to take them in.[355]

The handling of hazardous wastes and chemicals requires this kind of an integrated and comprehensive approach which includes a good understanding of the dangers at stake based on a clear communication of the risks involved in handling certain materials. A particularly appalling example in various Asian and African sites that has been repeatedly documented photographically in the media are workers dismantling electronic equipment and ship wrecks under unprotected exposure to heavy metals and other toxic chemicals, made worse by run-offs from these sites into the ground water.[356]

The three Conventions emphasize this need for strengthening both technical and institutional capacity. Thus they have organized numerous training and awareness-raising workshops, they have introduced methodological tools for environmentally sound management, they have published numerous legal, technical and scientific guidelines and training manuals, and they continue to do so in ways which reflect the strength of each of them: The Basel Convention has established Regional Centers,[357] the Rotterdam Convention which has a bicephalous Secretariat shared between FAO in Rome and UNEP in Geneva emphasizes agricultural pesticide management in conjunction with FAO's expertise in this matter,[358] and the Stockholm Convention has a special status thanks to its access to funding from the Global Environment Facility.[359] Other activities to support capacity building for the environment in this domain consists in activities like improving communication and information flows, in strengthening and helping to coordinate the national policy-making process, or in harmonizing national laws and policies.[360] Unfortunately, as other MEAs, these conventions are woefully underfunded for the realization of the mandate given to them by their parties, an observation, incidentally, which has always been applicable equally to UNEP ever since it was created in 1972.

To conclude this section, it seems appropriate, as Selin points out for good reasons, to emphasize that the environmentally sound management of chemicals and wastes is based on a number of principles and procedures which have entered Public International Law over the past few years at least at the level of *soft law.* Perhaps the most important one is the precautionary principle, which, as I shall point out in the discussion on trade-related aspects, is situated - somewhat uneasily - between Public International Law and WTO law. Other important principles are the

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[354] *Ibid*. 90.
[355] *Ibid.* 91.
[356] For instance Claire Doole. Le commerce des nouveaux déchets toxiques explose. *Le Courrier* 15 mars 2008, p. 7.
[357] http://www.basel.int/centers/centers.html
[358] See for instance http://www.fao.org/docrep/008/ae947e/ae947e0k.htm
[359] http://www.gefweb.org/interior.aspx?id=246&ekmensel=c580fa7b_48_134_btnlink
[360] Guide to Cooperation on the Basel, Rotterdam and Stockholm Conventions. UNEP, Geneva, 2004, 12 p.

polluter-pays principle, which is included in the Stockholm Convention, and the Prior Informed Consent Principle which of course represents the *raison d'être* of the Stockholm Convention. One should also emphasize here that the principle of common but differentiated responsibilities represents really the bedrock of all three conventions since they are all based on the premise that the industrialized countries, which have in most cases invented and introduced these hazardous substances, have an ethical obligation, not to mention an enlightened self-interest, to assist developing countries and economies in transition to reach the capacities necessary for environmentally sound management of these substances. Furthermore, as Selin points out, there are procedures and mechanisms which have been incorporated and implemented by the three conventions in differing degrees, such as Chemicals Review Committees, Compliance Committees, and the review and support of progress in the implementation of the negotiated general goals and specific objectives.[361] Another concept which is strictly speaking neither a principle nor a procedure in a legal sense is life cycle regulation, but it cannot be over-emphasized as a guiding principle for hazardous chemicals and wastes:

> The different treaties that constitute the core of the regime introduce life cycle regulations of a small set of hazardous chemicals, covering their production, use, trade, and disposal. The Stockholm Convention is the only treaty that focuses on all parts of the life cycle; the other treaties cover only parts of it.[362]

3. CHALLENGES FOR TECHNOLOGY TRANSFER: INVISIBLE CONTAMINATION, SCIENTIFIC UNCERTAINTY, AND DEADLY CONSEQUENCES

Technology: Where you Stand Depends on Where You Sit

The perception of technology can be subsumed by the old saying "where you stand depends on where you sit," i.e. simplified somewhat, it is very different in the North than it is in the South. That applies even more to technology transfer which consists primarily in the flow of technology-related knowledge from the North to the South and to the East. Closely related to this observation is another very crucial one, namely that technology transfer is closely related to financial considerations, and here too, we have in most cases the same North-South flow of both foreign direct investments and portfolio investments. The situation is starting to change slowly by increased foreign direct investments in industrialized economies originating from developing countries, especially China, India Brazil, South Africa and Mexico, but for the time being these represent the exceptions which confirm the rule.

The question arises as to how we can use a discussion on the role of technology, and more specifically of technology transfer, in order to draw relevant conclusions for our chosen subject area. An interesting general and cross-sectoral research question here consists in evaluating the potential for designing and implementing what is often called a win-win-win scenario: the idea is to achieve gains on three fronts at the same time, i.e. (1) the reduction of tariffs and non-tariff

[361] Henrik Selin. 2010. *Global Governance of Hazardous Chemicals – Challenges of Multilevel Management.* Cambridge, Mass.: MIT, 356 p., 164-66.
[362] *Ibid.* 165.

barriers[363] on environmental goods from which mostly industrialized countries can benefit, (2) increased investments in appropriate environmental technologies resulting in better capacities to face environmental problems in the importing country, and - (3) in certain developing countries where the necessary infrastructure conditions are fulfilled - an improved export potential for environmental goods leading to economic benefits in the developing country thanks to the importation of Environmental Good and Services (EGSs).[364] Environmental technologies tend to consist in packages of both goods and services, and often involve intellectual property rights (IPRs) considerations which may complicate the analysis. The fact that these goods, services and IPRs are often tied up in a conundrum that embraces conflicting interest groups are an important reason why the CTESS negotiations on Environmental Goods and Services under para. 31.3 of the Doha Declaration have been so arduous - in fact especially at the beginning of the negotiations many developing countries experienced difficulties even in defining their national objectives in this realm.[365]

Aggregate statistics on the relation between the reduction of tariffs and the resultant increase in trade volume do not necessarily apply to certain specific kinds of technologies such as those which are used in environmental or chemical management. This sector is of a very different nature compared with let us say the sectors of transportation, communication, energy, or construction. In all these cases the transfer of technology leads to technological improvements which are visible and measurable, e.g. in kilometers of paved roads, in the performance of antennas, in kilowatt hours, or in the cost and speed of building up certain building volumes or achieving heating or air condition efficiencies with regard to thermal insulation. That is very different in domains like the clean-up of chemical spills, disposals of hazardous waste products, safety improvements in truck or rail shipments, and even more so in the reduction, reduced generation, or disposal of toxic substances in any given production process. An avoided toxic incident is practically impossible to quantify for statistical purposes.

Furthermore, contaminations from these hazardous products are often invisible and it may take years after an incident such as a spill of toxic chemicals or an illegal dumping of hazardous wastes occurred for the poison to work its way through geological strata into the ground water and from there into drinking water reserves. Even once this has occurred it may take many more years for medical problems such as cancer or infertility to manifest themselves, and even when they occur they may happen in poverty-stricken areas where relevant statistics are simply not being maintained, or where the source of the contamination is very difficult to pinpoint. To make matters still worse, corruption may constitute an enormous problem for remedial work, medical attention and compensation, as for instance in

[363] Steenblik, Ronald. 2005. Liberalising Trade in "Environmental Goods:" Some Practical Considerations. OECD Trade and Environment Working Paper No. 2005-05, Joint Working Party on T&E, 23 p.

[364] Robert Howse and Petrus van Bork. 2006. *Options for Liberalizing Trade in Environmental Goods in the Doha Round.* Geneva: ICTSD Issue Paper No. 2, 32 p.

[365] For a detailed analysis of the WTO's negotiations on Environmental Goods under the Doha mandate see Matthew Stilwell. 2008. Advancing the WTO Environmental Goods Negotiations: Options and Opportunities. *EcoLomics Occasional Paper Series* No. (1) 31 p. http://www.ecolomics-international.org/headg_eops.htm

the 2006 illegal dumping in Abijan.[366] Such delays easily transcend the political time horizons of politicians, regulatory authorities, enterprises, not to mention the population at large which may not even be informed about such risks and dangers for a long time.

In these cases it is often not only the problem which is invisible and very difficult if not impossible to quantify reliably but also the solution or the technological improvement. Furthermore, there is often a lack of awareness of the concerned public or stakeholders of the dangers involved in manipulating certain chemicals such as pesticides or insecticides, which may represent a hurdle for the introduction of technological changes that tend to be more expensive, more cumbersome to apply, or more time-consuming.

The Need for a Systemic Approach which Includes the 'Human Element'

This description of our subject area does not mean, however, that it is a unique case with regard to technology transfer which justifies a special treatment. This is not the case, in fact other sectors have been singled out in the technology studies literature in the sense that activities and infrastructures related to technology transfer can be very complex and go far beyond a simple importation of technologically advanced goods and the concomitant training of the operators involved. The Consultative Group on International Agricultural Research (CGIAR) is an interesting example in this sense. It faces the double pressures of a shrinking budget and the fact that it is caught between public and commercial biotechnology-related agricultural research and technology with complex challenges such as political, scientific, commercial, environmental, developmental, ethical and other constraints which go far beyond the question of technology transfer *sensu stricto.*[367] In a similar vein, the case of transboundary movements of hazardous wastes and chemicals constitutes a subject area in which the role of technology and technology transfer need to be investigated in their own very specific context and application, and observations and conclusions gained in the wider, more broad ranging discussion of technology transfer may be inapplicable or not very pertinent to this domain. The study of these conventions shows a parallel with the above-mentioned CGIAR in so far as important qualitative variables need to be taken into consideration which probably can't or shouldn't be quantified or generalized. In other words, it needs to be emphasized that in our case we should look at technology transfer in a systemic approach in which the *interaction* between economic variables, technological considerations, ecological realities on the ground, and the 'human element' plays a crucial role.

This often invisible nature of a chemical contamination as well as the usually very technical nature of its scientific description and of the medical concerns show

[366] 580 tons of toxic chemicals were dumped illegally from the *Probo Koala* in Abidjan, Côte d'Ivoire, on 19 August 2006. The vessel started from Amsterdam, under the Panamian flag of conveniance, owned by a Greek shipping company, chartered by the Dutch trading company Trafigura. Isolda Agazzi. La Côte d'Ivoire toujours contaminée par les déchets toxiques. *Le Courrier (Genève)*, 30 août 2008 p. 9. Christine D'Anna-Huber. Schmutzige Geschäfte mit Todesfolgen. *Tages-Anzeiger (Zürich)* 20.9.2006, p. 10.

[367] John H. Barton, 2007. *New Trends in Technology Transfer*. Geneva: ICTSD Issue Paper No. 18, 41 p. (p. 10).

the importance of adequate public disclosure of possible toxic emissions,[368] both in the restoration of contaminated land as well as in the proactive prevention of such incidences. A problem with the Basel, Rotterdam and Stockholm Conventions in this context lies in the perhaps unavoidable fact that the ultimately responsible actors are primarily national governmental agencies in the countries at risk of chemical contamination. It is up to responsible government bodies to develop and implement regulatory frameworks and to force private industries to assume their legal responsibility where this is possible. Unfortunately, in many cases, that is not possible, either because illegal dumps are so old that the perpetrators cannot be established anymore, or because they have gone bankrupt, or because a disposal operation was planned from the beginning as an illegal operation which managed to cover up its tracks. The systematic criminal disposal practices over a prolonged period of time in Naples which generated worldwide headlines at the beginning of 2008 are a striking example of such illegal schemes.[369] In such cases governmental authorities wind up having to assume the responsibility for compensating victims of poisoning or other injuries.

The extent to which governmental agencies provide the public at large with information which is related to the risk of shipping hazardous substances varies widely from one country to another and undoubtedly also within countries. The issue of informing the public at large is very significant in MEAs in general, and it is addressed specifically by the 1998 Aarhus Convention on access to environmental information administered by the UN Economic Commission for Europe.[370] The convention has entered into force in 2001, however its very important 2003 Kiev Protocol on Pollutant Release and Transfer Registers (PRTR)[371] has not been ratified yet. The Protocol is more specific and constraining than the convention:

> The Protocol is the first legally binding international instrument on pollutant release and transfer registers. Its objective is "to enhance public access to information through the establishment of coherent, nationwide pollutant release and transfer registers (PRTRs)." PRTRs are inventories of pollution from industrial sites and other sources.
>
> Although regulating information on pollution, rather than pollution directly, the Protocol is expected to exert a significant downward pressure on levels of pollution, as no company will want to be identified as among the biggest polluters.[372]

In view of the crucial importance of informing the various stakeholders including the public at large about the incidence and severity of actual and potential contamination related to trade in hazardous wastes and chemicals, we can see that the Aarhus Convention needs to be kept in mind in the discussion of our three conventions. Access to environmental information is absolutely essential for capacity building and technical cooperation in the ambit of these three Conventions. It is perhaps not a

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[368] Jeniffer Clapp and Peter Dauvergne. 2005. *Paths to A Green World: The Political Economy of the Global Environment.* Cambridge, MA: MIT Press.

[369] See for instance http://forum.greenpeace.org/int/showthread.php?p=50843

[370] Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. Introduction: http://www.unece.org/env/pp/welcome.html
Text of the Convention: http://www.unece.org/env/pp/documents/cep43e.pdf

[371] http://www.unece.org/env/pp/prtr/docs/PRTR_Protocol_e.pdf

[372] From the Protocol's Web site http://www.unece.org/env/pp/prtr.htm

coincidence that all four Convention Secretariats are located in Geneva. On the other hand, it should be kept in mind that the Aarhus Convention as an UNECE-administered agreement is open for signature primarily to UNECE states.[373] Even though it is not an MEA in the global sense like the three other conventions, and even though the US and Canada are UNECE members but not parties to the convention, the adoption and ratification by several economies in transition give it a credibility which goes beyond the narrow confines of the industrialized world.[374] The former UN Secretary-General Kofi A. Annan has commented on the achievements of the convention as follows:

> Although regional in scope, the significance of the Aarhus Convention is global. It is by far the most impressive elaboration of principle 10 of the Rio Declaration, which stresses the need for citizen's participation in environmental issues and for access to information on the environment held by public authorities. As such it is the most ambitious venture in the area of environmental democracy so far undertaken under the auspices of the United Nations.[375]

The Geneva-based UNEP-UNCTAD Capacity Building Task Force (CBTF) has recently concluded an important preliminary analysis of MEA experiences in identifying and facilitating technology transfer[376] which covers, among others, the Basel and the Stockholm Conventions.[377] The Basel Convention also contains several references to technology and to the need to assist developing countries in the improvement of their capacities in this domain. The fifth Conference of the Parties (COP) in 1999 adopted the *Basel Declaration on Environmentally Sound Management* which emphasizes the transfer and use of cleaner technologies as one of the fundamental aims of the convention and as one of the key objectives for the first decade of the new millennium.[378] The parties have mandated the establishment of an Open-ended Working Group (OEWG) which over the years has created over thirty methodological guidance documents for the achievement of environmentally sound waste management practices, among other avenues, through the

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[373] Article 17 - Signature
This Convention shall be open for signature at Aarhus (Denmark) on 25 June 1998, and thereafter at United Nations Headquarters in New York until 21 December 1998, by States members of the Economic Commission for Europe as well as States having consultative status with the Economic Commission for Europe pursuant to paragraphs 8 and 11 of Economic and Social Council resolution 36 (IV) of 28 March 1947, and by regional economic integration organizations constituted by sovereign States members of the Economic Commission for Europe to which their member States have transferred competence over matters governed by this Convention, including the competence to enter into treaties in respect of these matters.

[374] The list of countries having signed respectively ratified the Convention and the 2003 Kiev Protocol on Pollutant Release and Transfer Registers is available at
http://www.unece.org/env/pp/ctreaty_files/ctreaty_2007_03_27.htm

[375] Kofi A. Annan, former Secretary-General of the United Nations (1997-2006)
http://www.unece.org/env/pp/

[376] UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development (CBTF). 2007. A Preliminary Analysis of MEA Experiences in Identifying and Facilitating the Transfer of Technology -- *What Insights Can Be Drawn for the WTO EGS Negotiations?* Principal author: Constanza Martinez. 23 p.
http://www.unep.ch/etb/areas/pdf/MEA%20Papers/MEA_EGS%20Paper.pdf

[377] The other key trade-related Conventions covered are the CBD, CITES, and the Montreal Protocol.

[378] Decision V/1, http://www.basel.int/meetings/cop/cop5/ministerfinal.pdf

identification of hazard characteristics, appropriate technologies, and the elaboration of national plans.[379] In the case of the Stockholm Convention on Persistent Organic Pollutants, the CBTF analysis also stresses the importance of technology identification. In light of its more recent establishment, it is less advanced than the Basel Convention in the creation of regional centers. These are presently the subject of a feasibility study which includes an analysis of the respective experiences of its older sister convention. The POPs Convention regional centers are expected to function "similarly to or in partnership with those under the Basel Convention."[380]

4. TRADE-RESTRICTING MEASURES OF THE CHEMICALS AND WASTES CONVENTIONS and the World Trade Organization

The Relationship between WTO Agreements and MEAs

The three conventions are included in the ambit of the WTO's Division on Trade and Environment since they are part of a group of about twenty MEAs that contain significant trade-related provisions in their mandate. They therefore are concerned by the relatively broad and long-term discussions of its Committee on Trade and Environment (CTE), as well as by the very narrow and specific negotiations of the CTE in Special Session (CTESS) which carries out the relevant portions of the Doha Development Agenda negotiations. Furthermore, it should be emphasized that environment-related trade measures are very much discussed also in other WTO negotiating fora, such as especially the two Committees related to the Agreements on the Application of Sanitary and Phytosanitary Measures (SPS) and on Technical Barriers to Trade (TBT) respectively, and the GATT Council regarding exceptions under its Art. XX. Given the chemicals conventions' principal mandate of reducing international transports of hazardous materials, it is clear that their relationship with the WTO is less direct than that of certain other MEAs (such as the Cartagena Protocol of the Convention on Biological Diversity,[381] the FAO's International Treaty on Plant Genetic Resources for Food and Agriculture,[382] or the relation between trade and climate change.[383] Thus there is less of a need to balance judiciously trade-related and environment-related imperatives. Nevertheless, they fall into the general trade and environment debate in which of course the WTO always represents the underpinning framework.[384]

One of the guiding principles in WTO law consists in the harmonization of rules and regulations through the recognition and application of voluntary international standards and mandatory so-called technical regulations. The TBT

[379] http://www.basel.int/techmatters/index.html
[380] UNEP-UNCTAD Capacity Building Task Force 2007, *op. cit.* fn. 41p. 20.
[381] http://www.cbd.int/biosafety/default.shtml
[382] http://www.fao.org/AG/cgrfa/itpgr.htm
[383] Ludivine Tamiotti et al. 2009. *Trade and Climate Change – A Report by UNEP and the WTO*. Geneva: WTO, 167 p. Available at http://www.wto.org/english/res_e/booksp_e/trade_climate_change_e.pdf
[384] For a related more detailed discussion of the WTO's role and function in trade and environment matters see Urs P. Thomas. 2005. Oil or Sand in the Trade and Environment Machinery? The Doha Round at the WTO's 10th Anniversary. *EcoLomic Policy and Law*. (1), 1-32. http://www.ecolomics-international.org/headg_ecolomic_policy_and_law.htm

Agreement distinguishes between these voluntary and mandatory provisions,[385] whereas the SPS Agreement treats voluntary and mandatory international standards (such as the non-binding Codex Alimentarius), guidelines and recommendations at the same level.[386] The SPS Agreement ensures that an importing country which bases its non-tariff barriers or import restrictions, usually called 'measures,' on such internationally negotiated benchmarks will have a high level of certainty that they are WTO compatible.[387] The TBT Agreement uses a somewhat different language to convey essentially the same idea,[388] which means that an exporting country insisting on market access would very likely fail to obtain the DSB's approval as long as the trade restricting measures are in conformity with these benchmarks. The TBT Agreement and the SPS Agreement provide a framework based on the objective of international harmonization which in principle should provide the foundation for adjudicating most related potential litigations, as long as all litigants are parties of these conventions. Problems may well arise here, however, since the US has signed all three but it has not ratified any of them, and it has furthermore signed neither the Aarhus Convention nor its Protocol on Pollutant Release and Transfer Registers (PRTR). [389]

The trade policy aspects of these conventions need to be dealt with on two levels. On one hand we are dealing with environmental "goods" that are traded, especially technological equipment including related services, and in certain instances IPRs that are used for environmental management purposes. We must also not forget less directly connected but nevertheless important services such as education, training and communication. These aspects are essentially covered by the Doha Round's negotiations under para. 31.3 on Environmental Goods and Services

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[385] Annex I of the TBT Agreement stipulates that 'technical regulations' are mandatory, whereas 'standards' are voluntary:

1. *Technical regulation* Document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.

2. *Standard* Document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.

http://www.wto.org/english/docs_e/legal_e/17-tbt_e.htm

[386] SPS Agreement Annex A Definitions

http://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm

[387] SPS Art. 3. *Harmonization* - 3.2. Sanitary or phytosanitary measures which conform to international standards, guidelines or recommendations shall be deemed to be necessary to protect human, animal or plant life or health, and presumed to be consistent with the relevant provisions of this Agreement and of GATT 1994.

[388] Technical Regulation and Standards - Article 2: Preparation, Adoption and Application of Technical Regulations by Central Government Bodies - 2.4 Where technical regulations are required and relevant international standards exist or their completion is imminent, Members shall use them, or the relevant parts of them, as a basis for their technical regulations except when such international standards or relevant parts would be an ineffective or inappropriate means for the fulfilment of the legitimate objectives pursued, for instance because of fundamental climatic or geographical factors or fundamental technological problems.

[389] Contrary to the situation prevailing at the Convention on Biological Diversity and its Cartagena Protocol, countries don't have to be a Party to the Aarhus Convention in order to be able to sign or become a Party of the PRTR Protocol, which is an autonomous legal entity.

with a view to increase trade. On the other hand, there are environmental "bads" which the conventions aim at reducing, banning or replacing: these are primarily certain particularly toxic pesticides for agricultural applications and certain chemicals either used in manufacturing processes or else generated as hazardous by-products which are difficult to be avoided. In this regard we need to keep in mind that some of these "bads" which are banned in many countries, especially in the industrialized world, are still legally traded and used in some developing countries. Examples are Asbestos Chrysotile and certain pesticides such as Paraquat. DDT also is still used with official permission in some countries under certain conditions for combating malaria (as well as illegally as a pesticide!).

This situation could potentially lead to a legal challenge at the WTO -- and at the same time to a challenge *for* the WTO which might find itself, like in the recent *EC-Biotech*[390] case, in the middle of a large societal debate -- regarding Paraquat for instance. This is a pesticide manufactured by the Swiss Syngenta Corporation which is prohibited in many countries including Switzerland due to its very high levels of toxicity. A WTO dispute could arise in the case of a pesticide which is banned in many countries but not in all, if an exporting country would launch a claim against an importing country's prohibition, claiming that it is safe if it is applied correctly -- a very demanding requirement that e.g. with Paraquat unfortunately often is not fulfilled in developing countries according to numerous testimonies.[391] It should furthermore be noted that adequate protective gear, even where it might be available, is often not really an option in light of extreme tropical temperatures. Even if the produce treated with the pesticide in question passes a scientific risk assessment, a pesticide may severely affect the farmers or plantation workers:

> According to the Food and Agriculture Organization of the United Nations (FAO), although more than 80% of the world's pesticides are applied in industrialized countries, about 99% of all poisonings occur in developing countries. 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. 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 there is a high risk of exposure because of a lack of protective clothing, leaking spray equipment, the mixing and application of pesticides with bare hands, and the storage of pesticides with food. As a result, the risk of poisoning is much higher in the South than in the North. The best health data suggests, for instance, that Latin American farm workers are thirteen times more likely to suffer pesticide poisoning than farm workers in the United States. Lastly, while the Northern pesticide market is dominated by herbicides, most developing countries are greater consumers of insecticides, which are generally more toxic. With the exception of the herbicide paraquat, responsible for many accidental and intentional poisonings in the South, the great majority of accidental intoxications can be attributed to two groups of insecticides: organophosphates and carbamates.[392]

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[390] Panel Report, European Communities – Measures Affecting the Approval and Marketing of Biotech Products (EC-Biotech), WT/DS291/R, WT/DS292/R, WT/DS293/R, 29 September 2006.

[391] See e.g. http://www.google.com/search?q=paraquat+declaration+of+berne

[392] Paula Barrios. 2004. The Rotterdam Convention on Hazardous Chemicals: A Meaningful Step Toward Environmental Protection? Georgetown International Environmental Law Review, Summer issue (online version). http://findarticles.com/p/articles/mi_qa3970/is_200407/ai_n9429400/pg_3

Due to the large amount of negative publicity that Paraquat and other pesticides have attracted, its manufacturer would presumably not want to have additional media attention through such a WTO dispute, but the WTO would have no choice but to proceed on the basis of its established procedures if it is drawn into a dispute. It is important to note that negotiations and discussions at WTO bodies other than the CTE also touch upon this kind trade and environment issues, especially the SPS and the TBT Committees. The WTO has achieved its importance primarily thanks to its Dispute Settlement Body (DSB) which provides the foundation of the MEA's relationship with the trading system. Therefore, like in any other domain with trade-related aspects, here too the negotiations of the original MEA text as well as subsequent modifications negotiated during Conferences and the meetings of the parties are characterized by the constant need to maintain WTO compatibility, a phenomenon which is called *chilling effect.* In other words, these negotiations must be contingent on the need to make the MEA parties' legal rights, obligations and other provisions compatible at least with the spirit of the WTO Agreement, even though perhaps not always with all specific provisions, given that the Dispute Settlement Body's latitude in their interpretation needs be taken into consideration. Thus the Basel Convention's Ban Amendment may violate GATT Art. XI[393] on the General Elimination of Quantitative Restrictions, but if ever it should be challenged at the WTO, then it may or may not be considered justified under GATT Art. XX(b) on General Exceptions, depending on the Dispute Settlement Body's interpretation.[394]

There are two other MEAs which have a potential impact on agriculture that may be compared with the chemicals conventions, namely the Cartagena Protocol of the Convention on Biological Diversity,[395] regarding genetically modified seeds and produce, and the FAO's International Treaty on Plant Genetic Resources for Food and Agriculture regarding the patentability of plant germplasm.[396] The common double purpose of these agreements is to preclude protectionist measures, while at the same time importing countries are given the capacity to protect their soils and biodiversity. The complexity which the DSB could be facing in such cases may well go beyond that of habitual levels in WTO case law. We have seen in the recent WTO case *EC-Biotech* how difficult it may be for a WTO Panel to adjudicate non-tariff trade barriers of an importing country by weighing its right to assess biosafety risks based on recognized scientific evidence against a potential exporting country's right of market access under WTO law. In order to explain its verdict on the approval and marketing of GM food, the Panel's reflection on this set of three similar cases brought against the EC by Argentina, Canada and the US resulted in a Report of over 2000

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[393] The WTO's Legal Texts including the WTO agreements are available at http://www.wto.org/english/docs_e/legal_e/legal_e.htm

[394] GATT Article XX

(b) *General Exceptions*

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a

disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting Party of measures:

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

http://www.wto.org/english/docs_e/legal_e/gatt47_e.pdf

[395] http://www.cbd.int/biosafety/default.shtml

[396] http://www.fao.org/AG/cgrfa/itpgr.htm ; http://www.planttreaty.org/

pages. In the end the conclusion has been narrowed down to an assessment of the notion of due delay in the approval procedures. The Panel faulted the EC for drawing out these procedures which it considered to be unnecessarily long, thus constituting 'undue delay,' prohibited by the SPA Agreement's Annex C 1.(a).[397] At the same time, nevertheless, the panel recognized SPS Art. 5.7 as an autonomous right of an importing country and not as exception, which might strengthen a future argumentation based on precautionary measures.[398] In the chemicals and wastes conventions the objective is different from the above-mentioned cases, there is no *a priory* intention here to preclude protectionist policies. On the contrary, the primary purpose in these conventions is in most cases to phase out, to ban and to avoid these hazardous substances, and where trade continues, to regulate them in a sufficiently rigorous fashion so as to ensure as much as possible a use which is safe for public health and for the environment.

As far as the Stockholm Convention on Persistent Organic Pollutants is concerned,[399] its emphasis on eliminating and restricting the production of the listed chemicals determines trade measures which emphasize banning the import under most circumstances. Logically, the "export" for the purpose of an environmentally sound disposal in another country is allowed, but not exporting for the purpose of recycling.[400] Unintentional industrial releases of POPs constitute a major problem, as well as leaks from stockpiles and waste dumps. PCBs and pesticides accumulated in large quantities in developing countries are a particularly serious problem.[401] The Secretariats of the Stockholm and the Basel Conventions cooperate on these tasks, for instance the latter has elaborated certain technical guidelines for the former in certain areas where it has built up more resources and competence over the years.

In numerous places, it is not realistic to plan for the elimination of these toxic accumulations, the quantities are too large, too far away from environmentally sound disposal facilities, and one frequently does not really know what is contained for instance in large quantities of sometimes leaking rusty drums. In any case, funding is usually not available for responsible disposal procedures. In such instances, the immediate and medium-term priority is to identify the hazardous waste, and to make sure that its storage is maintained in isolation and as safe as possible. "According to the FAO, about 20,000 tons of obsolete pesticides are believed to be stockpiled in Africa, with perhaps another 80,000 tons in Asia and Latin America, and at least 150,000 tons in countries of the former Soviet Union."[402] In engaging in this enormous challenge of implementing safe environmental management practices, the Stockholm Convention has established procedures for public awareness raising and for the exchange of information.[403] The Stockholm Convention is the only one of the three which benefits from funding from the Global Environment Facility. As far as its

[397] Daniel Wüger, 2006. GMOs and WTO Law: The Debate is Still Open. *NCCR Trade Regulation Newsletter* Vol. 1, No.2, July.
http://www.nccr-trade.org/images/stories/news/NewsletterAugust2006.pdf
[398] Maria Julia Oliva. 2006. Precaution as an autonomous right in the SPS Agreement: Implications of the *EC-Biotech* findings regarding the nature of Article 5.7. *EcoLomic Policy and Law* 6, (114).
http://www.ecolomics-international.org
[399] See the article on the Stockholm Convention by Pia M. Kohler and Melanie Ashton in this publication.
[400] Stockholm Convention Art. 3 and 6.
[401] Idem.Art. 5 and 6.
[402] UNEP ETB 2007 *op. cit.,* footnote 112,
[403] *Ibid.* Art. 9.

near-term plans are concerned, like the Rotterdam Convention, it is presently working to establish compliance procedures.

In 1995 the parties of the Basel Convention adopted the so-called 'Ban Amendment' which is presently not in force yet. It essentially prohibits hazardous waste exports from industrialized to developing countries because the latter have been used as dumping grounds for toxic and radioactive waste on numerous occasions, given that this egregious illicit practice is far cheaper than the fulfillment of costly environmental regulations that apply in the country of origin of the wastes. The Ban is being contested for primarily two reasons. First of all, some developing countries consider that they are being deprived of commercially interesting recycling operations, which in their view they are able to carry out using sound environmental managing practices. Secondly, it is not clear whether the Ban will further increase illegal and criminal waste disposal operations even though such practices were one of the key reasons why the Ban was instituted in the first place. The issue is undecided at this point in time.[404]

UNEP's Economics and Trade Branch (ETB) has recently commissioned the Centre of International Environmental Law (CIEL) to write a paper on trade-related measures of MEAs[405] which includes our three conventions.[406] The 1989 Basel Convention is the earliest MEA which incorporates the Prior Informed Consent (PIC) principle that subsequently was further elaborated for certain chemicals in the 1998 Rotterdam 'PIC Convention' and subsequently in the 2000 Cartagena Protocol on Biosafety. The Basel Convention's PIC procedures are contained in its Art. 6, which spells out the notification procedures. Other provisions relate to packaging and labeling requirements.

The Prior Informed Consent (PIC) procedure of the Rotterdam Convention applies to "certain hazardous chemicals and pesticides in international trade" which are listed in Annex III. The basic tool for the regulation of chemicals included in this PIC procedure is the so-called Decision Guiding Document (DGD) which contains the information that is necessary for the regulatory decision to ban or to severely restrict a certain chemical for environmental or health reasons.[407] The parties are presently negotiating the modalities of a non-compliance procedure, in particular the functioning of the criteria which trigger or initiate the application of this procedure and which is being negotiated intensely.

As far as the relationship between MEAs and the WTO agreements is concerned there is an *a priori* assumption of compatibility even though this confidence in reality has never been truly tested at the WTO's Dispute Settlement Body. It may therefore be based primarily on optimistic assumptions. We have to ask ourselves therefore whether perhaps we are approaching an end of this truce in light of *EC-Biotech*[408] where environmental concerns were challenged successfully by

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[404] For a further discussion of trade-related environment measures, especially the Basel Convention (1000-1005) see : Shawkat Alam. 2007. Trade Restrictions Pursuant to Multilateral Environmental Agreements: Developmental Implications for Developing Countries. *Journal of World Trade* 41 (5): 983-1015.

[405] UNEP Economics and Trade Branch (DTIE-ETB). 2007. Trade-related Measures and Multilateral Environmental Agreements, prepared by CIEL, 31 p.
http://www.unep.ch/etb/areas/pdf/MEA%20Papers/TradeRelated_MeasuresPaper.pdf

[406] The other MEAs covered are CITES, Montreal Protocol, Cartagena Protocol.

[407] Rotterdam Convention Art. 7.3 and 10.2.

[408] Panel Report, European Communities – Measures Affecting the Approval and Marketing of Biotech Products (EC-Biotech), WT/DS291/R, WT/DS292/R, WT/DS293/R, 29 September 2006.

Argentina, Canada and the US in spite of the Biosafety Protocol. These countries are not members of the Protocol, but the Panel did have the choice of recognizing it as an international standard in the sense of the TBT's Annex but it didn't.[409] This is indeed what Makane Moïse Mbengue is hinting at in the case of the Stockholm Convention (in 2001, several years before this WTO case, which adds support to his concerns):

> The question arises of the challenge to the effectiveness and efficiency of this convention in the future. The real risk of conflicts between the demands of international trade and the legal strategies aiming at the protection of public health and the environment is suggesting an exponential development of disputes between countries regarding process and production methods in general, and regarding the commercialization of pesticides and related chemicals more specifically. The *Asbestos* case before the WTO' DSB is just a precursor of a paradigm shift in the trading system regarding hazardous products [author's translation]. [410]

Whether we like it or not, we have to recognize that our civilization has been built on a ubiquitous use of industrial and agricultural chemicals especially in the industrialized world. In developing countries the total quantities of chemicals used are much smaller in relative terms, but on the other hand peoples' exposure to toxic substances in many cases is far higher, for both agricultural and industrial workers, because the hazards are not well communicated, because protective measures are too expensive for the local economies, or because of fraud, corruption and indifference which in many cases are linked to poverty and the lack of access to information and justice. It is obvious that the quantity and the variety of chemicals in daily use in all regions of the world are enormous. In light of this reality, how could potential future WTO cases involving hazardous wastes and chemicals compare with the WTO case law up to now? No case has been brought to the WTO so far which involved any of these three conventions, but there is always that possibility, and the stakes could be very large. There is a danger that a WTO case implying one or a small number of chemicals could set a precedent for a dispute over significant commercial stakes related to other chemicals used in similar applications. In terms of the legal, economic and more generally societal concerns at stake here the *EC-Biotech*[411] dispute is arguably the one that comes closest to these three MEAs in terms of their potential impact on both the environment and the economy. In both

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[409] TBT Annex 1. (2) Standard : Document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.

[410] **«** Le défi de l'effectivité et de l'efficacité de cette convention se pose pour l'avenir. Le risque réel de conflits entre exigences du commerce international et stratégies juridiques de protection de la santé humaine et de l'environnement présage du développement exponentiel des contentieux entre Etats sur les processus et méthodes de production en général et sur la commercialisation des pesticides et autres produits dérivés en particulier. L'affaire *amiante* devant l'Organe de règlement des différends de l'Organisation Mondiale du Commerce n'est qu'un avant-goût du changement de paradigmes dans le système du commerce international de produits dangereux. »
Makane Moïse Mbengue. 2001. La Convention de Stockholm sur les polluants organiques persistants. *L'Observateur des Nations Unies* 11: 67-88 (86).

[411] *Op. cit.:* Panel Report, *EC- Biotech*, 2006

cases very important agricultural and trade interests are at stake, which in many if not most countries are politically particularly sensitive, and which are supported by very strong lobbying groups.

The Key Role of the 'Mutually Supportive' Principle

To conclude this discussion on the trade-related relevance of the three conventions, it is necessary to emphasize a concept that has played a key role in the policy debate as well as in the legal analysis of trade and environment as a domain, which is more and more considered to be a distinct subdiscipline by the trade, the environment, the policy and the legal communities. The interdependencies between these very different kinds of concerns and supporting constituencies, which can be very vocal with regard to both trade and environmental issues, has spread the realization that trade and environmental concerns are unavoidably exerting a strong impact on each other, and the best way to look at this particular dynamics therefore is to draft policies and laws in such a way that they can be made *mutually supportive:*

> In order to maintain this mutual supportiveness rather than being construed as contradictory, each framework should remain responsible and competent for the issues falling within its primary competence. … while each regime should focus on its primary competence, it is not prevented from adopting measures having an effect on the other regime. However, it should take into account the concerns and interests of the other regime, and it should pay deference to the competence of the other regime. This deference requires that each regime does not judge the legitimacy or the necessity of measures adopted by the other regime. Hence, WTO should not try to decide whether an environmental goal pursued by an MEA is legitimate or whether a measure adopted by MEAs for the realization of such goal is necessary. The determination of the environmental objectives and of the means, instruments, mechanisms and measures necessary to realize these objectives fall clearly within the competence of MEAs.[412]

The most detailed and in depth legal analysis of the mutual supportiveness principle has been developed by professors Laurence Boisson de Chazournes and Makane Moïse Mbengue in the case of the Cartagena Protocol; it is fair to say, however, that this analysis (in French) is highly pertinent for the legal aspects of the relationship between MEAs and the WTO agreements in general.[413] As far as the chemicals and wastes conventions are concerned, they emphasize in particular the relevance of the Rotterdam and the Stockholm Conventions for an exemplary implementation of the mutually supportive principle.

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[412] Franz Xaver Perrez. 2000. The Cartagena Protocol on Biosafety and the Relationship between the Multilateral Trading System and MEAs. In "The Biosafety Protocol: Regulatory Innovation and Emerging Trends," edited by Laurence Boisson de Chazournes and Urs P. Thomas, *Swiss Review of International and European Law* 10 (4): 518-528.

[413] Laurence Boisson de Chazournes et Makane Moïse Mbengue. 2007. A Propos du principe du soutien mutuel -- les relations entre le Protocole de Cartagena et les accords de l'OMC. *Revue Générale du Droit International Public.* Numéro 4: 829-863 (832/833). Available at http://www.ecolomics-international.org/tande_lbc_mmm_a_propos_du_principe_du_soutien_mutuel_pc_omc_rgdip_07_4.pdf

First of all they point out that the text of the Rotterdam Convention considers in its preamble: "Recognizing that trade and environmental policies should be mutually supportive with a view to achieving sustainable development…"[414] They then put this recognition into the broader context of the development of Public International Law and they interpret this paragraph as a support for the trend toward a strengthened complementarity between trade and environmental concerns. Furthermore, they note that the Stockholm Convention, opened for signature three years after the Rotterdam Convention, i.e. in 2001, picks up on this idea but goes a step further in its preamble: "Recognizing that this Convention and other international agreements in the field of trade and the environment are mutually supportive…"[415]

Clearly, in the development of Public International Law, each new convention is built on the negotiations and legal analyses of recent comparable conventions; therefore it is very interesting to trace the development of a concept or a principle from one convention to another one within the same wider issue area. The Rotterdam and the Stockholm Conventions represent particularly fruitful subjects for this kind of studies because they are chronologically close together, and because they cover essentially a similar scope. It is therefore very significant, as Boisson de Chazournes and Mbengue point out, that in the 1998 Rotterdam convention trade and environmental policies *should* be mutually supportive, while in the 2001 Stockholm Convention trade and environmental agreements, in the view of the parties that have drafted these texts (and which are more or less the same in both cases), *are* considered mutually supportive. Thus Boisson de Chazournes and Mbengue conclude, a close reading of the two conventions shows that the spirit of the Stockholm Convention is closer to the principle of mutual supportiveness than the text of the Rotterdam Convention.[416]

At first sight this may not represent a big step but one may see this as a sign that the concept of mutual supportiveness between trade and environmental priorities is making progress toward achieving the status of a principle of customary international law. Once the argument can be substantiated that it has indeed been elevated to this level of legal consideration, this will have a significant impact on future trade disputes in the domain of trade and environment at the WTO and at other dispute settlement mechanisms. It should be pointed out that this debate needs to be placed into the wider context of the relationship between WTO law and international law: to what extent is WTO law part of international law, or to what extent is it a *sui generis* body of law that is not fundamentally constrained by Public International Law? WTO lawyer Gabrielle Marceau has managed to sketch out an answer to this often asked question through the title of her much cited article: "A Call for Coherence in International Law - Praises for the Prohibition against 'Clinical Isolation' in WTO Dispute Settlement."[417] Be that as it may, one of the legal cliffs in this particular sea lane that needs to be circumnavigated by the two policy constituencies and the two legal communities is the precautionary principle, which represents a cornerstone of environmental and sustainable development law.[418] With

[414] The text of the Rotterdam Convention is available at http://www.pic.int/en/ConventionText/RC%20text_2008_E.pdf

[415] The text of the Stockholm Convention is available at http://chm.pops.int/Convention/tabid/54/language/en-US/Default.aspx

[416] *Idem.* Boisson de Chazournes and Mbengue p. 833.

[417] Gabrielle Marceau. 1999. A Call for Coherence in International Law - Praises for the Prohibition against 'Clinical Isolation' in WTO Dispute Settlement. *Journal of World Trade* 33 (5): 87-153.

[418] See e.g. Boisson de Chazournes 2002 ; de Sadeleer 2002, Cordonier Segger and Khalfan 2004.

regard to the WTO, however, the situation is highly complex. As Mbengue points out, the precautionary principle's status in customary international law is far from clear and hotly debated among trade and other international lawyers.[419] The status of international environmental law vis-à-vis the WTO Agreements is further weakened, unfairly one may say, due to the fact that countless provisions in the former body of law consist in capacity building measures and in non-binding norms.[420]

One of the goals of the Doha Development Agenda (DDA) of the WTO's 2001 Ministerial Conference is to achieve a better and clearer *linkage* between trade law and international environmental law. It contains a paragraph covering three issues of this legal conundrum which are of concern to the three conventions' trade-related provisions:

> Trade and environment
>
> 31. With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on:
>
> (i) the relationship between existing WTO rules and specific trade obligations set out in multilateral environmental agreements (MEAs). The negotiations shall be limited in scope to the applicability of such existing WTO rules as among parties to the MEA in question. The negotiations shall not prejudice the WTO rights of any Member that is not a party to the MEA in question;
>
> (ii) procedures for regular information exchange between MEA Secretariats and the relevant WTO committees, and the criteria for the granting of observer status;
>
> (iii) the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.
>
> We note that fisheries subsidies form part of the negotiations provided for in paragraph 28. [421]

The three subparagraphs, as we can see, address very different aspects of the trade and environment interactions, all of which are relevant to the three chemicals and wastes conventions:

- Para. 31(i) attempts to provide a legal structure for these interactions, but just to the extent that they are seen as being relevant from the WTO's perspective: MEA provisions are considered relevant for the WTO only provided they are obligatory and specific (terms which are – like the term MEA - not defined), and the market access rights specified in a WTO agreement are not affected for non-parties to an MEA. Since numerous provisions of the chemical conventions are of a capacity building nature and therefore probably neither "obligations"

[419] Makane Moïse Mbengue. 2002. L'environnement, un OVNI sur la planète de l'OMC. In *L'OMC, après Doha*, sous la direction de Christian Deblock, 249-297. Montréal : Fides, Collection points chauds, 277.

[420] Boisson de Chazournes, Laurence. 2000. Policy Guidance and Compliance : The World Bank Operational Standards. In *Commitment and Compliance – The Role of Non-Binding Norms in the International Legal System,* edited by Dinah Shelton, 281-304. New York, NY: Oxford University Press.

[421] WTO Ministerial declaration, WT/MIN(01)/DEC/1, 20 November 2001, Adopted on 14 November 2001 http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm

nor "specific" these may well be considered as irrelevant from the WTO perspective under this negotiation objective.

- Para. 31(ii): the still ongoing problems regarding the establishment of a regular information exchange between MEA secretariats and relevant WTO committees, as well as the provision of observer status, represent a very unfortunate example of how key diplomatic actors are subjecting an issue of great ecopolitical importance, namely the notion that the two dissimilar stakeholders should be at least on formalized regular speaking terms, to political acrimonies and animosities which have nothing to do with trade and environment.[422]

- Para. 31(iii): negotiations on environmental goods, more so than environmental services, are the ones which have received, as explained above in the discussion of technology transfer, most of the attention in the trade and environment negotiations. This is of course an issue of particular relevance for the environmentally sound management of toxic substances which in many instances requires relatively sophisticated instruments and tools. No concrete results have been achieved so far in these negotiations, because they are considered as far less important than those on agriculture and manufactured goods.[423]

The difficulties of these negotiations confirm, as pointed out above, that the positions of the trade and the environment constituencies are not only far apart but also complex and difficult to reconcile.[424] It is therefore important to showcase, as Boisson de Chazournes and Mbengue have done in their above-mentioned discussion of the *mutually supportive principle,* any progress which may contribute to a better understanding of the two contesting camps, and to the strengthening of reconciliatory passageways. Last but not least, this author is of the opinion that in the balancing of ecological and economical priorities and objectives the overarching term of *EcoLomics* is helpful in many instances, because it represents a short and succinct concept that is useful for pragmatic, problem-oriented approaches, and for the achievement of an equilibrium solution detached from unnecessary accumulated political and ideological impediments.[425]

[422] Doaa Abdel Motaal. 2002. The Observership of Intergovernmental Organizations in the WTO, Post-Doha: Is there Political Will to Bridge the Divide? *Journal of World Intellectual Property* 5 (3): 477-490.

[423] For a detailed analysis of the WTO's negotiations on Environmental Goods under the Doha mandate see Matthew Stilwell. 2008. Advancing the WTO Environmental Goods Negotiations: Options and Opportunities. *EcoLomics Occasional Paper Series* No. (1) 31 p. http://www.ecolomics-international.org/headg_eops.htm

[424] For a more detailed explanation of this author's views on the trade and environment relationship see: Urs P. Thomas. 2005. Oil or Sand in the Trade and Environment Machinery? The Doha Round at the WTO's 10th Anniversary. *EcoLomic Policy and Law*. (1), 1-32. http://www.ecolomics-international.org/headg_ecolomic_policy_and_law.htm

[425] For an explanation of the EcoLomics concept see Urs P. Thomas. 2007. International EcoLomic Policy: Emergence and Dimensions. *EcoLomic Policy and Law*, 52 p. http://www.ecolomics-international.org/headg_ecolomic_policy_and_law.htm

5. TO WHAT EXTENT ARE THE CHEMICAL CONVENTIONS A MODEL FOR CLUSTERING MULTILATERAL ENVIRONMENTAL AGREEMENTS?

The 2010 Bali Extraordinary Conference of the Parties: an Innovative Undertaking

The clustering of Multilateral Environmental Agreements (MEAs) for the achievement of better efficiencies, cooperation and synergies is a question that has been discussed for many years by both practitioners and political science scholars.[426] A related question is whether the three conventions should be crowned by a framework convention with the objective of facilitating cooperation, coordination and synergies. There exists in fact precisely such an instrument already in the form of the Strategic Approach to Chemical Management (SAICM).[427] [428] In his study *Global Governance of Hazardous Chemicals* which has just come off the press, Selin in fact points out: "SAICM… shares many traits with a framework convention."[429] It is undoubtedly regrettable that such an agreement has not been negotiated in the 1980s, prior to the creation of the Basel Convention or in parallel with it. Many negotiators at that time indeed attempted to craft such a legal mechanism, but the prevailing sentiment at that time was that the negotiation of international regulations of chemicals and wastes was not ripe for such a comprehensive approach yet, and that a multi-focused approach of separate MEAs would be more effective in overcoming a range of commercial, financial, scientific, and political obstacles and uncertainties. This may indeed have been the most appropriate strategy at that time, but I think it would be a worthwhile undertaking to reconsider this idea now, in light of a successful and highly original joint negotiation process of the Basel, Rotterdam and Stockholm Conventions, which was concluded in Bali, Indonesia, in February 2010 after several years of very detailed and intense negotiations among the parties of the three conventions.

This so-called Extraordinary Conference of the Parties (ExCOP) took place in Bali, Indonesia, on 22-24 February 2010, followed back-to-back by the 11th Special Session of UNEP's Governing Council, also functioning as the Global Ministerial Environment Forum, (GCSS.XI/GMEF) (See Annex 1 for the Summary and Analysis of the *Earth Negotiations Bulletin* of both conferences). The formal support of the Governing Council as UNEP's governing body provided these negotiations with the

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[426] One of the first to make this suggestion was the much too early departed Konrad von Moltke: The Organization of the Impossible, in the inaugural issue of *Global Environmental Politics.* 2001. 1(1): 23-29, p. 26-27. It should be emphasized that the chemicals and wastes regime had made significant progress over the years before 2001, and most of these activities at the global level were concentrated in Geneva already then. This fact may have swayed Konrad von Moltke to favor such a clustering process regarding which he was rather skeptical a few years earlier. In a telephone conversation I had with him during the mid 1990s, he had argued that conventions covering related issue areas which are located at different venues are better able to get financial support, since they can do fund raising with different host countries. One may surmise, at least in the case of the chemicals and wastes conventions in Geneva, that their combined impact and presence has been beneficial for their fundraising efforts with the Swiss government, and I tend to believe that this could be applicable to the formation of other such clusters.

[427] SAICM: please consult http://www.saicm.org/index.php?ql=h&content=home

[428] See the article on SAICM by Hamoudi Shubber in this publication.

[429] Selin, *op. cit.*, 2010, 5.

necessary legal and institutional support according to UN procedures and according to the requirements of Public International Law.[430] As we shall see in a moment, however, there was more at stake for UNEP than just providing the institutional backing for this ExCOP process.

The Bali meetings were well prepared thanks to an intensive preparatory process: the Ad Hoc Joint Working Group (AHJWG) consisting of representatives of the three conventions met three times for preparatory negotiations, namely in March 2007 in Helsinki, in December 2007 in Vienna, and in March 2008 in Rome. Its mandate of enhancing synergies among the three conventions, and its composition are presented as follows:

> Mandate
> By decision SC-2/15 of the Conference of the Parties to the Stockholm Convention, decision RC-3/8 adopted by the Conference of the Parties to the Rotterdam Convention and decision VIII/8 of the Conference of the Parties to the Basel Convention it was agreed to establish an ad hoc joint working group (the "AHJWG") to prepare joint recommendations on enhanced cooperation and coordination among the three conventions for submission to the Conference of the Parties of all three conventions.
>
> Composition
> The AHJWG numbers 45 members in total. Each convention has 15 representatives, three for each of the five regional groups of the United Nations. The representatives were nominated by a process of consultations within the regional groups.[431]

This joint Conference of the Parties of the three conventions and the whole negotiation process embody a negotiation achievement which is unique and historic for MEAs. The intention was to look back at over twenty years of multilateral negotiations on chemicals and wastes (the Basel Convention was opened for signature in 1989, the Rotterdam Convention in 1998, and the Stockholm Convention in 2001), and to systematically debate ways and means to improve the efficiency and the effectiveness of the interactions among the three. Some of the key issues concerned the functioning of a platform for information exchange or Clearing House Mechanism (CHM), as well as strengthening and emphasizing cross-cutting and joint activities which are to be included in the work program of all three conventions. Several developing countries emphasized throughout these debates that the implementation of synergies depends on available resources. The point was made, furthermore, that it would be wrong to believe such measures would render the secretariats less expensive to operate; rather, the purpose was to increase the

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[430] *Earth Negotiations Bulletin,* Linkages/IISD, Simultaneous Extraordinary Meetings of the Conferences of the Parties to the Basel, Rotterdam, and Stockholm Conventions (ExCOPs), and Eleventh Special Session of the UN Environment Programme (UNEP) Governing Council/ Global Ministerial Environment Forum (GCSS.XI/GMEF). 22-26 February, 2010. Summary of Highlights and photo gallery:
http://www.iisd.ca/unepgc/unepss11/ .
Final Summary Report, 15 p.: see Annex 1 to this publication or
http://www.iisd.ca/download/pdf/enb1684e.pdf

[431] http://ahjwg.chem.unep.ch/index.php?option=com_frontpage&Itemid=1

funding for concrete projects in the field thanks to efficiency gains at the administrative level.[432]

One should also remember here that the very nature of each of the three conventions is quite distinctive: the Basel Convention has a very broad mandate covering both chemicals and wastes. What is in fact the difference between harmful chemicals and harmful wastes? In some cases the difference may be obvious, e.g. in comparing highly toxic industrial chemicals and relatively harmless household wastes. On the other hand, industrial waste products may consist in sludge of very toxic chemicals. Different kinds of hazardous substances may have comparable harmful effects on human health and on the environment. The management of hazardous chemicals therefore must be closely linked with waste management; this is the only way to reduce the quantities and the level of toxicity of both. For all these reasons the Basel Convention does not really distinguish between chemicals and wastes, including relatively benign wastes. Rather, the emphasis is on Environmentally Sound Management (EMS) of both kinds of substances. The Basel Convention is by far the oldest one with the largest secretariat, and it has considerable economic ramifications for many developing countries thanks to the recycling potential of certain waste products such as used car batteries[433] or electrical and electronic scrap. It should be noted that such waste products may be traded among developing countries for recycling or disposal as long as best environmental practices and best available technologies can be assured by the receiving country, the idea of the Basel Convention being that its norms be transposed into national legislation. The mandate of the Rotterdam Convention on the other hand consists essentially in providing guidance to developing countries for the implementation of the legal principle of Prior Informed Consent.[434] The Stockholm Convention, finally, has the "non-trade" objective of phasing out a dozen particularly toxic substances, i.e. Persistent Organic Pollutants, and it is presently the only one of the three which enjoys a much envied special status thanks to its financial support from the Global Environment Facility.[435] [436]

The negotiations took place primarily in two *contact groups* addressing joint managerial activities, as well as on managerial functions and services. In the final decision of the ExCOP the concepts of cooperation, coordination and synergy have been broken down into a small number of separate targets. These can be summarized and wrapped up through following succinct agenda items:

> by strengthening national processes and by coordinated use of the regional centres of the Basel and Stockholm Conventions to strengthen the regional delivery of assistance for the implementation of the three Conventions (…).
>
> invite parties, regional centres and other stakeholders to exchange experiences, in particular on examples of good coordination practices, (…) invite UNEP, UNDP, FAO, WHO, the World Bank, the Global Environment Facility (GEF) and other relevant international organizations to report on their

[432] *Earth Negotiations Bulletin*, Final Summary Report, *op. cit.* p. 13.
[433] See the article on Encouraging the Environmentally Sound and Economically Viable Recycling of Car Batteries in the Philippines by Ulrich Hoffmann in this publication.
[434] See the article on the Rotterdam Convention by Urs P. Thomas in this publication.
[435] http://www.thegef.org/gef/node/1350
[436] See the article on the Stockholm Convention by Pia M. Kohler and Melanie R. Ashton in this publication.

> efforts to promote programmatic cooperation and coordination in relation to their support for the three Conventions at the national level, (…)
>
> invite the UNEP Executive Director to establish joint financial and administrative support service, legal service, information technology service, information service, and resource mobilization service;
>
> decide to review at the COPs of the three Conventions in 2013, how far the arrangements adopted pursuant to the synergies decisions have contributed to achieving a set of objectives, such as strengthening the implementation of the three Conventions and maximizing the effective and efficient use of resources at all levels, and request the Secretariats to prepare detailed terms of reference for the preparation of a report for the purpose of the review for consideration and adoption by the COPs of the three conventions in 2011, and to compile and complete their report jointly for adoption by the three COPs in 2013; [437]

The debates were enriched and at the same time made more complex by the fact that the delegates included very different career backgrounds, i.e. diplomacy, science, engineering, commerce, etc. This professional dynamics of course is inevitable in most MEAs and especially in this issue area, the delegates and secretariats are very much aware of it, and it is taken into consideration explicitly by the multistakeholder nature of SAICM.

Strengthening Synergies through a Joint Head of the Three Conventions

The agenda items on strengthening cooperation, coordination and synergies may sound somewhat tedious and in the end difficult to evaluate concisely. The most important question being debated, however, was very specific and of an organizational nature: in order to streamline the exchanges between the conventions through joint managerial functions two scenarios were debated: either a joint coordinating group among the three conventions, or else the appointment of a joint head. The precise mandate, scope, and general importance and authority of a new joint coordinating group, or of a joint head, were also open to discussion.

Some concerns were raised about the need and potential difficulty of maintaining the autonomy of each convention. Fears were expressed that either scenario might result *de facto* in the merger of the three conventions. Clearly, such a scenario does not presently find much support, let alone anything approaching consensus, among the delegations. There is no doubt that different coalitions of parties have quite distinct perceptions on how to advance their national priorities through one convention or another. Thus the argument was made that under the stewardship of a joint head some donor countries may be more willing to provide financial support for projects once they are ascertained that the latter have been evaluated carefully and in a well coordinated fashion from the standpoint of each of the three conventions, thus minimizing inefficiencies and wastes. On the other hand, the point was raised that either scenario would add an additional layer of

[437] *Earth Negotiations Bulletin,* Final Summary Report, *op. cit.* (see Annex 1), p. 4-6.

bureaucracy, potentially increasing bureaucratic complications, delays and expenses.[438] In the end the Governing Council in Special Session (GCSS) decided

> to immediately proceed with the recruitment of a joint head of the three Conventions' Secretariats for a period of two years, noting that the position will be subject to a review. The ExCOPs also request the Executive Director, in consultation with the Director-General of FAO, to develop a proposal for the modification of the organization of the three Secretariats, including a possible continuation of the joint-head post that is cost-neutral. The parties are invited to consider the modification as soon as possible, but no later than 2013.
>
> The decision affirms the legal autonomy of the Conventions, as well as their objectives and advocacy for the mobilization of substantially increased funding for national implementation.[439]

The GCSS did much more, however, than just adopting and rubberstamping a process which had been prepared by the conventions through the AHJWG process and finalized by their parties at the ExCOP. One may in fact conclude that the opposite has happened, namely that UNEP had pursued a much broader strategy which was prepared over many more years under the term of *International Environmental Governance (IEG)*.[440] This initiative was launched originally in 2001 at UNEP's 21st Governing Council[441] as a contribution to the 2002 Johannesburg World Summit on Sustainable Development, and it was a key issue at the 2002 GCSS.VII in Cartagena, Columbia, on which occasion the concept of IEG was the subject of a 40 page report and a 15 page decision.[442] In spite of this considerable effort, the success of the initiative until 2009 was really disappointing. Therefore the Bali meeting was planned by the UNEP strategists to serve as a launch pad to reinvigorate the IEG initiative. In other words, UNEP tied two matching strands of policy-making together, an empirical one in the case of the chemicals and wastes conventions, for whom the objective of strengthening synergies had been 'work in progress' since the creation of the Rotterdam and Stockholm Conventions, and a more conceptual one with the IEG initiative. Thus, contrary to the quite numerous previous IEG meetings which resulted in frustration and questions over UNEP's leadership, this time there was a hope that finally one would be able to achieve a concrete result. It was a gamble: nothing guaranteed that the AHJWG process would be crowned with the acceptance of its proposals.

Well, it is an understatement to note that the gamble was worth it: Clearly, the UNEP Governing Council's Special Session can be considered a success whose most important tangible realization consists in the consensual approval of a new organizational structure that is very innovative, that does not exist in this form elsewhere in the UN system, and that is reflected in the new position of a *joint head* of the three conventions. This initiative has been strongly pursued since 2006 by

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[438] *Earth Negotiations Bulletin,* Chemicals ExCOP Highlights: Tuesday, 23 February, 2010. http://www.iisd.ca/download/pdf/enb1681e.pdf

[439] *Earth Negotiations Bulletin,* Final Summary Report, *op. cit.* (see Annex 1), p. 5. UNEP/FAO/CHW/RC/POPS/EXCOPS.1/CRP.5/Add.6

[440] http://www.unep.org/IEG/

[441] http://www.unep.org/IEG/Background/index.asp

[442] Both are available at http://www.unep.org/IEG/Meetings_docs/Cartagena_Meeting2/Colombia_13-15Feb02.asp

Switzerland, which as the host country of the three Conventions has always taken a particularly active role in the chemicals and wastes negotiations.[443]

> The most visible decision taken at the ExCOPs was the establishment of a "joint head" position to oversee the work of the Secretariats. While the EU and Switzerland emphasized this raised the profile of the chemicals and wastes conventions, several developing countries' delegates pointed out that this position is up for review in 2013.
> (…) GCSS.XI/GMEF was a singular success and a high point in recent UNEP history.[444]

It should be emphasized at the same time that this achievement was possible only thanks to the intensive preparatory effort undertaken by the three conventions under the guidance of the above-mentioned AHJWG. The real deal-maker was the fact that the parties of the three conventions – during their last individual Conferences of the Parties prior to this joint COP in 2008 and 2009 - managed to come to a consensus on the results of the AHJWG's three meetings.

The Crucial Link between the Triple COP and UNEP's Governing Council Meeting

The two streams of negotiations of the ExCOP and the Special Session of UNEP's Governing Council were linked tightly: on the morning of Wednesday 24 February 2010 the ExCOP was concluded with a closing plenary session, followed without delay by the GCSS.XI opening ceremony in the afternoon:

> As delegates milled around the pool during the evening reception, chatter focused on the seamless transition from ExCOPs to GC/GMEF. Many hailed the ExCOPs as resoundingly successful, not only for the three Conventions, but also for UNEP, which had proved, in the lead up to Rio+20 discussions, that synergies were possible and that UNEP could handle them.[445]

Such diplomatic accomplishments need to be placed in their geopolitical context in light of the usual consensus-based decision-making procedures at the UN. Thus negotiators have to satisfy not only the differing perceptions of industrialized countries on one hand and developing countries and economies in transition on the other hand, they have to obtain the support of China which is not included in the developing countries' Group of 77, and they have to transcend differences of perspectives within each coalition and sub-coalition. This applies in particular to a pronounced discrepancy between the European Union and the United States with regard to the international regulation of the environmentally sound management concerning hazardous substances. This discrepancy has in fact become quite pronounced as Kelly Dreher and Simon Pulver point out in a very insightful analysis with the self-explanatory title "Environment as 'High Politics'? Explaining Divergence in US and EU

[443] http://www.bafu.admin.ch/dokumentation/medieninformation/00962/index.html?lang=en&msg-id=31975
[444] *Earth Negotiations Bulletin*, Final Summary Report, *op. cit.* (see Annex 1), p. 13.
[445] *Earth Negotiations Bulletin*, ExCOP Highlights: Wednesday, 24 February, 2010. http://www.iisd.ca/download/pdf/enb1682e.pdf , p. 2.

Hazardous Waste Export Policies."[446] At the most basic level, most EU politicians see a connection between environmental leadership and international political leadership. This perception is very different on the other side of the Atlantic in the analysis of these authors:

> In contrast, US politicians did not see the waste trade as an issue area as deserving of attention and credence as other 'high politics' issues, such as economic growth and military security. (…) [In the US view] Waste is a containable environmental hazard and can be traded away. As a result, stringent domestic regulation of hazardous waste disposal and treatment can be circumvented via export. Internationalization of stringent waste disposal and treatment policy standards would eliminate this possibility.[447]

Not surprisingly therefore, given this position which strongly favors economic growth over environmental protection, the US is not a party to any of the three Conventions, in the same vein as it is not a party to other key trade-related MEAs such as the Convention on Biological Diversity including its Cartagena Protocol on Biosafety, or the Kyoto Protocol. The US therefore is seen as a "poor participant in environmental multilateralism," contrary to the EU which, in a much more comprehensive and integrated perspective, sees this kind of leadership as "an issue area as important as its economic or security policies."[448] This state of affairs can be explained by the fact that "In the USA, industry actors are accorded a much higher level of authority," and furthermore the two have "diverged in the extent to which this rhetoric was coupled to action and in their assessment of the appropriate action of a global leader in regulating the hazardous waste trade."[449]

The success in these negotiations, to which UNEP has made important contributions, is what allowed it then to use the achieved momentum in order to advance its broader objective of making progress in the implementation of the concept of IEG Clearly, we have now a situation where UNEP is at the center of several multilateral initiatives to carry out IEG initiatives, be it through those MEAs which it administers, through other activities in the realms of law and science, such as the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)[450] and The Economics of Ecosystems and Biodiversity (TEEB)[451] study, or for instance through its Green Economy Initiative (GEI).[452] Undoubtedly the most debated and also the most controversial idea advanced with the purpose of strengthening IEG is the creation of a World Environment Organization (WEO - some other names are also used, such as a Global Environmental Organization). Such an organization would be modeled, in the view of some of its proponents, after the World Trade Organization:

> Environment ministers and UN officials gathering at a major summit in Bali have officially launched a process that could lead to the establishment of a

[446] Kelly Dreher and Simone Pulver. 2008. Environment as 'High Politics'? Explaining Divergence in US and EU Hazardous Waste Export Policies. *RECIEL* 17 (3): 308-320, see especially p. 309, 318, 320.
[447] *Idem.* 309, 310.
[448] *Idem* 311.
[449] *Idem* 318.
[450] http://ipbes.epeerreview.com/en/index.asp
[451] http://www.teebweb.org/
[452] http://www.unep.org/greeneconomy/

> 'World Environment Organisation', a multilateral institution for global environmental governance that some say could be modelled after the WTO.[453]

It is safe to say that the question of IEG will be discussed, debated and negotiated as long as the UN or a similar organizational system will exist. The issue of course goes far beyond the scope of this analysis, but it did play an important role during the week of these two conferences, first of all because the ExCOP itself represented a very interesting exercise in making progress on the ground with this somewhat lofty concept, and secondly because the GCSS adopted the so-called *Nusa Dua Declaration* that – among other statements - commits UNEP's members to work toward strengthening IGE:

> International environmental governance and sustainable development
>
> We note the fact that the current international environmental governance architecture has many institutions and instruments and has become complex and fragmented. It is therefore sometimes not as effective and efficient as it should be. We commit to further efforts to make it more effective.[454]

That of course does not represent in any way a commitment to work toward a WEO, but it does undoubtedly give an indication that most environmental ministries of UNEP's member countries are favorably inclined toward considering this option more seriously than so far. To what extent such an organization should be modeled after the WTO and/or as a counterweight to the WTO is a very complex question, which has been attracting a great deal of attention over the past few years, and which leaves many issues without an answer, but which provides opportunities for what might be called 'creative diplomacy.' Following is the conclusion of the team of authors of the *Earth Negotiations Bulletin:*

> GCSS.XI/GMEF was a singular success and a high point in recent UNEP history. (…) UNEP is forging vigorous links with other partners in the UN family, with different stakeholders, the UNGA, the CSD, UNDP and the preparatory process for Rio+20. The *Nusa Dua Declaration* shows, perhaps more than the decisions adopted in Bali, that, ten years after the Malmö Declaration, ministers decided to provide additional guidance to UNEP as a mark of their increased confidence in the organization.
>
> … Some questions lingered. Is further MEA clustering the sure path to building a more "synergized" governance structure? Will the Rio+20 preparatory process benefit UNEP as a UN programme quickly growing in stature? What will "broader reform" mean in practice: the establishment of a UNEO, a WEO, or the integration of UNEP and the MEAs into a World Sustainable Development Organization? Most importantly, do countries really need such bold changes at this particular time? As a keen observer noted, in a sense UNEP is a victim of its own success. If it's "a going concern," will radical transformation of the present IEG format bring fundamental advantage and overcome the complexities of the current regime? These thoughts, in anticipation of an event-filled 2010, and a negotiating marathon up to Rio+20,

[453] ICTSD Bridges Trade BioRes, Vol. 10, No. 4, 5 March, 2010, UN Inches toward Creation of a „World Environment Organization," p. 3. http://ictsd.org/downloads/biores/biores10-4.pdf

[454] http://www.regjeringen.no/nb/dep/md/tema/klima/vedlegg/The-Nusa-Dua-Declaration---Bali-2010.html?id=594183

> were on delegates' minds as they concluded their meeting and stepped into the brilliant Bali sunshine.[455]

It is interesting to note here that even in a global, not just regional, context, UNEP uses the term *International* Environmental Governance, whereas academic researchers primarily use the term *Global* Environmental Governance (GEG). On the whole, one can observe therefore that the difference between IGE and GEG reflects not primarily a difference in the scope of the analysis, but rather in the approach and the emphasis chosen. The voluminous body of literature on GEG[456] is often related with the discussion of prospects for various scenarios of a WEO, which would either replace the UN Environmental *Programme* with a more autonomous and more powerful Specialized UN Environmental *Agency,* or it would function side by side with UNEP. Many of these GEG discussions tend to emphasize theory building based on the analysis of generic phenomena, dynamics and analytical criteria such as multilevel governance, leadership, or organizational design, structure and culture. The emphasis here is on concepts which are valid across environmental sectors, problems and organizations, and which can provide insight and "lessons learnt" from experiences accumulated in environmental diplomacy, administration, regulation and capacity building over the past forty years. Furthermore, they are very useful for students who need to achieve an understanding of the negotiation processes and organizational structures. It is important to note also that many of these intergovernmental instruments have developed their fundamental features over decades, and they require a certain consistency, predictability, and conformity with Public International Law as they are developed and implemented throughout the UN system. Compared with matters of organizational or sectoral policy, the debate on a WEO is more broad, overarching, as well as multistakeholder and system-oriented, and it may be approached through either a primarily theoretical or an empirical and legal lens. As can be seen from the above elucidations, this analysis leans toward the latter, focused on problem solving and negotiation processes.

UNEP: A Long History of Involvement in International Environmental Governance

UNEP's role in International Environmental Governance has achieved its first high profile manifestation, as mentioned above, at the seventh GCSS in February 2002 in Cartagena, Columbia.[457] These early attempts unfortunately were not very successful in garnering significant political support. A new attempt has been made more recently at a conference in Belgrade, Serbia, in February 2009, to breathe new

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[455] *Earth Negotiations Bulletin,* Final Summary Report, *op. cit.* (see Annex 1), p. 13/14.

[456] See e.g. 'Current Debates,' *Global Environmental Politics* 2001; Charnovitz 2002; Biermann and Bauer 2005; Ivanova 2010. See also Selin 2010, especially on multilevel governance theory with regards to the international regulation and management of chemicals and wastes.

[457] Roch, Philippe and Franz Xaver Perrez. 2005. International Environmental Governance: The Strive Towards a Comprehensive Coherent, Effective and Efficient International Environmental Regime. *Colorado Journal of International Environmental Law and Policy.* 16(1): 1-26. Available at http://www.ecolomics-international.org/gov_philippe_roch_and_franz_xaver_perrez_ieg_cjielp_16_1_2005.pdf

life into the concept of IGE under the name of the *Belgrade Process.*[458] The objective is essentially always the same, namely to streamline, interconnect and coordinate the fragmented patchwork of MEAs and other environment-related organizations and agreements, to make them administratively more efficient and more effective by giving them appropriate structures and more political support, not to mention real clout. Last but not least attention needs to be paid to close interaction with the key intergovernmental organizations in related but also in conflicting areas (such as the UNDP, FAO, WHO, WMO, the GEF or the World Bank, as well as the WTO), without losing sight of the environmental mandate. This of course must go hand in hand with making sure that resources are in line with the broad mandates which UNEP and MEAs tend to be given by their governing bodies, or to pinpoint priorities within these mandates which are in line with the achievable resources.

Such efforts have a long history, back in the 1980s and 1990s four specific instruments were established which can be seen as forerunners of the various presently ongoing processes which are the subject of this paper:[459]

- the UN Administrative Committee on Coordination (ACC)
- the Designated Officials on Environmental Matters (DOEM)
- the UN System-Wide Medium-Term Environment Programme (SWMTEP) 1990-95
- the Committee of International Development Institutions on the Environment (CIDIE)

These instruments were set up for essentially the above-mentioned overall streamlining and coordinating purposes.[460] The fundamental reason why all these efforts failed or showed a disappointing result is very simple: The UN system is characterized by a high degree of autonomy of the Specialized Agencies who essentially raise their own funding. That is why coordination in this context can only be achieved through the power of the dollar, that is a body which desires to coordinate certain joint projects or programs must be in a position to provide significant financial incentives. A small and underfunded program, which furthermore has been located by its creators in Nairobi, a venue that is very far away from the geopolitical and financial power centers,[461] doesn't have a chance in effectively carrying out coordinating tasks among Specialized Agencies which are bigger, richer, and located more conveniently to attract financial support. In fact I remember during interviews in New York in the late 1980s and the early 1990s, the DOEM was either unknown or simply shrugged off by officials at the UN and its Agencies. Nevertheless, UNEP's members continue to have some hope for a role in improving the coherence of environmental policies and programs throughout the UN system through the Environmental Management Group

[458] First meeting of the Consultative Group of Ministers or High-level Representatives on International Environmental Governance Belgrade, 27 – 28 June 2009, http://www.unep.org/environmentalgovernance/LinkClick.aspx?fileticket=7RzudGTFKRI%3D&tabid=341&language=en-US

[459] Thomas 1991, 141. Available at http://books.google.ch/books?id=5o65dZ-wGbwC&pg=PA141&lpg=PA141&dq=designated+DOEM&source=bl&ots=hSWL0EKQhj&sig=PkX1LAab1oCNEPtbG3PqbzEA_P8&hl=fr&ei=eL7uS-rJLZ2gOObisfIH&sa=X&oi=book_result&ct=result&resnum=3&ved=0CCIQ6AEwAg#v=onepage&q=doem&f=false

[460] Ivanova 2010, 44; Thomas 1992, 46; 131-135.

[461] Ivanova 2010, 52-53; Thomas 1992, 111-120.

which is chaired by UNEP,[462] and the UN System Chief Executives Board for Coordination.[463] It is clear, however, that these aspirations are now much more modest, pragmatic, and focused on facilitation and cooperation:

> The Governing Council (…) 3. *Encourages* the Environmental Management Group to continue its cooperation, including by working with the United Nations Chief Executives Board for Coordination and its subsidiary bodies in enhancing:
>
> (…) (c) Coherence in mainstreaming environmental considerations in United Nations operational activities at the country level, in particular by identifying options for the development of a possible United Nations system-wide approach to environmental aspects.[464]

UNEP's Strengthened Profile in International Environmental Governance

The discussion on international environmental governance needs to be seen in the wider historical, financial, and geopolitical context of such efforts. This is ultimately the reason why UNEP's excellent performance in Bali 2010 is so significant: it provides UNEP with a hefty new argument for a bigger role in environmental governance. This ExCOP undoubtedly was not without risk for UNEP, e.g. if the parties of any one of the Conventions would not have accepted unanimously some recommendation of the AHJWG process then this whole plan might have resulted in a debacle for UNEP's diplomatic reputation. The most critical moment was the Basel Convention's COP9, which took place also in Bali, in June 2008. It was the first and largest COP to discuss the AHJWG recommendations, and its acceptance was considered to be a deal maker for the following COPs of the Rotterdam and the Stockholm Conventions. It would be worthwhile to review this whole quite unique process with the objective of crystallizing some lessons learnt that may be valuable for other comparable negotiations. There is a significant potential here for UNEP, but at the same time one should be conscious of the limits to drawing such parallels:

> The prevailing sentiment in Bali was that the ExCOPs experience added stimulus to the drive towards a less fragmented international environmental governance (IEG) regime, particularly by "clustering" MEAs. Some even thought the biodiversity-related conventions, including the Convention on Biological Diversity, UN Convention to Combat Desertification, Ramsar Convention and Convention on Migratory Species, might be the next step. Others were not so confident, citing considerable difference between these conventions. Discussion of the matter indicated a possible way further MEA synergies could be addressed, and it is here that the greater significance of the ExCOPs seems to lie.[465]

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[462] Environmental Management Group: http://www.unemg.org/
[463] UN System Chief Executives Board for Coordination: http://www.unsystemceb.org/
[464] Draft Decisions Approved by the Committee of the Whole, 26 February 2010, UNEP Governing Council, UNEP/GCSS.XI/L.5/Add. 1. http://environmentalgovernance.org/cms/wp-content/uploads/2010/03/GC-Draft-Decisions.pdf
[465] *Earth Negotiations Bulletin,* Final Summary Report, *op. cit.* (see Annex 1), p. 13.

As far as clustering MEAs is concerned, the question needs to be asked: what is the use of a clustering process if they are really not that closely related? The chemicals and wastes MEAs all address essentially the same objective, namely the environmentally sound management of hazardous substances through intergovernmental regulatory agreements and through technical cooperation programs. Commonalities may be less pronounced in other 'candidates' for clustering that are sometimes mentioned, such as (I) the biodiversity-related conventions. These have a more multifaceted scope which includes issues like desertification; protected areas; wetlands; sustainable use of the components of biodiversity; intellectual property linked tied to access and benefit sharing agreements regarding biotechnology; biosafety; or migratory and marine species. Some of them are strongly trade-related; some others are not or only indirectly. Then again, perhaps they all *do* have a theme in common which would justify efforts toward a closer cooperation, such as the *role of biological sciences* where important commonalities do exist. In fact, the recent creation of the *Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)*[466] may indeed lead to such a development. Further potential candidates are (II) climate change and energy policies. These are reaching into every major sector of our economies and civilizations, which will make benefits from clustering difficult to achieve. The same probably would apply to (III) the protection of oceans, fresh water bodies, and fish stocks that are quite distinct issue areas. These complexities do make the achievement of synergies and efficiencies more complicated but by no means impossible. They do necessitate, however, the development of organizational structures that will be more challenging than the solution agreed upon in this case, i.e. a joint head for three MEAs. Whatever structure may be developed to coordinate MEAs and similar instruments will need to be tailored to their underlying commonalities, and to the specific synergies that are to be realized. These strategies of course will require that a consensus can be negotiated regarding specific commonalities and synergies. Such rather basic notions may seem unproblematic, but they are not value-free, the determination of commonalities and synergies to be achieved is often tied to a political agenda, such as the degree of trade restrictions a country is willing to accept, and therefore they need to be clarified carefully through preparatory negotiations.

Be that as it may, it should be emphasized that a number of delegates have expressed hope, explicitly, that the results of the ExCOP should indeed be applicable to other issue areas and MEAs.[467] I think it is fair to say that the chemicals and wastes conventions are the ones for which an organizational clustering strategy is most promising, and easier to carry out than for any of the other domains. If such a strategy in this field shows positive results, it will undoubtedly encourage clustering processes in other domains. These may or may not turn out to be useful, it seems to me it is clear that success will depend not only on putting together appropriately related environmental problems or sectors, but also on focusing the negotiations on truly common fundamental underlying themes such as intellectual property rights, agricultural productivity, employment in fisheries, scientific uncertainty, or precaution and prevention.

To conclude our discussion on the chemicals and wastes conventions as well as on other MEAs and related broader ecopolitical and geopolitical matters, we can see that we are dealing here in fact with four subjects related to global environmental

[466] http://ipbes.net/

[467] *Earth Negotiations Bulletin Ibid.* p. 7-8; 13.

policy, and that UNEP has been mandated by its member states to make significant contributions in each of them:

- clustering MEAs
- the creation of a World Environment Organization (WEO)
- International Environmental Governance (IGO)
- greening the economy/Green Economy Initiative (GEI)[468]

As far as the mandates for UNEP in these four areas are concerned, one would need to look at the specifics and the political ramifications of each; suffice it to mention here that these are very different in nature, and they are underpinned by quite diverse legal connotations and political dynamics. This means that we would need to appreciate the complexities and ramifications of each of these areas and UNEP's role in them separately; we therefore will have to address these at a later date. It is clear, however, that the key issue is in all four cases the political will among the members of the body which contains the world's most important diplomatic actors in the field of global environmental and economic regulation - that would presumably mean the members of the G20.

6. Conclusion: A Call for Treating Trade-Related MEAs as a Distinct Category of MEAs

As far as the legal and organizational foundations and structures of a reinforced UNEP, a WEO, or another form of a high-profile multilateral environmental body are concerned, these may take different forms, they will follow political will pretty much as form tends to follow function. In order to facilitate a pragmatic and politically feasible approach, I think it would be very helpful if not essential to distinguish between two categories of MEAs: those that contain particularly significant trade-restricting measures potentially in conflict with WTO agreements, and those that don't. In spite of the fact that our three conventions' relationship with the WTO is, as mentioned above, less direct than that of some other MEAs I would certainly place them in the first category because the trade potential is very substantial, especially from the perspective of certain developing countries and of the US. This is the category of MEAs which is most complex and problematic, not for reasons of administrative efficiencies and cooperation, but because they touch upon national interests with powerful political constituencies. This is the problem which needs to be tackled first and foremost.

It is easy to see that governance architectures which carry a crucial trade or more generally economic or financial potential are organized in a relatively focused and coherent fashion with a low degree of fragmentation. That explains for instance why the WTO stands out as a highly centralized, mandatory and binding embodiment of the trade regime.[469] Its construction through the Uruguay Round negotiation has in fact given the necessary political and organizational underpinnings to the much more limited and much less authoritative General Agreement on Tariffs and Trade which

[468] UNEP Green Economy Initiative http://www.unep.org/greeneconomy/AboutGEI/tabid/1370/language/en-US/Default.aspx

[469] On could also point out to Wall Street, the London City, or Paradeplatz Zürich, as pillars of the relatively concentrated global financial governance architecture.

preceded it. This is true even in the present political and economic phase of the globalization process, which is characterized by a rapidly increasing competition to the WTO through the proliferation of preferential trade agreements in the wake of the difficulties in concluding the Doha Round. The 2003 Cancun Ministerial conference has marked a turning point in this recent trend.[470] Thanks to the WTO Dispute Settlement Body, however, the trend should not be overestimated; the trade regime is still far less fragmented and far more binding than for instance the Climate Regime. The relationship between the two regimes has started to evolve also, and this evolution will be very interesting to watch. I am convinced that this rate of change will be determined by the impact of devastating climate change-related events and trends on the most powerful capitals.[471]

The construct of the fragmentation of global governance architectures is innovative and very fertile, it has entered political science in a major way only recently. Biermann et al.[472] have elaborated a pioneering framework which will undoubtedly have a significant impact on theory building in International Relations. The article provides a highly structured in depth conceptual analysis of the degrees and consequences of the fragmentation of global governance architectures. The potential for major influence on IR scholarship can be seen in the fact that this research effort has been supported by the European Research Program "Adaptation and Mitigation Strategies: Supporting European Climate Policy (ADAM Project)" from 2006 through 2009, and it has benefitted from the input of many of the most important international relations scholars. A discussion of the relevance of this framework and of their findings for the MEAs investigated here would go well beyond the scope of this article, suffice it to mention that it might represent a very interesting research (or PhD) project.

I an interesting application of the concept of fragmented architectures, policy domains which are not considered as "important" may be joined strategically with economically much less important issues. Mixing up important and minor economic stakes makes negotiations unnecessarily complicated without bringing solutions closer in those areas which are really important. Such a situation exists for example at WIPO's Intergovernmental Committee on *Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore* (IGC).[473] It is obvious that the economic stakes of intellectual property rights need to be seen in their context: Plant genetic resources, as they are exercised through highly sophisticated corporations that are dealing through globalized joint ventures and channels with genetically modified agricultural biotechnologies cannot be compared with the economic stakes of the designers of traditional handicraft and folklore! The fact that both cases are lumped together in the IGC is unfortunate. It can only serve to deflect attention from the big issues, to delay negotiations needlessly, and thus to thwart efforts at governance and management. It is hard to imagine that this structure of the negotiation process was not devised deliberately by certain interested parties as a delaying tactic.

MEAs are controlled by negotiators from the environment ministries, and the trade agreements by their colleagues from the trade and other economically oriented ministries. The biggest problem for the MEAs consists in the fact that the latter

[470] See for instance Wilkinson 2004, 150.
[471] See for instance Tamiotti 2009.
[472] Biermann *et al.* 2010.
[473] http://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_16/wipo_grtkf_ic_16_ref_decision.pdf

ministries have far more political clout in the cabinet meetings of national governments. That is why, as mentioned above, even the relatively timid efforts contained in the Doha Round on clarifying and streamlining the relationship and the procedures for regular information exchanges between MEAs and the WTO have still not been concluded. Obviously, as long as negotiators are still struggling over the basics of procedure, one can hardly expect significant progress in conflicts of interests with regard to substantive matters. This unbalanced distribution of power may serve to explain the ways in which the key political decision-makers have set up some of the institutional features of the multilateral system: The trade regime, which the key geopolitical actors want to keep under control as closely as possible, are not scattered around in different venues or exposed to the unpredictable vagaries of the UN General Assembly, rather, the WTO represents a central separate institution with a binding and compulsory Dispute Settlement Body.[474] In a nutshell, these are the overarching conditions under which the MEAs must operate. The fundamental question therefore for these trade-related MEAs is not how to improve coordination, cooperation and efficiencies among each other in the fulfillment of their multifaceted mandates. Rather, the fundamental challenge for these MEAs is to achieve a consensus among their parties on trade-related policies, which will then allow them to coordinate their positions in the interactions with the WTO.

There is indeed a structure which is tasked with this assignment, namely UNEP's Economics and Trade Branch (UNEP ETB), located in Geneva, but subordinated to the Paris-based Division of Trade, Industry and Economics (DTIE).[475] This ETB is doing a remarkable job given its very small size, but the fact of the matter is that it is pathetically understaffed, and as a result it cannot really function as a hub between the trade-related MEAs and the WTO. For this purpose it would need to have the authority and the means to facilitate the negotiation at least of clear procedures with regard to the relationship of these MEAs with the WTO, regular information exchanges, and observership agreements. Given that the WTO has no difficulty in being accepted as an observer to MEA negotiations, why should it be so difficult to achieve reciprocal arrangements? Only when these MEAs combine their trade expertise and political support do they have a chance of strengthening their presently very uneven status vis-à-vis the trade regime, scattered as they are presently throughout Europe and North America.

The creation of a WEO would not by and of itself solve any of these problems, nevertheless it might be of some use for this purpose assuming it were co-located with the WTO in Geneva. Then again, it might be side-tracked with issues that are not related to trade but which are more important for other kinds of MEAs not facing important issues of WTO compatibility. This is the reason why the approximately twenty MEAs whose WTO compatibility may be problematic should be treated separately as a group of agreements with significant common trade issues. The creation of the suggested authoritative mechanism mandated to facilitate these exchanges in my opinion is not only more important than the creation of a WEO, it should also be considered as a crucial issue within the broader IEG debate independently of the WEO question.

After this discussion of the dynamics of the trade and environment debate within which the chemicals and wastes conventions need to be integrated, I would like

[474] See e.g. Nathalie Bernasconi-Osterwalder, 2005; Edith Brown Weiss and John H. Jackson, ed. 2001.; Giorgio Sacerdoti et al., ed. 2006.
[475] http://www.unep.fr/en/

to briefly revert to the question touched upon above of creating a formal framework convention for these three agreements, including new conventions which are presently being negotiated, especially the one on mercury which is by far the most advanced,[476] as well as the planned separate or combined conventions on lead and cadmium. The establishment of a framework convention on the Environmentally Sound Management (ESM) of chemicals and wastes, sustained by a body of certain common principles and rules, would represent an important step towards creating standards for the management of the flow of wastes and recyclables worldwide.

A framework convention would help regulators to address the implementation of an ESM in a coordinated way, thus avoiding contradictions or duplications between these conventions. A comprehensive regulation of ESM can foster an even playing field between the concerned enterprises, as an OECD Council Recommendation points out:

> (…) the implementation of environmentally sound and economically efficient management of waste should achieve the following objectives: (…) 2. fair competition between enterprises throughout the OECD area through the implementation of "core performance elements" (CPEs) by waste management facilities, thus contributing to a level playing field of high environmental standards;[477]

This OECD Recommendation may indeed serve as an outline for a an ESM framework convention in which of course the industrialized countries in any case are taking the lead and will hopefully assist developing countries and economies in transition to ratchet up their ESM practices. An ESM framework convention could constitute the backbone for a wider comprehensive global ESM system, including, for example, ESM certification, international ESM standards and traceability systems in order to strive toward improved implementation of ESM on a global scale.

A comprehensive legal framework should capitalize on the existing approaches undertaken so far, *inter alia*, by the Parties to the Basel Convention, the OECD Members, or the Bureau of International Recycling.[478] The Basel Convention as well as OECD Recommendation C(2004)100 pursue the overall objectives of enhancing the sustainable use of natural resources and the general aim of minimizing waste generation.[479] In addition, regarding wastes that cannot be avoided with certain manufacturing processes, the concept of ESM stipulates the protection of human health and the environment from adverse effects that may result from hazardous waste substances. This definition of ESM can be seen as an underlying principle, linking the Basel, the Rotterdam, as well as the Stockholm Convention.[480] All three conventions apply the concept of ESM one way or another in close cooperation with SAICM and UNEP Chemicals. It would be very interesting to

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[476] The UNEP mercury programme delivers activities on mercury through the UNEP Global Mercury Partnership, and will also support the negotiations of an internationally legal instrument for control of mercury: http://www.chem.unep.ch/MERCURY/

[477] See OECD Council Recommendation C(2004)100 and its list of objectives: http://www.bmu.de/files/pdfs/allgemein/application/pdf/oecd_ratsempfehlung040518.pdf

[478] http://www.bir.org/

[479] See Article 4(2.a) and Preambular paragraph 3 Basel Convention; Preamble of the OECD Council Recommendation C(2004)100, *op. cit.* listing its three main objectives.

[480] See Preambular paragraph 4 and Article 2(8) Basel Convention; Preambular paragraph 1 and Article 1 Rotterdam Convention; Preambular paragraph 5 and Article 1 Stockholm Convention.

consider more in detail parallels, differences and lessons learnt especially with regard to the UN Framework Convention on Climate Change,[481] as well as the Convention on Biological Diversity[482] which also represents *the facto* a framework convention, but I shall have to leave this challenge as a suggestion for further research.

Last but not least, I would like to come back to the question in the title: Are these conventions helpful as a model for clustering, or are we dealing with a situation here that is of little use for learning any lessons about strengthening such linkages? I would summarize the answer by saying that on one hand yes indeed, the chemicals and wastes conventions have since their recent creation just a few years ago arguably been the most successful cluster of MEAs, and the success of this year's Bali ExCOP will certainly be an encouragement to all those stakeholders who think that synergies can indeed be reinforced and should be encouraged, and that there is not only a real potential but also a real political momentum to do so. On the other hand, it is also true that the situation is more complicated than appearances might suggest, because of this fundamental difference between MEAs which do and those which do not contain significant trade-restrictive measures that might potentially be ruled to be in violation of WTO agreements. I don't think for example that it would be advisable to put in the same cluster let's say the Convention on Biological Diversity which has crucial trade aspects, and the Convention to Combat Desertification. Bridging and reconciling ecological and economic priorities is one of the great challenges of our time. In order to be able to advance in this reconciliation process one needs to clearly understand the nature of the policy domains that are to be linked. But as pointed out above, ecological and economic priorities are addressed separately far too often, whereas a more comprehensive *EcoLomic* approach will facilitate the negotiation of even-handed agreements, institutions and outcomes.

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[481] http://unfccc.int/2860.php
[482] http://www.cbd.int/

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ANNEX 1 - SELECTED ACRONYMS

ADB	Asian Development Bank
ADF	African Development Fund
ADF	Asian Development Fund
ADR	Alternative Dispute Resolution
AfDB	African Development Bank
AHJWG	Ad Hoc Joint Working Group (on Synergies between the Basel, Rotterdam, and Stockholm Conventions)
AIMS	Acceptance and Implementation of Multilateral Environmental Agreements in South Eastern Europe
AMCEN	African Ministerial Conference on the Environment
ARA	Academic Research Agreement
B4E	Business for the Environment
BAT	Best Available Technology
BC	Basel Convention
BCRCs	Basel Convention Regional Centers
BERCEN	Balkan Environmental Regulatory Compliance and Enforcement Network
BEP	Best Environmental Practices
BoC	Bureau of Customs (e.g. Philippines)
CAI	Clean Air Initiative
CACMA	Central Asia, Caucasus, Moldova, and Albania
CARICOM	Caribbean Community
CCAD	Central American Commission for Environment and Development
CDI (GEF)	Capacity Development Initiative
CDM	Clean Development Mechanism
CEC	Commission on Environmental Cooperation (NAFTA)
CEE	Central and Eastern Europe Region
CEITs	Countries with economies in transition
CEL	Commission on Environmental Law (IUCN)
CEN	Compliance Enforcement Network (World Customs Organization)
CEPA	Communication, Education and Public Awareness
CERN	Caribbean Environmental Reporters Network
CFCs	Chlorofluorocarbons
CHM	Clearing House Mechanism
CID	Criminal Investigation Division (e.g. of the US EPA)
CIEL	Center for International Environmental Law
CISIEN	Center for International Earth Science Information Network
CLEEN	Chemical Legislation European Enforcement Network (EU)
COP	Conference of the Parties (various MEAs)
CRA	Commercial Research Agreement
DAC	Development Assistance Committee (OECD)
DDA	Doha Development Agenda (WTO, 2001)
DEC	Division of Environmental Conventions (UNEP)
DECRG	Development Research Group
DENR	Department of Environment and Natural Resources (e.g. Philippines)
DEPI	Department of Environmental Policy Implementation

DESA	Department of Economic and Social Affairs (UN)
DEWA	Department of Early Warning and Assessment (UNEP)
DGD	Decision Guiding Document (PIC Procedure, Rotterdam Convention)
DOJ	Department of Justice (e.g. US)
DPDL	Division of Policy Development and Law (UNEP)
DRC	Division of Regional Cooperation
DSB	Dispute Settlement Body (WTO)
DSU	Dispute Settlement Understanding (WTO)
DTIE	Division of Technology, Industry and Economics
EA	Executing Agency (of the GEF)
EAB	Environmental Appeals Board (e.g. US)
EAJA	Equal Access to Justice Act (US)
EBR	Environmental Bill of Rights (Ontario, Canada)
EBRD	European Bank for Reconstruction and Development
ECENA	Environmental Compliance and Enforcement Network for Accession
ECHO	Enforcement and Compliance History Online (US EPA)
ECLAC	Economic Commission for Latin America and Caribbean (UN)
EDN	Earth Day Network
EECCA	Eastern Europe, Caucasus, and Central Asia
EET	Environmental Education and Training
EHF	Environmental Health Fund
EIA	Environmental Impact Assessment
ELC	Environmental Law Center (IUCN)
ELI	Environmental Law Institute
ELNI	Environmental Law Network International
EMAS	Eco-Management and Audit Scheme (EU)
EMB	Environmental Management Bureau (e.g. Philippines)
EMG	Environmental Management Group (UNEP)
EMS	Environmental Management System
ENB	Earth Negotiation Bulletin (IISD)
EPA	Environmental Protection Agency (e.g. Ghana, US)
ENRM	Environment and Natural Resources Management (ENRM)
ER	Environmental Registry (Canada)
ERP	Environmental Response Policy (e.g. US)
ESM	Environmentally Sound Management (e.g. of Chemicals)
EUFJE	EU Forum of Judges for the Environment
FAO	Food and Agriculture Organization of the United Nations
FEPA	Federal Environmental Protection Agency (e.g. Nigerial)
FOIA	Freedom of Information Act (especially US)
GC	Governing Council (UNEP, at the Nairobi Secretariat)
GCSS	Governing Council Special Session (UNEP, venues outside Nairobi)
GEG	Global Environmental Governance (mostly academic use, see IEG)
GEN	Global Ecolabeling Network
GEF	Global Environment Facility
GEO	Global Environment Outlook (UNEP)
GHS	Globally Harmonized System of Classification and Labeling Chemicals (UNECE)
GLOBE	Global Legislators Organization for a Balanced Environment
GMEF	Global Ministerial Environment Forum (UNEP)
GMP	Global Malaria Programme (WHO)

GPA	Global Plan of Action (SAICM)
GRULAC	Latin American and Caribbean region
GTZ	Gesellschaft for Technische Zusammenarbeit (Germany, Agency for Technical Cooperation
HCWH	Health Care Without Harm
IA	Implementing Agency (of the GEF)
IBRD	International Bank for Reconstruction and Development
ICAD	International Compliance Assurance Division (US EPA)
ICCA	International Council of Chemical Associations
ICCM	International Conference on Chemicals Management
CHM	Clearing House Mechanism
ICIPE	International Center of Insect Physiology and Ecology / African Insect Science for Food and Health (Nairobi)
ICTSD	International Center for Trade and Sustainable Development
IDA	International Development Association (World Bank Group)
IDB	Inter-American Development Bank
IEG	International Environmental Governance (UNEP)
IEH	International Environment House (Geneva)
IFI	International Financial Institution
IGO	Inter-governmental Organization
IISD	International Institute for Sustainable Development
ILO	International Labour Organization
IFCS	Intergovernmental Forum on Chemical Safety
IFIs	International Finance Institutions
ILEA	International Law Enforcement Academy
ILO	International Labor Organization
IMPEL	Network for the Implementation and Enforcement of Environmental Law (EU)
INECE	International Network for Environmental Compliance and Enforcement
INC	Intergovernmental Negotiations Committee
IPEN	International POPs Elimination Network
IGO	Intergovernmental Organization
IOMC	Inter-Organization Programme for the Sound Management of Chemicals
IPEN	International POPs Elimination Network
IPM	Integrated Pest Management
IPPM	Integrated Pollution Prevention and Control
IRS	Indoor Residual Spraying (DDT)
ISDE	International Society of Doctors for the Environment
ISO	International Organization for Standards
ITNs	Insect Treated Nets (against malaria)
IUCN	International Union for the Conservation of Nature
IW	International Waters (GEF focal area)
JUSCANZ	Japan, US, Switzerland, Canada, Australia, Norway and New Zealand (group of countries in multilateral negotiations)
LLINs	Long-Lasting Insecticidal Nets (against malaria)
MA	Millennium (Ecosystem) Assessment
MARPOL	International Convention on the Prevention of Pollution from Ships
MEA	Multilateral Environmental Agreement
MENA	Ministry of Environment and Natural Resources (e.g. Seychelles)

MDGs	Millennium Development Goals
MLF	Multilateral Fund for the Implementation of the Montreal Protocol
MOE	Ministry of the Environment
MOE	Memorandum of Understanding
MOP	Meeting of the Parties (Multilateral Protocols)
NAAEC	North American Agreement on Environmental Cooperation
NACEC	North American Commission for Environmental Cooperation
NEA	National Environment Agency (e.g. Gambia)
NEAP	National Environmental Action Plan
NIP	National Implementation Plan (for the Stockholm Convention)
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
OEJ	Office of Environmental Justice (US EPA)
OELTWG	Open-Ended Legal and Technical Working Group (SAICM/ICCM)
OP	Operational Program (of the GEF)
OPCW	Organization for the Prohibition of Chemical Weapons
PADELIA	Partnership for Development of Environmental Law and Institutions in Africa (UNEP)
PAN	Pesticide Action Network International
PBT	Persistent, Bioaccumulative and Toxic Substance
PCB	Polychlorinated Biphenyl
PEEM	Public Environmental Expenditures Management
PIC	Prior Informed Consent
POPs	Persistent Organic Pollutants
PrepCom	Preparatory Committee (SAICM development)
PRTR	Pollutant Release and Transfer Register (Aarhus Convention)
PSC	Project Steering Committee
QSP	Quick Start Program (SAICM)
RC	Rotterdam Convention
RAED	Arab Network for Environment and Development
RDBs	Regional Development Banks
REC	Regional Environmental Center (e.g. for Central and Eastern Europe)
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
RMCs	Regional Members Countries (African Development Bank)
RIA	Regulatory Impact Assessment
RIEW	Regional Inspectorates on Environment and Water (e.g. Bulgaria)
RMPs	Refrigerant Management Plans
RMS	Resource Mobilization Strategy
ROA	Regional Office for Africa (UNEP)
ROAP	Regional Office for Asia and Pacific (UNEP)
ROE	Regional Office for Europe (UNEP)
ROLAC	Regional Office for Latin America and the Caribbean (UNEP)
RONA	Regional Office for North America (UNEP)
ROWA	Regional Office for West Asia (UNEP)
RPIU	Regional Project Implementation Unit
SAICM	Strategic Approach to International Chemicals Management
SBC	Secretariat of the Basel Convention
SC	Stockholm Convention
SEA	Strategic Environmental Assessment
SEAP	South East Asia and Pacific (Network)

SEE	South Eastern Europe
SEP	Supplemental Environmental Project
SEPA	State Environmental Protection Agency (e.g. in China, Nigeria)
SIA	Sustainability Impact Assessment
SLI	Starter, lighting and ignition batteries
SOE	State of the Environment (Reports)
SPS	Sanitary and Phytosanitary Measures (key WTO Agreement)
SMC	Sound Management of Chemicals
SRG	Scientific Review Grour (EU)
TEAP	Technology and Economic Assessment Panel
ULABs	used lead-acid batteries (for recycling under Basel Convention)
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNIDO	United Nations Industry Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNITAR	United Nations Institute for Training and Research
USAID	US Agency for International Development
USEPA	US Environmental Protection Agency
VOC	Volatile Organic Compound
WB	World Bank
WCO	World Customs Organization
WECF	Women in Europe for a Common Future
WFPHA	World Federation of Public Health Associations
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WPIEI	Working Party on International Environmental Issues (EU)
WRI	World Resources Institute
WTO	World Trade Organization
WSSD	World Summit on Sustainable Development
WWF	World Wide Fund for Nature (in US and Canada: World Wildlife Fund)

ANNEX 2 - SELECTED ONLINE RESOURCES ON CHEMICALS AND WASTES

International POPs Elimination Network (IPEN)
Strategic Approach to International Chemicals Management (SAICM)
IPEN/SAICM publications
The following series of three very informative booklets is particularly recommended - Author: Jack Weinberg, 2008/09

- An NGO Guide to SAICM
  http://www.ipen.org/campaign/documents/education/saicm%20introduction%20english.pdf
- An NGO Guide to Persistent Organic Pollutants
  http://www.ipen.org/campaign/documents/education/ngo_guide_pops_final.pdf
- An NGO Guide to Hazardous Pesticides and SAICM
  http://www.ipen.org/campaign/documents/education/hazpesticides_guide.pdf

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Adhoc Joint Working Group on Enhanced Cooperation and Coordination between the Basel, Rotterdam and Stockholm Conventions (AHJWG)
http://ahjwg.chem.unep.ch/

Basel Action Network
http://www.ban.org/

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
http://www.basel.int/

Earth Negotiation Bulletin/IISD
ENB COVERAGE OF CHEMICALS MEETINGS
http://www.iisd.ca/process/chemical_management.htm
http://www.iisd.ca/enbvol/enb-background.htm

> Simultaneous Extraordinary Meetings of the Conferences of the Parties to the Basel, Rotterdam, and Stockholm Conventions, and Eleventh Special Session of the UNEP GC/GMEF, 22-26 February 2010 Bali, Indonesia
> http://www.iisd.ca/unepgc/unepss11/

FAO Pesticide Management
http://www.fao.org/agriculture/crops/core-themes/theme/pests/pm/en/

FAO 2002 International Code of Conduct on the Distribution and Use of Pesticides
http://smap.ew.eea.europa.eu/media_server/files/k/A/FAO_guidelines_english.pdf

Health Care without Harm (HCWH)
http://www.noharm.org/

International POP's Elimination Network (IPEN)
http://www.ipen.org/

International Program on Chemical Safety (IPCS)
http://www.who.int/ipcs/en/

International Society of Doctors for the Environment (ISDE)
http://www.isde.org/

Inter-Organization Programme for the Sound Management of Chemicals (IOMC)
http://www.who.int/iomc/en/

IPEN
See references featured on top of this section

Pesticide Action Network (PAN)
http://www.pan-international.org/panint/?q=node/33

Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC)
http://www.pic.int/en/ConventionText/ONU-GB.pdf

Stockholm Convention on Persistent Organic Pollutants (POPs)
http://chm.pops.int/

Strategic Approach to International Chemicals Management (SAICM)
http://www.saicm.org/
See also references on top of this section

UNEP Chemicals
http://www.chem.unep.ch/

UN Institute for Training and Research (UNITAR)
Chemicals and Waste Programmes
http://www.unitar.org/chemicals-and-waste-management-at-unitar

Waste Environment Cooperation Centre (WE 2C)
http://www.we2c.org/

WHO Chemical Safety
http://www.who.int/topics/chemical_safety/en/

Women in Europe for a Common Future
http://www.wecf.eu/

World Federation of Public Health Associations
http://www.wfpha.org/

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A Reporting Service for Environment and Development Negotiations
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SUMMARY OF THE SIMULTANEOUS EXTRAORDINARY COPS TO THE BASEL, ROTTERDAM AND STOCKHOLM CONVENTIONS AND THE 11TH SPECIAL SESSION OF THE UNEP GOVERNING COUNCIL/GLOBAL MINISTERIAL ENVIRONMENT FORUM: 22-26 FEBRUARY 2010

The simultaneous extraordinary Conferences of the Parties (ExCOPs) to the Basel, Rotterdam and Stockholm Conventions were held 22-24 February 2010 in Nusa Dua, Bali, Indonesia. They were followed by the eleventh special session of the United Nations Environment Programme (UNEP) Governing Council/Global Ministerial Environment Forum (GCSS-11/GMEF), which was held from 24-26 February 2010. Over 1000 participants, representing more than 100 governments, as well as intergovernmental organizations, UN agencies, and major groups and other stakeholders, attended the meetings.

At the ExCOPs, delegates adopted an omnibus synergies decision on joint services, joint activities, and synchronization of the budget cycles, joint audits, joint managerial functions, and review arrangements. Most delegates expressed satisfaction with the successful conclusion of the historic ExCOPs, which some said heralded a new era of multilateralism with positive implications for the ongoing international environmental governance (IEG) debate.

Following the ExCOPs, ministers and delegates attended the GCSS-11/GMEF to address emerging policy issues under the theme of "environment in the multilateral system." The GCSS-11/GMEF concluded its work by adopting eight decisions on: IEG; enhanced coordination across the UN, including the Environmental Management Group (EMG); a follow-up report on the environmental situation in the Gaza Strip; the intergovernmental science-policy platform on biodiversity and ecosystem services (IPBES); strengthening the environmental response in Haiti; oceans; a consultative process on financing options for chemicals and wastes; and environmental law. The GCSS-11/GMEF session was largely viewed as a success by participants, taking into account the ambitious agenda. Delegates particularly welcomed the Nusa Dua Declaration as well as the decisions on IEG and IPBES. Some saw it as signaling UNEP's increasing involvement in the UN sustainable development agenda, including the preparations for Rio+ 20. The session also appeared to restore some degree of confidence in multilateralism after Copenhagen.

A BRIEF HISTORY OF THE CHEMICALS CONVENTIONS EXCOPS

***AD HOC* JOINT WORKING GROUP:** The *Ad hoc* Joint Working Group on Enhancing Cooperation and Coordination among the Basel, Rotterdam and Stockholm Conventions (AHJWG) was established pursuant to decision SC-2/15 of the Conference of the Parties (COP) of the Stockholm Convention on Persistent Organic Pollutants, COP decision RC-3/8 of the Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, and COP decision VIII/8 of the Basel

IN THIS ISSUE

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Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. The mandate of the group was to prepare joint recommendations on enhanced cooperation and coordination for submission to the COPs of the three conventions. The AHJWG convened three meetings from 26–28 March 2007 in Helsinki, Finland, 10–13 December 2007 in Vienna, Austria, and 25–28 March 2008 in Rome, Italy.

BASEL CONVENTION COP 9: This meeting was held from 23–27 June 2008 in Bali, Indonesia. COP 9 adopted more than 30 decisions prepared by the Open-Ended Working Group (OEWG) including on the Strategic Plan, linking the evaluation of the effectiveness of the Convention with the new strategic framework beyond 2010 and, in this context, approving a suitable budget. Delegates adopted the recommendation of the AHJWG.

ROTTERDAM CONVENTION COP 4: This meeting convened from 27–31 October 2008 in Rome, Italy. The COP adopted 13 decisions including on the addition of tributyltin compounds to Annex III of the Convention (chemicals subject to the PIC procedure), and a programme of work and budget for the triennium 2009-11. The meeting also adopted the recommendations of the AHJWG.

STOCKHOLM CONVENTION COP 4: This meeting convened from 4–8 May 2009 in Geneva, Switzerland, and adopted the recommendations of the AHJWG. Delegates also addressed: a non-compliance mechanism; effectiveness evaluation; financial resources; and recommendations from the POPs Review Committee to schedule nine additional chemicals under the Convention.

A BRIEF HISTORY OF UNEP GC/GMEF

As a result of the Stockholm Conference on the Human Environment, the UN General Assembly (UNGA), in its resolution 2997 (XXVII) of 1972, officially established UNEP as the central UN node for global environmental cooperation and treaty making. The resolution also established the UNEP Governing Council (GC) to provide a forum for the international community to address major and emerging environmental policy issues. The GC's responsibilities include the promotion of international environmental cooperation and the recommendation of policies to achieve this, and the provision of policy guidance for the direction and coordination of environmental programmes in the UN system. The GC reports to the UNGA, which also elects the GC's 58 members for four-year terms, taking into account the principle of equitable regional representation. The GMEF is constituted by the GC, as envisaged in UNGA resolution 53/242 of 1999. The purpose of the GMEF is to institute, at a high political level, a process for reviewing important and emerging policy issues in the field of the environment.

GCSS-6/GMEF: GCSS-6/GMEF took place from 29–31 May 2000, in Malmö, Sweden. Ministers adopted the Malmö Ministerial Declaration, which agreed that the 2002 World Summit on Sustainable Development (WSSD) should review the requirements for a greatly strengthened institutional structure for IEG.

GC-21/GMEF: GC-21/GMEF took place from 5–9 February 2001 in Nairobi, Kenya. Delegates established the Open-ended Intergovernmental Group of Ministers or Their Representatives (IGM) to undertake a comprehensive policy-oriented assessment of existing institutional weaknesses, as well as future needs and options for strengthening IEG. They also adopted decision 21/7, which requests the UNEP Executive Director to examine the need for a Strategic Approach to International Chemicals Management (SAICM).

GCSS-7/GMEF: GCSS-7/GMEF was held from 13–15 February 2002 in Cartagena, Colombia. In decision SS.VII/1, the GC/GMEF adopted the IGM report, which contained recommendations aimed at strengthening IEG, including through: improved coherence in international environmental policy-making; strengthening the role and financial situation of UNEP; improved coordination among and effectiveness of multilateral environmental agreements (MEAs); and capacity building, technology transfer and country-level coordination. Delegates also adopted decisions related to, *inter alia*, SAICM.

WSSD: The World Summit on Sustainable Development was held from 26 August to 4 September 2002 in Johannesburg, South Africa. The Johannesburg Plan of Implementation (JPOI) sets out a framework for action to implement the commitments originally agreed at the 1992 Rio Earth Summit. The JPOI, among other things, emphasized that the international community should fully implement the outcomes of UNEP decision SS.VII/1 on IEG.

GC-22/GMEF: GC-22/GMEF took place from 3–7 February 2003 in Nairobi, Kenya. Delegates adopted more than 40 decisions on issues including IEG, SAICM and the Mercury Programme.

GCSS-8/GMEF: GCSS-8/GMEF took place from 29–31 March 2004 in Jeju, Republic of Korea. At the conclusion of the ministerial consultations, delegates adopted the "Jeju Initiative," containing the Chair's summary of the discussions and decisions including the implementation of decision SS.VII/1 on IEG.

GC-23/GMEF: The GC-23/GMEF took place from 21–25 February 2005 in Nairobi, Kenya. Ministers considered the implementation of internationally agreed development goals, and adopted decisions, including on IEG and chemicals management.

2005 WORLD SUMMIT: The 2005 World Summit was held at UN Headquarters in New York from 14–16 September. Delegates recognized the need for more efficient environmental activities in the UN system, through, *inter alia*: enhanced coordination, improved policy advice and guidance, and strengthened scientific knowledge. They further agreed to explore the possibility of a more coherent institutional framework, including a more integrated structure, building on existing institutions and internationally agreed instruments, as well as treaty bodies and UN specialized agencies.

GCSS-9/GMEF: GCSS-9/GMEF was held from 7–9 February 2006 in Dubai. Ministerial consultations addressed, *inter alia*: policy issues relating to energy and environment, and chemicals management. The plenary discussion on IEG, the outcome of the 2005 World Summit, and GC universal membership did not produce an agreed outcome, and delegates decided that the report of the meeting should reflect the divergence of views expressed. The International Conference on Chemicals Management convened immediately prior to this meeting, and adopted SAICM.

GC-24/GMEF: GC-24/GMEF convened from 5–9 February 2007 in Nairobi, Kenya. Delegates adopted 15 decisions on

issues relating to, *inter alia*: chemicals, including a provision to establish the OEWG to Review and Assess Measures to Address the Global Issue of Mercury; the world environmental situation; and IEG.

INFORMAL CONSULTATIVE PROCESS: The UNGA at its 60th session established the Informal Consultative Process on the Institutional Framework for UN Environmental Activities. The process set out to strengthen the system of IEG by focusing on questions related to UNEP, improvement of cooperation within the UN and among MEAs, as well as funding mechanisms and partnerships.

On 14 June 2007, following year-long consultations, Co-Chairs Amb. Claude Heller (Mexico) and Amb. Peter Maurer (Switzerland) presented an Options Paper, which identified seven building blocks to strengthen IEG. In addition, the Paper addressed the broader transformation of the IEG system, including the possibility of transforming UNEP into a UN Environment Organization.

In September and October 2007, states were given the opportunity to respond to the Options Paper. The discussions reflected a divergence of views with no consensus on the way forward.

Based on two years of feedback, in early 2008, the Co-Chairs drafted a proposal for a GA resolution aimed at translating the Options Paper and subsequent input received into legislative language. The draft resolution was presented to member states on 2 May 2008. On the basis of comments received, the Co-Chairs prepared a revised draft resolution. By November 2008, the Co-Chairs concluded that no consensus was possible given the divergent views on fundamental issues.

GCSS-10/GMEF: GCSS-10/GMEF was held from 20–22 February 2008, in Monaco. Ministerial consultations addressed the emerging policy issues of mobilizing finance to meet the climate challenge, and IEG and UN reform. The GC/GMEF adopted five decisions including on: the UNEP Medium-term Strategy 2010-2013; chemicals management, including mercury and waste management; the Global Environmental Outlook; and the International Decade for Combating Climate Change.

GC-25/GMEF: GC-25/GMEF convened from 16–20 February 2009 in Nairobi, Kenya. The GC/GMEF adopted 17 decisions on issues relating to, *inter alia:* chemicals management, including mercury; the world environment situation; environmental law; the intergovernmental science-policy platform on biodiversity; and the environmental situation in Gaza. Decision 25/4 on IEG established a regionally representative, consultative group of ministers or high-level representatives. The decision requested the group to present a set of options for improving IEG to GCSS-11/GMEF with a view to providing input to the UNGA.

CONSULTATIVE GROUP: The consultative group on IEG convened from 27–28 June 2009 in Belgrade and from 28–29 October 2009 in Rome. The meetings were co-chaired by Ministers Stefania Prestigiacomo (Italy) and John Njoroge Michuki (Kenya). The group's discussions were reflected in a Co-Chairs' summary entitled "Belgrade Process: Moving forward with developing a set of options on international environmental governance."

EXCOPS REPORT

The ExCOPs of the Basel, Rotterdam and Stockholm Conventions convened on Monday and Tuesday and in a final plenary session on Wednesday morning. On Monday morning, Made Mangku Pastika, Governor of Bali, Indonesia, welcomed participants and highlighted the impacts of climate change on the province's limited natural resources, emphasizing the need for integrated sustainable efforts to mitigate such impacts. Gusti Muhammad Hatta, Minister of Environment, Indonesia, described the first simultaneous extraordinary Conferences of the Parties (ExCOPs) as a "historical opportunity to work together on matters relating to the effective management of chemicals and wastes." The respective COP Presidents of the Basel, Rotterdam and Stockholm Conventions, Gusti Muhammad Hatta (Indonesia), Zukie Noluzuko Gwaji (South Africa) and Gholamhossein Dehghani (Iran), and UNEP Executive Director Achim Steiner participated in a signing of the commemorative first day cover.

Peter Kenmore, Co-Executive Secretary of the Rotterdam Convention, on behalf Jacques Diouf, Director-General, UN Food and Agricultural Organization (FAO), committed support to the synergies process. Achim Steiner underscored that the ExCOPs represented an extraordinary moment in environmental governance. He said the process has potential to result in a paradigm shift, noting that the era of developing multilateral environmental agreements (MEA) on an issue-by-issue basis might be approaching its end.

The ExCOPs adopted the agenda (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/1) and agreed to the organization of work (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/1/Add.1) and (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/INF/1/Rev.1). Delegates established an open-ended joint working group (OEWG), co-chaired by Kerstin Stendahl (Finland), Osvaldo Álvarez-Pérez (Chile) and Desire Ouegraogo (Burkina Faso).

MATTERS FOR CONSIDERATION OR ACTION BY THE COPS

Discussion during the ExCOPs focused on several draft omnibus decisions on synergies. In closing plenary, delegates adopted a decision (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/CRP.5), which contains seven sections on: joint activities, joint managerial functions, joint services, synchronization of the budget cycles, joint audits and review arrangements. No consensus was reached on decision-making, and this item is not reflected in the final decision. The following sections provide a summary of each of these sections.

JOINT ACTIVITIES: This item (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/2) was introduced by the Secretariat of the Basel Convention on Monday in the OEWG. The matter was referred to a contact group co-chaired by Gillian Guthrie (Jamaica) and Katerina Sebkova (Czech Republic).

The Republic of Korea supported establishing a clearing-house mechanism (CHM). Japan expressed concern regarding its financial implications. China said it was premature to discuss national-level coordination, which was for governments to determine. Morocco questioned how developing countries would benefit from the synergies process. The US supported observer participation in the synergies process. India, supporting China,

said that joint activities will depend on available resources, and maintained that organizational and administrative expenses should not take precedence over programmes.

Norway, Switzerland and the Republic of Korea supported, and delegates agreed, to work on the basis of a draft omnibus decision proposed by the European Union (EU).

In the contact group, participants focused on financing requirements for the CHM and the functioning of the platform for information exchange. Discussions also focused on addressing concerns raised by several developing countries that the implementation of the synergies decisions depends on the availability of resources, and on proposed cross-cutting and joint activities to be included in the programme of work of each of the three Conventions. Parties agreed to move a proposed reference to the principle of common but differentiated responsibilities from an operative paragraph of the draft decision to the preamble. The decision was agreed by the OEWG and forwarded to the ExCOPs for consideration.

***Final Decision*:** In the decision on joint activities (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/CRP.5/Add.2/Rev.1), the ExCOPs, *inter alia*:

- encourage parties and other stakeholders to undertake cooperative and coordinated activities to implement the synergies decisions, including by strengthening national processes and by coordinated use of the regional centres of the Basel and Stockholm Conventions to strengthen the regional delivery of assistance for the implementation of the three Conventions, and to consider the further aim of selecting regional focal centres;
- urge parties and other stakeholders to provide resources to support implementation of joint activities in the field and to support the joint activities of the three Secretariats;
- invite parties, regional centres and other stakeholders to exchange experiences, in particular on examples of good coordination practices, through voluntary reports on national and regional activities to implement the synergies decisions;
- invite UNEP, UNDP, FAO, WHO, the World Bank, the Global Environment Facility (GEF) and other relevant international organizations to report on their efforts to promote programmatic cooperation and coordination in relation to their support for the three Conventions at the national level, and on activities to implement the synergies decisions to the three COPs in time for their ordinary meetings in 2011 and, in this context, welcomes the synergistic approach that has been taken in the process for the fifth replenishment of the GEF;
- invite UNEP and FAO to report to the COPs at their ordinary meetings in 2011 on progress made in the development of programmatic cooperation in the field;
- request the Secretariats of the three Conventions to continue their efforts to implement joint activities, and report on the progress thereof at the ordinary meetings of the COPs in 2011, and to develop for consideration by the COPs at their meetings in 2011 a proposal for cross-cutting and joint activities for possible inclusion in the programmes of work of the three Conventions for 2012-2013;
- endorse on a preliminary basis the joint work plan for a CHM and request the Secretariats to prepare a report on other CHM mechanisms and similar mechanisms in the area of chemicals and wastes, especially the SAICM clearing-house mechanism, and to prepare a revised work plan, taking into account the above-mentioned report, for adoption by the COPs in 2011; and
- invite parties and other stakeholders to contribute to the development of the CHM through voluntary means.

JOINT MANAGERIAL FUNCTIONS: This item (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/3) was considered on Monday and Tuesday, initially in the OEWG, and then in a contact group co-chaired by Barry Reville (Australia) and Mohammad Koba (Indonesia).

The Secretariat introduced the issue and outlined the two options for the coordination of the three Convention Secretariats: the establishment of a joint coordinating group or of a joint head of the Secretariats. The EU introduced the relevant part of their proposed draft omnibus decision. Switzerland, on behalf of Côte d'Ivoire, Egypt, Norway and Zambia, introduced a draft decision on the same issue. Debate centered on cost implications, legal autonomy, and the joint head's mandate,

On cost implications, Canada, China and others expressed concern that the synergies process could lead to additional administrative burdens, emphasizing that cost savings should be used for programme implementation, and that the final decision should be cost-neutral. The cost implications related to the proposed options were also stressed by Brazil and other members of the Latin American and Caribbean Group (GRULAC). They highlighted the importance of autonomy of the Conventions, the rationalization of costs and functions, and the special needs of developing countries, including the need to strengthen the regional centres. Delegates also debated the implications of the term "cost-neutral in real terms." Responding to the debate on potential freed resources, the EU clarified that this only implied staff being moved to programme support.

On legal autonomy of the three Conventions, India, Cuba and Argentina noted the difficulties a single head might encounter in dealing with autonomous mandates, and favored the joint coordinating group. Kenya, Sudan, Nigeria and others supported the joint head proposal. Indonesia, Mexico and many other developing countries cautioned against jeopardizing the autonomy of the Conventions, a point strongly supported by all parties. The US and several other developed countries stressed that the options proposed should meet the objectives of coordination, greater efficiency and effectiveness, cost saving and cost-neutrality, and preserving autonomy. During contact group discussions, while many participants agreed that autonomy could be maintained at the legal level, some voiced concerns that this would amount to "one convention in practice."

Different views emerged on the joint head's mandate, with some countries envisaging the new position as the Executive Secretary of the three Conventions, and others favoring limiting the mandate to joint services. Some developing countries expressed the hope that the appointment of a joint head would ensure increased resource mobilization for implementation. During the contact group's consideration of a compromise draft decision on a joint head of the Convention Secretariats, China insisted that the decision should refer to the existence of different views on whether to establish a joint head or a coordinating group, and proposed adding text on the purpose of establishing

such a position. Several parties highlighted the need to clarify the review process for the joint-head position, and pointed out that the review related to the position rather than the individual who will be appointed.

Questions were raised on the details of the organizational modification of the Secretariats and its timing vis-a-vis the recruitment of a joint head. Several parties suggested language emphasizing the temporary nature of the joint-head position. Others argued that this was provided for by subjecting the position to a review by the COPs. Delegates also debated the recruitment process for the joint head, with several requesting that parties be involved in the process. Others pointed out that the UN regulations on recruiting for a D-2 post limits parties' involvement.

In the end, the range of unresolved issues was reduced to, *inter alia*: references to: mobilizing "new and additional financial resources" as one of the functions of the joint head; and including the overarching goals of protecting health and environment for sustainable development. The decision was finally approved by the OEWG, and forwarded for consideration by the ExCOPs.

***Final Decision*:** In the decision on joint managerial functions (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/CRP.5/Add.6), the ExCOPs request the Executive Director, after consulting the bureaus of the three Conventions, to immediately proceed with the recruitment of a joint head of the three Conventions' Secretariats for a period of two years, noting that the position will be subject to a review. The ExCOPs also request the Executive Director, in consultation with the Director-General of FAO, to develop a proposal for the modification of the organization of the three Secretariats, including a possible continuation of the joint-head post that is cost-neutral. The parties are invited to consider the modification as soon as possible, but no later than 2013. The decision affirms the legal autonomy of the Conventions, as well as their objectives and advocacy for the mobilization of substantially increased funding for national implementation.

JOINT SERVICES: This item (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/4) was introduced by the Secretariat in the OEWG on Monday, and also discussed on Tuesday.

The EU, supported by Norway and Switzerland, outlined its proposal for joint services for financial and administrative support, legal service, information technology service, information service, and resource mobilization service. Japan sought clarification on the meaning of "cost neutral in respect to real terms." The EU explained that the intention was for cost neutrality to be in real and not nominal terms reflecting, for example, adjustments made to staff salaries during each biennium due to exchange rate fluctuations.

A revised section of the omnibus draft decision on joint services was approved by the OEWG, and forwarded for consideration of the ExCOPs. During the ExCOPs closing plenary, Japan underscored that it could not accept the term "cost-neutral in real terms" with respect to the operating budget, as it was against his country's fundamental position. He proposed, and parties accepted, removing the term "in real terms."

***Final Decision*:** In the decision (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/CRP.5/Add.1), the ExCOPs, *inter alia*:

- invite the UNEP Executive Director to establish joint financial and administrative support service, legal service, information technology service, information service, and resource mobilization service;
- approve the proposals on a common arrangement for staffing and financing joint services of the three Conventions as they relate to existing posts;
- request the UNEP Executive Director, in consultation with the Director-General of the FAO and the temporary joint head of the Basel, Stockholm and UNEP part of the Rotterdam Convention Secretariats to develop a proposal for a modification of the organization of the three Secretariats for the biennium 2012-2013, for possible adoption at the meetings of the COPs in 2011, that is cost-neutral with respect to the adopted operating budgets of the three Conventions for 2010-2011;
- invite parties and others in a position to do so to provide voluntary funding of US$80,000 to cover the integration of the information technology platforms throughout the three Secretariats; and
- agree to continue efforts toward the implementation of the joint services, and to report on progress at the meetings of the COPs in 2011.

SYNCHRONIZATION OF BUDGET CYCLES: The Secretariat introduced this item (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/5) in the OEWG on Tuesday. The EU, supported by Switzerland and Ecuador, suggested that synchronization should be continued, and delegates requested the Secretariats to prepare a draft decision accordingly, which was agreed and forwarded to the ExCOPs for consideration.

***Final Decision*:** In the decision on synchronization of budget cycles (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/CRP.5/Add.3), the ExCOPs, *inter alia*, take note that the synchronization of the budget cycles of the Basel and Rotterdam Conventions with the budget cycles of UNEP, FAO and the Stockholm Convention has been achieved; and request the Executive Secretaries of the three Conventions to continue to synchronize budget cycles.

JOINT AUDITS: The Secretariat introduced this item (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/6) in the OEWG on Tuesday. The EU introduced the relevant section of its proposal for a draft omnibus decision, requesting the UNEP Executive Director to report to the COPs on the audit by the Office of Internal Oversight Services (OIOS). UNEP's Legal Advisor clarified that the trust funds of each Convention will be included in the overall UNEP audit. The OEWG requested the Secretariat to draft a decision based on the EU's proposal, which was agreed by delegates and forwarded to the ExCOPs for consideration.

***Final Decision*:** In the decision on joint audits (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/CRP.5/Add.4), the ExCOPs, *inter alia*, welcome the commitment by UNEP to share with the COPs of the three Conventions the audit reports, and the request by the UNEP Executive Director to the UN OIOS to audit in 2010 the strategic management of the MEAs for which UNEP provides secretariat functions; and request the Executive Director to present a report on the audit conducted by the OIOS of each of the three Conventions to the respective COP in 2011.

REVIEW ARRANGEMENTS: This item (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/7) was considered by the OEWG on Monday and in a contact group co-chaired by Jan-Karel

Kwisthout (The Netherlands) and Pauline Davies (Uruguay) on Monday and Tuesday.

Switzerland, on behalf of Côte d'Ivoire, Egypt, Norway, and Zambia, presented a proposal for a draft decision on the review mechanism. The EU supported a timeline for the review, and stressed the importance of an open and flexible review mechanism that would take into consideration the Strategic Agreement on International Chemicals Management (SAICM) and an envisaged global legally binding instrument on mercury. China proposed that UNEP prepare indicators, and expressed reservations on broadening the process of cooperation and coordination under the Conventions to other instruments. Pakistan said that parties first needed to agree on the parameters, scope and indicators of the review. The US said that parties and other stakeholders should be invited to submit information relevant to the review.

The contact group discussed the terms of reference and timetable for the review arrangements pursuant to the synergies decisions adopted by the previous ordinary COPs of the three Conventions and the decision to be adopted by the ExCOPs. Delegates agreed to a proposal requesting the Executive Director of UNEP, in consultation with the Director-General of FAO, to prepare detailed terms of reference, including indicators, for the review. Delegates eventually agreed to language requesting the Secretariats of the three Conventions to jointly compile their report, including recommendations on the review containing information collected from parties through a questionnaire.

When the proposal for review arrangements was presented in the contact group, Sudan and Iran questioned a request to UNEP and FAO to prepare a report on the review taking into account input from the three Secretariats and "others." Delegates agreed to clarify this by revising "other stakeholders." The draft decision was approved and submitted to the ExCOPs for consideration.

***Final Decision*:** In the decision on review arrangements (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/CRP.5/Add.5/Rev.1) the ExCOPs, *inter alia*:

- decide to review at the COPs of the three Conventions in 2013, how far the arrangements adopted pursuant to the synergies decisions have contributed to achieving a set of objectives, such as strengthening the implementation of the three Conventions and maximizing the effective and efficient use of resources at all levels, and request the Secretariats to prepare detailed terms of reference for the preparation of a report for the purpose of the review for consideration and adoption by the COPs of the three conventions in 2011, and to compile and complete their report jointly for adoption by the three COPs in 2013; and
- invites the Executive Director of UNEP, in consultation with the Director-General of FAO, to prepare detailed terms of reference, including performance indicators, for the review for consideration and adoption by the COPs of the three Conventions in 2011, and invites them to prepare a report, including recommendations, on the review.

DECISION-MAKING: This item was considered briefly on Tuesday in the contact group on review arrangements. Several parties opposed the draft decision text, which recommended the ordinary meetings of the COPs of the three Conventions taking place in 2011 decide to convene ExCOPs, because they objected to the current ExCOPs making any recommendations to the ordinary COPs on this matter. They suggested submitting the report of the current ExCOPs to each ordinary COP.

Several delegates supported the original draft and no consensus was reached. This item was not reflected in the omnibus decision.

CLOSING PLENARY

The closing plenary convened on Wednesday morning, 24 February. Co-Chair Stendahl presented the report of the Co-Chairs of the joint OEWG (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/L.2). Reflecting on over three years work in the synergies process, she said the process had come to a remarkable fruition. Co-Chair Álvarez-Pérez expressed gratitude to parties and the Secretariats for their efforts. The ExCOPs approved the credentials report and adopted the meeting report.

The Secretariat outlined the sections of the omnibus decision as forwarded by the OEWG (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/CRP.5/Add. 1-7). The Presidents of the Conferences of the Parties of the Rotterdam, Stockholm and Basel Conventions, speaking in unison, invited parties to adopt the omnibus decision as a package. Delegates unanimously adopted the omnibus decision. The President of the Stockholm Convention COP introduced the draft report on the ExCOPs (UNEP/FAO/CHW/RC/POPS/EXCOPS.1/L.1). China expressed concern that there had been no general debate on policies at the meeting, which might lead to a loss of direction in the future. The ExCOPs then adopted the report of the meeting.

The President of the Basel Convention COP, on behalf of the three Presidents, expressed his thanks to the parties for their hard work and to the Secretariats and UNEP for their assistance in the synergies process. The Presidents of the three COPs then declared the meeting closed in unison at 9:42 am.

GCSS-11/GMEF REPORT

The 11th special session of the UNEP Governing Council / Global Ministerial Environment Forum (GCSS-11/GMEF) convened from Wednesday to Friday.

On Wednesday morning, Oliver Dulić, Minister of the Environment and Spatial Planning, Serbia, and President of the GCSS-11/GMEF opened the meeting and highlighted the Belgrade process on international environmental governance (IEG) in the context of preparations for Rio+20. Indonesian Foreign Minister R.M. Marty M. Natalegawa emphasized the need for balance between environmental protection and economic development. UNEP Deputy Executive Director Angela Cropper read a message from UN Secretary-General Ban Ki-moon in which he urged parties to be "bold and creative" on IEG. UNEP Executive Director Achim Steiner said IEG encompasses more than management and includes implementation, financing and action on the ground. Steiner then presented the UNEP Award for Leadership in Ocean and Marine Management to President Yudhoyono of Indonesia.

President Yudhoyono welcomed ministers and participants to Bali. He highlighted the importance of coordination, coherence and efficiency in international environmental cooperation, and supported strengthening UNEP.

GCSS-11/GMEF elected Luis Javier Campuzano (Mexico) and Henri Njombo (Republic of Congo) as Vice-Presidents, and adopted the agenda (UNEP/GCSS.XI/1). Delegates established a Committee of the Whole (COW) chaired by John Matuszak

(US), an open-ended drafting group, chaired by Daniel Chuburu (Argentina), and a Nusa Dua Declaration drafting group, co-chaired by Dian Triansyah Djani (Indonesia) and France Jacovella (Canada).

Achim Steiner highlighted the Bali Strategic Plan for Technology Support and Capacity-building as an integral part of UNEP's Medium-Term Strategy. He also highlighted UNEP's Green Economy Initiative, and continued efforts to improve effectiveness and efficiency. Steiner emphasized that GCSS-11/GMEF represents an opportunity to prepare for the Rio+20 Summit. He noted that sustainable development requires a broad international diplomatic effort.

Daniel Chuburu (Argentina), Chair of the Committee of Permanent Representatives to UNEP (CPR), submitted the seven draft decisions negotiated by the CPR, some of which contained brackets. He noted that no consensus was reached in Nairobi on adopting the draft Nusa Dua declaration/statement/communiqué. President Dulić announced that, following consultations, a revised version would be distributed. India said the Group of 77 and China (G-77/China) favored a "declaration." The EU emphasized the importance of the green economy, and urged the transformation of UNEP into a specialized agency.

The US reaffirmed that the special sessions of the GC/GMEF should be devoted to ministerial consultations rather than decision-making. He emphasized that the declaration to be adopted should be concise and truly ministerial in nature. Chile, for GRULAC, announced that they would table a draft decision in response to the Haiti earthquake.

MINISTERIAL CONSULTATIONS

On Wednesday, ministers and heads of delegation held consultations under the theme "Environment in the Multilateral System" on IEG and sustainable development. On Thursday morning, an informal Ministerial Breakfast took place on the contribution of UNEP to the 18th session of the Commission on Sustainable Development (CSD-18). It was followed by five parallel ministerial round-table discussions on the green economy. On Thursday afternoon, a plenary panel discussion took place on the theme "Biodiversity and Ecosystems."

EMERGING POLICY ISSUES: ENVIRONMENT IN THE MULTILATERAL SYSTEM: IEG AND SUSTAINABLE DEVELOPMENT: Paolo Soprano, on behalf of Stefania Prestigiacomo, Minister for Environment, Land and Sea, Italy, and Co-Chair of the consultative group of ministers and high-level representatives on IEG, reported on constructive discussions. Macharia Kamau, Kenya's Representative to UNEP and UN-Habitat, on behalf of John Michuki, Minister for Environment and Mineral Resources, Kenya, and Co-Chair of the consultative group, presented the outcome of the Belgrade Process (UNEP/GCSS.XI/4).

In a video address, UNDP Administrator Helen Clark, *inter alia*, committed to enhancing cooperation and coordination with UNEP.

Gusti Mohammad Hatta, Minister of Environment, Indonesia, and Basel Convention COP President, stated that the ExCOPs established an unprecedented mechanism for synergies, applicable to other frameworks.

Achim Steiner stated that a number of the recommendations of the Joint Inspection Unit (JIU) management review (UNEP/GCSS.XI/5) had been taken up by UNEP and highlighted the draft decision on IEG and the proposed Nusa Dua declaration as opportunities to guide the Rio+20 preparations and the role of the GC/GMEF in IEG.

In the ensuing discussion, ministers highlighted the need for incremental as well as broader reforms. Statements also pointed to strengthening the role and credibility of UNEP, and using Rio+20 as an opportunity for improving IEG. The EU supported establishing a UN specialized agency for environment, and stated that the Convention on Biological Diversity (CBD) COP-10 in October 2010 presents an opportunity to promote synergies among MEAs. Jordan expressed concern with the proliferation of environmental institutions. Malaysia advocated a targeted coordination approach, not requiring the development of a new organization. The US stated reforms are necessary to improve effectiveness and efficiency, noting that UNEP has implemented improvements that need time to show results.

THE GREEN ECONOMY: The session consisted of five parallel round table discussions. Representatives shared their views and experiences on the green economy. Ministers expressed general support for the green economy but requested UNEP to clarify the concept and collect information on best practices for dissemination. They highlighted the need for technology transfer, scientific and technology cooperation, capacity building and training for "green skills." Ministers viewed the green economy as a long-term strategy for sustainable development and poverty reduction. Several oil producing countries, however, expressed concern with the concept in terms of economic impacts. It was explained that the green economy also presented opportunities in terms of carbon capture and storage and development of renewable resources.

BIODIVERSITY AND ECOSYSTEMS: The session consisted of a panel discussion and was moderated by Hilary Benn**,** Secretary of State for the Environment, UK. In a keynote address, Henri Njombo**,** Minister of the Environment, Republic of Congo, stated that the international community needs to learn from its failure to achieve the 2010 target to significantly reduce biodiversity loss. He made recommendations on several key areas, including raising public awareness, and the integration of biodiversity in the economy. He also promoted a new global target to stop biodiversity loss.

On climate change and biodiversity, Juan Rafael Elvira, Minister of Environment and Natural Resources, Mexico, discussed the issue from the perspective of a megadiverse country. Batilda Burian, Minister of State for Environment, Tanzania, proposed including biodiversity loss in the assessment of the climate change vulnerability of countries.

The EU and others advocated closer coordination between the UN Framework Convention on Climate Change (UNFCCC) and the CBD, and expressed support for REDD (Reducing emissions from deforestation and forest degradation in developing countries).

On economic development, Hasan Mahmud, Minister of Environment and Forests, Bangladesh, questioned the notion that economic advancement implies that every family needs a car.

Pavan Sukhdev, UNEP World Conservation Monitoring Centre, outlined the economics of ecosystems and biodiversity (TEEB) study, a major international initiative to draw attention to the global economic benefits of biodiversity. Many countries highlighted national initiatives for the conservation of biodiversity, and underscored the need to adopt a legally binding

agreement on access and benefit-sharing (ABS) in October at CBD COP 10 in Nagoya, Japan. There was also general support expressed for an intergovernmental science-policy platform on biodiversity and ecosystem services (IPBES).

Wangari Maathai, Nobel Prize Laureate, Green Belt Movement, Kenya, pondering on how "countries very rich in biodiversity could at the same time be very poor," emphasized that capital could be mobilized with sufficient political will. Kazuhiko Takemoto, Vice Minister for Global Environmental Affairs, Japan, expressed his country's commitment to providing the appropriate level of contribution to help developing countries achieve the 2010 biodiversity target.

Farmers underscored the importance of farming to ensure adequate food for the world, noting that farmers are the largest ecosystem managers. Jochen Flasbarth (Germany), CBD COP 9 President, observed that the 2010 biodiversity target had not been achieved, noting that agriculture is still the main driver of biodiversity loss.

On an IPBES, Hilary Benn noted that the Intergovernmental Panel on Climate Change (IPCC) findings had been a great motivator for political action, observing that IPBES may provide a similar service for biodiversity and ecosystems. Supporting an IPBES, Izabela Teixeira, Vice Minister for Environment, Brazil, emphasized that such a mechanism would only be effective if premised on a bottom-up approach, with Spain noting the need to discuss a model format that would also ensure its independence. Jean-Louis Borloo, State Minister for Ecology and Sustainable Development, France, emphasized the need to establish an IPBES based on the IPCC model. The Republic of Korea offered to host the 3rd IPBES meeting.

Jochen Flasbarth highlighted the relevance of TEEB for IPBES and, on ABS, said that it was unacceptable not to have a legally binding ABS regime 18 years after the Rio Summit. Juan Rafael Elvira stated the new biodiversity target must be measurable, attainable and profitable.

PRESIDENT'S SUMMARY: GCSS-11/GMEF President Oliver Dulić presented a 13-page draft summary of the ministerial discussions (UNEP/GCSS.XI/L.7) during closing plenary and delegates took note of the summary.

On IEG and sustainable development, the summary underlines the need for considering IEG reform within the sustainable development context and the experience of the joint ExCOPs as a crucial milestone for the IEG process.

The summary also notes that the main challenges for IEG include the weakness of the environmental pillar in comparison to the economic and social pillars of sustainable development, the hampered implementation of laws and policies, and the need for broad stakeholder participation in the current process of IEG reforms. It concluded that the main opportunities on IEG include:

- the development of a system-wide strategy for environment developed by UNEP in collaboration with the UN Chief Executives Board for Coordination and UNDP;
- the design of a roadmap to facilitate the continuation of the Consultative Group of Ministers for improving IEG to provide input into the preparatory process for Rio+20;
- broader reforms, which could include the establishment of a specialized agency, a World Environment Organization of the integration or UNEP, the GEF and all multilateral environmental agreements into an umbrella organization; and
- the strengthening of UNEP as the leading authority on the environment within the United Nations system.

On the green economy, the main challenges are summarized including: decoupling of growth from unsustainable resource use and environmental damage; the required public and private funds; the wide gaps between developed and developing countries and countries with economies in transition in terms of human capacity, financing, technology and policy implementation; and the relatively low level of attention for biodiversity in green economy discussions. The main opportunities and messages on the green economy include: the need to develop basic criteria to verify what is truly green; the enhancement of the institutional capacity of developing countries and countries with economies in transition; that transformative change requires the political will of governments; and that a "basket" of policies and measures are required to enable the transition towards a green economy.

On biodiversity and ecosystems, the summary outlined the main challenges as: the increasing human population and the associated demands on food, water and other resources; how to sustainably use and place economic value on biodiversity; and the incomplete knowledge base, in particular for the social, environment and ecological indicators to redefine calculations of gross domestic product.

As main opportunities, the summary notes the post 2010 targets on biodiversity loss should be realistic, focused, measurable and verifiable and be agreed at CBD COP-10. It also notes as opportunities the 65th General Assembly, the CBD COP and UNFCCC COP in 2010, which should be used to develop synergies between these and other conventions.

The main challenges, opportunities, and messages from the Ministerial Breakfast on the CSD are also summarized and include: the need for a paradigm shift from "business as usual"; using Rio+20 to develop the institutional framework for sustainable development; addressing how to change consumer behavior and lifestyle choices within the current cycle of the CSD; the need for a governance system that can meet the challenges we currently face; and establishing an advisory group from civil society as an important addition to the discussion.

NUSA DUA DECLARATION

A drafting group on the Nusa Dua Declaration, co-chaired by Dian Triansyah Djani (Indonesia) and France Jacovella (Canada), was established and met from Wednesday to Friday.

On climate change, some developing countries requested a reference to the principle of common but differentiated responsibilities, which was accepted by the group. One developed country party proposed to refer to science as documented by the IPCC Fourth Assessment Report, which was bracketed by a developing country party. With reference to reducing global emissions in order to limit the increase in global temperature to below 2°C, one party argued that this is one of the scientific views, not a consensus target by parties, and therefore objected to text implying that ministers agree to hold the increase in global temperature below 2°C. After intense discussion, parties reached agreement on a compromise text. Regarding the Copenhagen Accord, two parties opposed text implying that ministers welcome it. Delegates agreed to text stating that at UNFCCC COP 15 and the Conference of the Parties serving as

the fifth meeting of the parties to the Kyoto Protocol, the parties took note of the Copenhagen Accord.

On biodiversity and ecosystems, one developed country party objected to the reference to having the international regime on ABS adopted by CBD COP 10 and this part of the text was bracketed.

The drafting group reached consensus on the text of the Declaration including sections on climate change, sustainable development, IEG, green economy, and biodiversity and ecosystems. The Nusa Dua Declaration (UNEP/GCSS.XI/L.6) was presented in plenary by Co-Chair Dian Triansyah Djani and adopted.

***Declaration Text*:** In the Declaration, the Ministers and Heads of Delegation, *inter alia*:

- on climate change, recognize the scientific view, as documented by the IPCC Fourth Assessment Report,that deep cuts in global emissions are required to hold the increase in global temperature below 2°C; welcome the decision of UNFCCC COP 15 and COP/MOP 5 to extend the mandates of the *Ad Hoc* Working Group on Long-term Cooperative Action and the *Ad Hoc* Working Group on Further Commitments under the Kyoto Protocol to continue their work; took note of the Copenhagen Accord; and reaffirm their commitment to the UNFCCC process to work constructively towards a comprehensive agreed outcome within this process by the end of 2010;
- on sustainable development, welcome the decision to organize the UN Conference on Sustainable Development (Rio+20) in 2012, and support active and effective participation of UNEP in its preparation and full and effective contribution to the process;
- on IEG and sustainable development, welcome the establishment of a process to be led by ministers or their high-level representatives to further address IEG reforms; welcome the activities undertaken by UNEP and the Secretariats of the three chemical and waste-related Conventions to enhance their cooperation and coordination, and welcome the outcome of the ExCOPs; and encourage the COPs of the biodiversity-related MEAs to consider strengthening their efforts in enhancing synergies;
- on green economy, acknowledge its importance in sustainable development and poverty reduction and UNEP's important role in this regard; and urge the Executive Director of UNEP to implement fully the Bali Strategic Plan for Technology Support and Capacity-building; and
- on biodiversity and ecosystems, commit in 2010 to finalize deliberations on improving the science-policy interface for biodiversity and ecosystems services, and to negotiate and reach agreement on whether to establish an IPBES, and welcome the commitment made by parties to the CBD to finalize an international regime on ABS in 2010, in accordance with decision UNEP/CBD/COP/DEC/IX/12 of the CBD COP.

COMMITTEE OF THE WHOLE

The COW, chaired by John Matuszak (US), convened from Wednesday to Friday to consider agenda items under the theme "environment in the multilateral system." The COW considered seven draft decisions prepared by the Committee of Permanent Representatives (CPR), contained in UNEP/GCSS.XI/L.1, on IPBES, the consultative process on financing options for chemicals, IEG, enhanced UN coordination including the EMG, environmental law, oceans, and the environmental situation in the Gaza Strip. The COW also considered a draft decision on the environmental situation in Haiti, which was proposed by GRULAC. The COW approved eight decisions, which were forwarded to the plenary for adoption. A progress report on mercury was also considered and the 2010 UNEP Year Book was presented.

PROGRESS REPORT ON MERCURY: On Wednesday, the Secretariat introduced the progress report (UNEP/GCSS.XI/6), noting the total cost of the negotiation process is estimated to be US$12.5 million. India underscored its agreement to negotiate a treaty on mercury in the spirit of collaboration, highlighting its preference for voluntary approaches. China stressed the financial implications of the new convention. Switzerland highlighted the need for a strong framework to address chemicals, said the mercury regime should consider this, and looked forward to discussing this at GC-26/GMEF. Delegates agreed to take note of the report.

GCSS-11/GMEF DECISIONS

Draft decisions submitted by the CPR or directly by governments at GCSS-11/GMEF, were considered from Wednesday to Friday in the COW and in a contact group on draft decisions and in Friends of the Chair groups. Unless otherwise mentioned, all decisions were adopted in plenary on Friday.

IEG: This agenda item was introduced in the COW on Wednesday. It was also considered by the contact group on draft decisions, chaired by Daniel Chuburu (Argentina) on Thursday.

Many countries supported the balance established between incremental and broader reforms, as suggested by the consultative group of ministers or high-level representatives, known as the "Belgrade process." Delegates favored a new consultative process to examine measures for broader reform, noting this could form an important contribution to preparations for Rio+20. Many delegates urged that the GCSS-11/GMEF decision on IEG should remain procedural, leaving substantive issues for discussion in the new process.

The question of forwarding the expected outcome of the new process was also debated, and different opinions were voiced on the timing and the addressees (GC-26/GMEF in February 2011, the UNGA, and the Preparatory Committee for Rio+20).

Switzerland, Kenya, Mexico and others called for quick implementation of the identified incremental reform options, and stressed that UNEP should continue to lead the process of strengthening IEG. The EU said the GCSS-11/GMEF decision should indicate which matters coming out of the consultative group should go to the UNGA. The US emphasized that all incremental options identified by the group were still options. India, Brazil and others stressed the IEG discussion must be in the broader context of sustainable development, many emphasized that "form must follow function."

During drafting group discussions a number of issues presented difficulties, including: language on transmitting to the UNGA, GC-26/GMEF and the Rio+20 PrepCom, the reform options developed by the Belgrade process and the composition of a new high-level consultative group (whether it should follow the first group's model). An additional paragraph on the outcome of the ExCOPs and the link to the synergies process

was discussed and moved to a separate draft decision. China and Brazil could not agree to this separate draft decision, which also requested the Executive Director to explore further synergies, and agreed to include reference to this in the report of the meeting. Among the last hurdles to overcome was Switzerland's objection to the Executive Director consulting with governments "through the CPR" on identifying incremental reform suggested by the Belgrade process. The issue was resolved by adding "all" to "governments."

***Final Decision*:** In the decision on IEG (UNEP/GCSS.XI/L.5/Add.1), the GC welcomes with appreciation the result of the process, and takes note of the set of options for improving IEG identified by the consultative group, set out in the annex to this decision. It requests the Executive Director to identify, in full consultation with all governments through the CPR, all incremental changes in the set of options within the mandate of UNEP that can be implemented in 2010 and 2011, and integrated in the work programme for 2012-2013. The GC invites its President to transmit the set of options to the 64th session of the UNGA and decides to establish a regionally representative consultative group (4-6 governments from each region), open to other interested governments. The group will consider broader reform of IEG, and will present a final report to GC-26/GMEF in anticipation of its contribution in time for the second PrepCom of the UN Conference on Sustainable Development, and to the 65th session of the UNGA.

ENHANCED COORDINATION ACROSS THE UN SYSTEM: The item was introduced in the COW on Thursday and discussed in the contact group on draft decisions in the evening. Several countries generally welcomed the Environmental Management Group's (EMG) current activities, but cautioned that the EMG had shifted away from its original coordinating mandate

***Final Decision*:** In the decision on enhanced coordination across the UN system (UNEP/GCSS.XI/L.5/Add.1), the GC encourages the Executive Director to expedite the implementation of the memorandum of understanding between UNEP and UNDP. The GC also requests the Executive Director to strengthen regional offices, and encourages the EMG to continue its cooperation, including with the UN Chief Executives Board for Coordination, in enhancing sustainable management practices in the UN system and cooperation in programming activities in the UN system.

IPBES: This item (UNEP/GCSS.XI/7 and UNEP/GCSS.XI/L.1) was discussed in the COW and in a Friends of the Chair group on Wednesday and Thursday.

The discussion focused on the type of decision to be taken by the GCSS-11/GMEF, and the characteristics of a future science-policy interface. Several countries emphasized that the decision was intended to be procedural, so no substantive text should be included, and different delegates expressed support for a third intergovernmental and multi-stakeholder meeting to decide whether to establish an IPBES.

The US suggested that the IPBES would need to, *inter alia*: have a clear mission; be independent from but responsive to policy bodies; and have a rigorous peer review process. Brazil pointed out the need for IPBES to include capacity building, and China said it should not increase the burden on developing countries. Switzerland preferred one mechanism, scientifically independent, following the model of the IPCC, and supporting all biodiversity-related institutions.

***Final Decision*:** In the decision on an IPBES (UNEP/GCSS.XI/L.5), the GC invites governments and relevant organizations to finalize in 2010 their deliberations on improving the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development, having considered the report of the Executive Director on an IPBES (UNEP/GCSS.XI/7). It requests the Executive Director to:

- convene, in June 2010, a third and final *ad hoc* intergovernmental and multi-stakeholder meeting to negotiate and reach agreement on whether to establish an IPBES;
- transmit, on behalf of the GC, the outcomes of and necessary documentation from the third and final meeting to the 65th session of the UNGA for consideration during the high-level segment on biological diversity, scheduled for September 2010 and thereafter; and
- cooperate closely with the relevant secretariats of MEAs, financial institutions and international organizations to ensure the full involvement of key stakeholders in the preparations for the third meeting.

ENVIRONMENTAL LAW: This agenda item (UNEP/GCSS.XI/8 and UNEP/GCSS.XI/8/Add.1) was discussed in the COW and in a Friends of the Chair group on Thursday. The Secretariat introduced the draft guidelines for the development of national legislation on access to information, public participation and access to justice in environmental matters and the draft guidelines for the development of domestic legislation on liability, response action and compensation for damage caused by activities dangerous to the environment. The discussion focused on whether the guidelines should be welcomed or adopted by GCSS-11/GMEF, and whether the annexes and commentary should be considered part of the guidelines. After discussion in the Friends of the Chair group, the COW agreed to recommend that guidelines be adopted, and approved the draft decisions.

***Final Decision*:** In the decision on environmental law (UNEP/GCSS.XI/L.5) the GC, *inter alia*:

- adopts the guidelines for the development of national legislation on access to information, public participation and access to justice in environmental matters, noting that these guidelines are voluntary. The GC also decides that the Secretariat shall disseminate the guidelines to all countries, and that the commentary on the guidelines shall also be distributed to all countries for further comments to enhance its quality;
- requests the Executive Director to assist countries, upon their request, with the development or amendment of national legislation, policies and strategies on access to information, public participation and access to justice in environmental matters;
- adopts the guidelines for the development of domestic legislation on liability, response action and compensation for damage caused by activities dangerous to the environment and affirms that these guidelines are voluntary and do not set a precedent for the development of international law.

It also invites countries to provide comments on the draft commentary and annexes to enhance their quality, with a view to their subsequent distribution.
- invites countries to take the guidelines into consideration in the development or amendment of their national legislation; and
- requests the Executive Director to assist countries, upon their request, with the development or amendment of national legislation, policies and strategies on liability, response action and compensation for damage caused by activities dangerous to the environment.

ENVIRONMENTAL SITUATION IN THE GAZA STRIP: This item (UNEP/GCSS.XI/9 and UNEP/GCSS.XI/L.1) was introduced by the Secretariat on Thursday in the COW and discussed in informal consultations on Thursday evening.

Palestine suggested an amendment to the CPR's draft decision, which, *inter alia*, requests the Executive Director to address "some aspects of deficiency" in his report on the environmental situation in the Gaza Strip, and refers the report to the UN Economic and Social Council (ECOSOC). Saudi Arabia, as a GC member, on behalf of the Arab Group, formally proposed the amendment. Many Arab states expressed their support, while Japan expressed concern about the financial implications, and Switzerland said that the GC should focus on its mandate. Several delegates said they needed to consult their capitals overnight. After informal consultations, on Friday morning the COW Chair proposed a compromise draft decision. Delegates approved the document with minor amendments and forwarded it to the plenary.

***Final Decision*:** In the decision on the environmental situation in the Gaza Strip (UNEP/GCSS.XI/L.5/Add.1), the GC, *inter alia*:
- requests the UNEP Executive Director to take the necessary measures, within its mandate and available resources, to assist in the implementation of the recommendations of the report entitled "Environmental Assessment of the Gaza Strip following the escalation of hostilities in December 2008 – January 2009"; and
- invites governments, the UN system entities and the international financial institutions to provide financial, technical and logistical support and assistance to ensure the success of the further work of UNEP in the Gaza Strip.

OCEANS: This item (UNEP/GCSS.XI/L.1) was introduced in the COW on Thursday. Several countries praised Indonesia for sponsoring the draft decision, and congratulated it on holding the World Ocean Conference 2009 and on the Manado Declaration. The COW approved the draft decision with minor amendments and forwarded it to plenary.

***Final Decision*:** In the decision on oceans (UNEP/GCSS.XI/L.5), the GC, *inter alia*:
- requests the Executive Director to strengthen the work of UNEP regarding the protection and sustainable management of marine and coastal ecosystems, to mainstream the UNEP marine and coastal strategy into the implementation of the programme of work and the medium-term strategy for the period 2010-2013, to extend UNEP's cooperation with other relevant UN agencies to support the implementation of the Manado Ocean Declaration, and to support developing countries' capacity to manage marine and coastal ecosystems;
- urges governments to achieve the long-term conservation, management and sustainable use of marine resources and coastal habitats through the appropriate application of the precautionary and ecosystem approaches;
- calls upon governments to reduce the land-based and sea-based pollution of ocean and coastal areas, and to promote the sustainable management of fisheries;
- calls upon governments, international organizations and oceanographic institutions and other research and development agencies to enhance research, systematic observation, knowledge management, capacity-building, information and data exchange related to vulnerability and risk assessment of climate change impacts on marine ecosystems, communities, fisheries and other marine-related industries; to improve emergency preparedness, monitoring and forecasting climate change and ocean variability; and to improve public awareness on early-warning system capacity;
- invites governments, international and regional financial institutions to make coordinated efforts to support developing countries in implementing marine and coastal initiatives; and
- requests the Executive Director to report on UNEP's activities in implementing this decision to GC-26/GMEF.

FINANCING OPTIONS FOR CHEMICALS AND WASTES: This item (UNEP/GCSS.XI/6 and UNEP/GCSS.XI/L.1) was considered in the COW on Wednesday and in a Friends of the Chair group on Thursday.

The Secretariat invited parties to provide guidance on the consultative process on financing for chemicals and wastes. In the ensuing discussion, India highlighted the need for a substantial transfer of resources to finance chemical and waste obligations. Brazil noted that the financing options included in the paper should be narrowed down. Norway and Jordan said the informal consultative process should be formalized. Mexico highlighted the links between the consultative process and the synergies process. The EU stressed the need to bring others, including chemical and waste Secretariats, into the consultative process. The US noted the relevance of linking the consultative process and SAICM. Delegates agreed to establish a Friends of the Chair group, chaired by Mexico, to finalize the draft decision on the consultative process. Discussions in this group were successful, resulting in two additional paragraphs requesting the Secretariat to distribute necessary documentation in a timely fashion, and requesting the Executive Director to take into account and incorporate contributions from governments into the paper on policy options. Delegates approved the draft decision, and it was adopted by the plenary on Friday.

***Final Decision*:** In the decision on the consultative process on financing options for chemicals and wastes (UNEP/GCSS.XI/L.5) the GC, *inter alia*:
- welcomes the establishment of a consultative process on financing options for chemicals and wastes;
- reminds the Secretariat to distribute all necessary documents relevant to this process in a reasonable time and no less than five weeks prior to any future meeting related to this process;
- takes note of the preliminary findings set out in the desk study on financing options for chemicals and wastes;
- requests the Executive Director to: continue leading the consultative process, and suggests drawing more on the experience of the MEAs and the work of the International

Conference on Chemicals Management, the GEF, UNDP, the World Bank and other relevant organizations; report on the progress made to relevant intergovernmental processes; and, in preparing documents for the next stage of the consultative process, to ensure that the comments and the contributions of governments are incorporated in a revised version of the note by the Executive Director on financing the chemicals and wastes agenda and in the action-orientated summary of policy options for financing chemicals and wastes; and

- recommends that the consultative process consider the financial challenges faced by developing countries and countries with economies in transition to implement their chemicals and wastes agendas effectively.

ENVIRONMENTAL SITUATION IN HAITI: This issue was discussed in the COW on Wednesday and Thursday. The Secretariat introduced the draft decision, which was supported by many countries, and the Chair asked delegates to submit any proposed amendments in writing. Discussion focused on the extent to which UNEP's efforts in Haiti would fall under the coordination of the UN country team. The COW approved the draft decision with minor amendments.

***Final Decision*:** In the decision on the environmental situation in Haiti (UNEP/GCSS.XI/L.5), the GC notes with deep concern the devastating impact of the earthquake of 12 January 2010 on the people, economy and environment in Haiti, and in particular the suffering of Haiti's people, and urges UNEP to assist actively the people of Haiti and the United Nations country team during the emergency recovery phase and the rehabilitation and reconstruction phases. It also requests the Executive Director to make every effort to ensure that UNEP performs its key role in addressing environmental restoration and management, under the overall coordination of the UN country team and by taking part in relevant clusters, in particular with regard to human vulnerability and poverty eradication, taking into account the role of integrated coastal-zone management, land-use planning and ecosystems management.

CLOSING PLENARY

On Friday morning in plenary, delegates adopted the decisions on IPBES, strengthening the environmental response in Haiti, oceans, financing options for chemicals and wastes, and environmental law (UNEP/GCSS.XI/L.5), without amendment. The Nusa Dua Declaration (UNEP/GCSS.XI/L.6), submitted by the drafting group, was also adopted without amendment.

In the closing plenary, GC/GMEF President Olivier Dulić introduced the President's Summary of the Ministerial Consultations (UNEP/GCSS.XI/L.7). He stated that the summary identifies some of the main challenges, opportunities, and messages from the meeting. The GC also approved the verbal report on credentials.

COW Chair Matuszak presented the provisional draft report of the COW (UNEP/GCSS.XI/CW/L.1 and Add.1) and draft decisions (UNEP/ GCSS.XI/L.5/Add.1) approved by the COW on IEG, enhanced coordination across the UN systems including EMG, and the follow-up report on the environmental situation in the Gaza Strip. Chair Matuszak expressed appreciation to delegates, the GC Bureau and the Rapporteur Alexis Minga (Republic of Congo) for their commitment and cooperation, which had made it possible to find common ground. Delegates adopted the report of the COW and the decisions. The report of draft proceedings of GCSS-11/GMEF (UNEP/GCSS.XI/L.3) was also adopted.

Under other matters, the United Arab Emirates drew attention to the Eye on Earth Summit to be held from 15-17 November 2010 in Abu Dhabi, hosted in cooperation with UNEP and the EU Environmental Agency.

Indonesia expressed appreciation for the positive outcome of the historic meeting, which had resulted in a number of important decisions. The EU expressed satisfaction with the adoption of the Nusa Dua Declaration and the decision on IEG. The US highlighted practical and productive exchanges, noting however, that too many decisions had been proposed for the meeting. Chile, on behalf of GRULAC, emphasized the need for implementation after the adoption of the important decisions. Senegal said the session was an important benchmark for the organization and paid tribute to the UNEP Executive Director for his exemplary leadership. India welcomed the Declaration as a decisive step forward, demonstrating the commitment of global environmental ministers to take action on the challenges ahead.

Achim Steiner, recapping a "very intense meeting," said the GCSS-11/GMEF comes after Copenhagen on the road to Nagoya in anticipation of Cancun and looks towards the Rio+20 Summit. He said that Environment Ministers had found their "collective voice" again in the Nusa Dua Declaration. Olivier Dulić expressed satisfaction with the continued commitment by governments to this process, and said the conference "would have far reaching impacts on our planet," and that results were due in large measure to political will. He expressed thanks to the government and people of Indonesia, and closed the meeting at 4:29 pm.

A BRIEF ANALYSIS OF THE EXCOPS AND GCSS-11/GMEF

Environmental ministers gathered in Bali for their first meeting since Copenhagen Climate Change Summit to take stock of the state of international environmental governance. Both the simultaneous Extraordinary Conferences of the Parties to the Basel, Rotterdam and Stockholm Conventions and the 11th special session of UNEP's Governing Council and Global Ministerial Environment Forum convened in Bali with the shared objective of enhancing cooperation and coordination and improving synergies in multilateral environment agreements (MEAs). This brief analysis will attempt to examine the two events, which broke new ground and set an example of resource-saving coherence among MEAs and, perhaps, in the UN system.

SYNERGIZING CHEMISTRY

The first ever simultaneous ExCOPs represented the culmination of nearly five years of work on synergies of the chemicals and wastes conventions. The process focused on their joint management, activities and services. Initially, the synergies process was initiated and agreed to by all the parties. However, the negotiation of details by the *Ad Hoc* Joint Working Group, a limited body of just 45 parties and closed to observers, was treated by some with suspicion. They also wondered if the process was being driven by the UNEP Secretariat.

The most visible decision taken at the ExCOPs was the establishment of a "joint head" position to oversee the work of the Secretariats. While the EU and Switzerland emphasized this raised the profile of the chemicals and wastes conventions, several developing countries' delegates pointed out that this position is up for review in 2013. Some misunderstandings were cleared, particularly over the claim that since synergies increase efficiency, more resources will be on hand for national-level implementation. In reality it means more Secretariat staff focusing on implementation assistance, as opposed to administrative tasks.

While the outcome of the ExCOPs provides a boost to the chemicals and wastes agenda, another beneficiary is UNEP. UNEP not only demonstrated that synergies are possible but also that it can handle them. In addition, some parties hope to replicate the lesson learned in other areas.

SYNERGIZING ENVIRONMENTAL GOVERNANCE

The prevailing sentiment in Bali was that the ExCOPs experience added stimulus to the drive towards a less fragmented international environmental governance (IEG) regime, particularly by "clustering" MEAs. Some even thought the biodiversity-related conventions, including the Convention on Biological Diversity, UN Convention to Combat Desertification, Ramsar Convention and Convention on Migratory Species, might be the next step. Others were not so confident, citing considerable difference between these conventions. Discussion of the matter indicated a possible way further MEA synergies could be addressed, and it is here that the greater significance of the ExCOPs seems to lie.

UNEP has long been at the center of discussions on improving IEG. The process has been laborious, with the issue shuttling back and forth between UNEP and the UN General Assembly. However, the consultative group on IEG (also known as the "Belgrade process"), established by the UNEP Governing Council last year did come out with a set of reform options, ranging from incremental to sweeping. GCSS-11/GMEF made an important decision, giving the green light to implement incremental reform measures, as well as establishing a new high-level consultative group to grapple with far-reaching reform, essentially continuing the Belgrade process. It has less than a year to come up with new recommendations.

Governments' expectations of what will happen or, in fact, needs to happen, are mixed. Some hold the view that the reform options (including the transformation of UNEP into a UN Environmental Organization (UNEO) have been brought an inch further. The gradual build-up of UNEP's substantial work programme, buoyed by greater funding, has helped fill the desired "form" with robust "function." Other participants are more circumspect, suggesting that prospects for bolder reform, including universal GC membership, must wait. The usual calls by the EU and South Africa for a UNEO were not as passionate as in recent years, and delegates seemed to prefer to proceed more slowly, but surely. UNEP might be interested in keeping the issue on the table, and the discussion in Bali and the decision on IEG show that the issue remains highly visible.

SYNERGIZING WITH SUSTAINABLE DEVELOPMENT

The role of UNEP in the lead-up to Rio+20 figured prominently in formal debates and corridor conversations. The agenda of the CSD-18 and -19 cycle is opportune: most issues are closely aligned with the current purview of UNEP, such as chemicals, green economy, biodiversity and, of course, IEG. UNEP has made a convincing case for its contribution to the upcoming CSD session in May by preparing a substantive paper, and aligning its activities to the CSD cycle's agenda. Furthermore there has been a surge in activities of the Environment Management Group, which go beyond sustainable procurement in the UN and facilitate cooperation across the UN system to assist countries in implementing the environmental agenda.

Some have commented that UNEP's enthusiastic participation in the preparatory work for Rio+20 is adding to its political stature. One developing country delegate wondered if the true path did not lie in shifting the focus to improving sustainable development governance. This might embrace IEG and aim for even higher stakes: establishing an umbrella International Sustainable Development Organization. After all, they reason, environment is just one pillar of sustainable development, and the other two pillars—economic and social development—should not be subsumed. This is the deeper reason, they say, for the hesitation some developing countries feel about rushing into a radical transformation of IEG within the boundaries of UNEP. Thus, many of those assembled in Bali considered that IEG reform can only happen in the context of sustainable development. Within this context, "green economy," as a concept that embraces environment, poverty eradication, and social and economic progress, might become the bridge between the three pillars and may even solidify the concept of sustainable development governance.

WHAT LIES AHEAD

GCSS-11/GMEF was a singular success and a high point in recent UNEP history. Never has UNEP been blessed with such a generous budget (running at some US$90 million a year), which allows it to launch and deliver meaningful programmes. With the financial and economic crisis still haunting many national economies and the debacle of the climate change negotiations in Copenhagen still fresh on people's minds, UNEP's focus and capacity to deliver are making a strong impact on the world's environmental agenda. UNEP is forging vigorous links with other partners in the UN family, with different stakeholders, the UNGA, the CSD, UNDP and the preparatory process for Rio+20. The Nusa Dua Declaration shows, perhaps more than the decisions adopted in Bali, that, ten years after the Malmö Declaration, ministers decided to provide additional guidance to UNEP as a mark of their increased confidence in the organization.

However, at the end of the day, as delegates congratulated UNEP Executive Director Achim Steiner and each other in the grand Nusa Indah Hall, some questions lingered. Is further MEA clustering the sure path to building a more "synergized" governance structure? Will the Rio+20 preparatory process benefit UNEP as a UN programme quickly growing in stature? What will "broader reform" mean in practice: the establishment of a UNEO, a WEO, or the integration of UNEP and the MEAs into a World Sustainable Development Organization? Most importantly, do countries really need such bold changes at this particular time? As a keen observer noted, in a sense UNEP is a victim of its own success. If it's "a going concern," will radical

transformation of the present IEG format bring fundamental advantage and overcome the complexities of the current regime? These thoughts, in anticipation of an event-filled 2010, and a negotiating marathon up to Rio+20, were on delegates' minds as they concluded their meeting and stepped into the brilliant Bali sunshine.

UPCOMING MEETINGS

SECOND LATIN AMERICAN AND CARIBBEAN REGIONAL MEETING ON SAICM: The Strategic Approach to International Chemicals Management (SAICM) Secretariat, in collaboration with the Ministry of Land and Environment, Jamaica, is organizing a Latin American and Caribbean (LAC) regional meeting on the SAICM, taking place from 5-13 March 2010, in Kingston, Jamaica. In addition, short meetings are being organized on: assisting countries in the Latin America and Caribbean region to prepare for the upcoming negations on mercury as mandated by the UNEP Governing Council in its decision 25/5; nanotechnology and manufactured nanomaterials; industrial chemicals management, organized by the Secretariat of the Rotterdam Convention and the World Health Organization; and resource mobilization to support implementation of the Basel, Rotterdam and Stockholm Conventions. For more information, contact the SAICM Secretariat: tel: +41-22-917-8532; fax: +41-22-797-3460; e-mail: saicm@chemicals.unep.ch; internet: http://www.saicm.org

REGIONAL TRAINING WORKSHOP ON PCBS AND POPS WASTES FOR FRENCH-SPEAKING AFRICA: This regional training workshop, taking place 8-11 March 2010 in Bamako, Mali, is organized by the Ministry of the Environment of Mali and the African Stockpile Programme in Mali. It is targeting national experts on the Environmentally Sound Management of polychlorinated biphenyls (PCBs) and persistent organic pollutants (POPs) wastes from the French-speaking African region. For more information, contact the Stockholm Convention Secretariat: tel: +41-22-917-8729; fax: +41-22-917-8098; e-mail: ssc@pops.int; internet: http://chm.pops.int

ROTTERDAM CONVENTION SIXTH MEETING OF THE CHEMICAL REVIEW COMMITTEE: Taking place from 15-19 March 2010 in Geneva, Switzerland, this meeting will review notifications of final regulatory actions to ban or severely restrict chemicals, including: amitraz, azinphos-methyl, endosulfan, methyl bromide, and paraquat. For more information, contact the Rotterdam Convention Secretariat: tel: +41-22-917-8296; fax: +41-22-917-8082; e-mail: pic@pic.int; internet: http://www.pic.int

FOURTH POLICY BOARD MEETING OF THE UN-REDD PROGRAMME: The Fourth Policy Board meeting of the UN-REDD Programme will take place 17-19 March 2010 in Nairobi, Kenya, and will include a field visit to explore current issues, challenges and concerns about REDD+. For more information, contact: Reem Ismail, Events Coordinator, UN-REDD Programme; tel: +41-22-917-8442; e-mail: reem.ismail@un-redd.org; internet: http://www.un-redd.org/

CBD WORKING GROUP ON ACCESS AND BENEFIT-SHARING (ABS WG 9): Organized by the CBD Secretariat, this meeting will take place 22-28 March 2010 in Santiago de Cali, Colombia. The meeting will continue negotiations on the international regime on access and benefit-sharing. It will be preceded by two days of regional and interregional consultations, from 20-21 March 2010, and a three-day interregional informal consultation hosted by the Working Group Co-Chairs, from 16-18 March 2010. For more information, contact: CBD Secretariat; tel: +1-514-288-2220; fax: +1-514-288-6588; e-mail: secretariat@cbd.int; internet: http://www.cbd.int/doc/?meeting=ABSWG-09

HIGH-LEVEL DIALOGUE ON FINANCING FOR DEVELOPMENT: Taking place 23-24 March 2010 at UN Headquarters in New York, this year's Dialogue will focus on the overall theme "The Monterrey Consensus and Doha Declaration on Financing for Development: status of implementation and tasks ahead." The first day of the Dialogue will consist of plenary meetings chaired by the President of the General Assembly, and the second day will be devoted to three interactive multi-stakeholder round tables followed by an informal interactive dialogue with the participation of all relevant stakeholders. For more information, contact the Financing for Development Office: fax: +1-212-963-0443; e-mail: ffdoffice@un.org; internet: http://www.un.org/esa/ffd/hld/HLD2010/

GLOBAL SUMMIT: POWERING GROWTH FOR THE GLOBAL GREEN ECONOMY: The Business for Environment Global Summit (B4E) will take place from 21-23 April 2010 in Seoul, Republic of Korea, and will address resource efficiency, renewable energies, new business models and climate policy and strategies. At the meeting, CEOs and senior executives join leaders from government, international agencies, NGOs and media to discuss environmental issues, forge partnerships and explore innovative solutions for a greener future. For more information, contact: Michelle Ko; tel: +65 6534 8683; fax: +65 6534 8690; e-mail: michelle.ko@globalinitiatives.com; internet: http://www.b4esummit.com/?page_id=106

FIFTH GLOBAL CONFERENCE ON OCEANS, COASTS, AND ISLANDS: This meeting will take place from 3-7 May 2010 in Paris, France. The conference will be organized around the theme "Advancing integrated ocean governance at national, regional, and global levels." For more information, contact: Miriam C. Balgos, Program Coordinator, Global Forum on Oceans, Coasts, and Islands; tel: +1-302-831-8086; fax: +1-302-831-3668; e-mail: mbalgos@udel.edu; internet: http://www.globaloceans.org/

CSD-18: The 18th session of the UN Commission on Sustainable Development will take place from 3-14 May 2010 at UN Headquarters in New York. This review-year session will evaluate progress and identify constraints to implementing the issues on the thematic cluster for the CSD 18-19 cycle: transport, chemicals, waste management, mining and the Ten-Year Framework of Programmes on Sustainable Consumption and Production Patterns. For more information, contact: UN Division for Sustainable Development; fax: +1-212-963-4260; e-mail: dsd@un.org; internet: http://www.un.org/esa/dsd/

SEVENTH SESSION OF THE BASEL CONVENTION OPEN-ENDED WORKING GROUP: The Open-ended Working Group (OEWG) of the Basel Convention is scheduled to meet from 10-14 May 2010, in Geneva. For more information, contact the Basel Convention Secretariat: tel: +41-22-917-8218; fax: +41-22-797-3454; e-mail: sbc@unep.ch; internet: http://www.basel.int/

CBD SBSTTA 14: The 14th meeting of the Convention on Biological Diversity's Subsidiary Body on Scientific, Technical and Technological Advice is organized by the CBD Secretariat, and will take place from 10-21 May 2010 in Nairobi, Kenya. For more information, contact: CBD Secretariat; tel: +1-514-288-2220; fax: +1-514-288-6588; e-mail: secretariat@cbd.int; internet: http://www.cbd.int/sbstta14/

FIRST PREPCOM FOR UN CONFERENCE ON SUSTAINABLE DEVELOPMENT (RIO+20): This meeting will take place from 17-19 May 2010 at UN Headquarters in New York, immediately following CSD-18. The UN General Assembly, in December 2009, adopted a resolution calling for a UN Conference on Sustainable Development to be convened in Brazil in 2012. This meeting will mark the 20th anniversary of the UN Conference on Environment and Development. For more information, contact the Division for Sustainable Development, Department of Economic and Social Affairs, fax: +1-212-963-4260; e-mail: dsd@un.org; internet: http://www.un.org/esa/dsd/

CBD WGRI 3: The third meeting of the CBD Working Group on Review of Implementation of the Convention will take place from 24-28 May 2010 in Nairobi, Kenya. For more information contact: CBD Secretariat; tel: +1-514-288-2220; fax: +1-514-288-6588; e-mail: secretariat@cbd.int; internet: http://www.cbd.int/wgri3/

32ND SESSIONS OF THE UNFCCC SUBSIDIARY BODIES, AWG-LCA 9 AND AWG-KP 11: The 32nd sessions of the Subsidiary Bodies of the UNFCCC—the SBI and the SBSTA—are scheduled to take place from 31 May to 11 June 2010, in Bonn, Germany. At the same time AWG-LCA 9 and AWG-KP 11 are expected to take place. For more information, contact UNFCCC Secretariat: tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.int; internet: http://unfccc.int/

FIRST SESSION OF THE INC TO PREPARE A GLOBAL LEGALLY BINDING INSTRUMENT ON MERCURY: Taking place from 7-11 June 2010 in Stockholm, Sweden, this meeting is the first of five Intergovernmental Negotiating Committee meetings to negotiate a legally binding instrument on mercury. For more information, contact UNEP Chemicals Mercury Programme: tel: +41-22-917-8183; fax: +41-22-797-3460; e-mail: mercury@chemicals.unep.ch; internet: http://www.chem.unep.ch/mercury/OEWG/Meeting.htm

IPBES III: The 3rd *Ad Hoc* Intergovernmental and Multi-stakeholder meeting on an Intergovernmental Science-Policy Interface on Biodiversity and Ecosystem Services (IPBES III) is tentatively scheduled for 7-11 June 2010 at a location to be confirmed. For more information, contact: the UNEP IPBES office; tel: +254-20-762-5135; fax: +254-20-762-3926; e-mail: ipbes.unep@unep.org; internet: http://ipbes.net/en/Index.asp

G-20 SUMMIT: The June G-20 Summit will take place in Toronto, Canada from 26-27 June 2010. For more information, see http://www.international.gc.ca/cip-pic/G20/

BIOSAFETY PROTOCOL COP/MOP 5: The fifth meeting of the Conference of the Parties serving as the Meeting of the Parties to the Cartagena Protocol (COP/MOP 5) will be held from 11-15 October 2010 in Nagoya, Japan. For more information, contact: CBD Secretariat; tel: +1-514-288-2220; fax: +1-514-288-6588; e-mail: secretariat@cbd.int; internet: http://www.cbd.int/mop5/

CBD COP 10: The tenth meeting of the Conference of the Parties (COP 10) to the CBD will be held from 18-29 October 2010, in Nagoya, Japan. The High-level Segment will be held from 27-29 October 2010. For more information, contact: CBD Secretariat; tel: +1-514-288-2220; fax: +1-514-288-6588; e-mail: secretariat@cbd.int; internet: http://www.cbd.int/cop10/

SIXTH MEETING OF THE PERSISTENT ORGANIC POLLUTANT REVIEW COMMITTEE (POPRC-6): This meeting will take place 18-22 October 2010 in Geneva, Switzerland. The POPRC is a subsidiary body to the Stockholm Convention established for reviewing chemicals proposed for listing in Annex A, B, and/or C. For more information, contact the Stockholm Convention Secretariat: tel: +41-22-917-8729; fax: +41-22-917-8098; e-mail: ssc@pops.int; internet: http://chm.pops.int/

G-20 SUMMIT: The November G-20 Summit will take place in Seoul, Republic of Korea from 11-13 November 2010. For more information, contact: Presidential Committee for the G-20 Summit; e-mail: G20KOR@korea.kr; internet: http://www.g20.org/

EYE ON THE EARTH SUMMIT: Building on the success of the Abu Dhabi Global Environmental Data Initiative, which was launched by the United Arab Emirates, in collaboration with UNEP at the WSSD in Johannesburg in 2002, Abu Dhabi is now calling for an "Eye on Earth" Global Summit to take such action forward. This Summit will take place in Abu Dhabi from 15-17 November 2010. For more information, contact Majid Al Mansouri, Secretary-General, Environment Agency Abu Dhabi; tel: +971-2-693-4567; fax: +971-2-446-4797; e-mail: EoE@ead.ae; internet: http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=612&ArticleID=6480&l=en&t=long

SIXTEENTH CONFERENCE OF THE PARTIES TO THE UNFCCC AND SIXTH MEETING OF THE PARTIES TO THE KYOTO PROTOCOL: This meeting will take place 29 November - 10 December 2010 in Cancun, Mexico. For more information, contact UNFCCC Secretariat: tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.int; internet: http://unfccc.int/

UNEP GC-26/GMEF: The 26th session of the UNEP Governing Council/Global Ministerial Environment Forum (GC/GMEF) is scheduled to convene from 21-25 February 2011 in Nairobi, Kenya. For more information, contact: Jamil Ahmad, Secretary of the UNEP Governing Council; tel: +254-20-7623431/7623411; fax: +254-20-762-3929; e-mail: jamil.ahmad@unep.org; internet: http://www.unep.org

SECOND PREPCOM FOR UN CONFERENCE ON SUSTAINABLE DEVELOPMENT (RIO+20): This meeting is scheduled to take place from 28 February – 1 March 2011 at UN Headquarters in New York. For more information contact the Division for Sustainable Development, Department of Economic and Social Affairs; fax: +1-212-963-4260; e-mail: dsd@un.org; internet http://www.un.org/esa/dsd/

FIFTH MEETING OF THE CONFERENCE OF THE PARTIES TO THE ROTTERDAM CONVENTION: This meeting will take place 20-24 June 2011 in Geneva, Switzerland. For more information, contact the Rotterdam Convention Secretariat: tel: +41-22-917-8296; fax: +41-22-917-8082; e-mail: pic@pic.int; internet: http://www.pic.int

Annex 4
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ADDRESSING NANOMATERIALS AS AN ISSUE OF GLOBAL CONCERN

Prepared by
The Center for International Environmental Law (CIEL)

May 2009

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ADDRESSING NANOMATERIALS AS AN ISSUE OF GLOBAL CONCERN

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May 2009

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Executive Summary

Nanotechnology is the manipulation, manufacture and use of the novel physical, chemical and biological properties of substances that exist at the nanoscale: one billionth of a meter or less. The potential overall impact of nanotechnologies on society has been heralded as being on a par with the industrial revolution. Nanoscience and nanotechnologies are revolutionizing our understanding of matter and are likely to have profound implications for all sectors of the economy, including agriculture and food, energy production and efficiency, the automotive industry, cosmetics, medical appliances and drugs, household appliances, computers, and weapons.

No one knows how many products on the market today contain nanoparticles or are manufactured with the help of nanotechnologies. The only inventory available, compiled by the Woodrow Wilson Center for Scholars, identifies over 800 nanotechnology-based consumer products. Many of these are traded internationally.

Nanotechnology is unusual in several respects that simultaneously enhance its potential benefits and risks and complicate consideration of whether and, if so, how to regulate it. Nanotechnology applications use the very different properties that materials have at the nanoscale compared to the same materials made at larger sizes. Nanoscale materials may dissolve differently, have different magnetic properties, react differently to other substances, or reflect light differently than they would in the bulk form.

Nanotechnology promoters stress the potentially beneficial applications that these new technologies may enable, including in developing countries. In contrast, many scientific institutions across the world have underscored the need to assess carefully their possible health and environmental risks. A number of international organizations and civil society groups advocate a careful assessment of the various socio-economic impacts and health and environmental risks that may be associated with nanotechnologies and materials.

A very large knowledge gap exists with regard to basic understanding of the interaction of nanomaterials with environmental and biological systems such as the human body. Estimates suggest that less than three percent of nanotechnology funding is devoted to investigating the health and environmental impacts of nanotechnology and nanomaterials. Nevertheless, the existence of serious adverse effects of some nanomaterials to both human health and the environment, including the potential of some nanomaterials to bioaccumulate and persist in the environment, is clearly established and recognized as such by major scientific institutions in the world. Moreover, as some nanomaterials may have the ability to travel long distances through environmental media such as wind and water, as well as through international trade, there is a distinct possibility that they could contribute to transboundary harm, such that countries may not be able to protect themselves unilaterally from the potential risks.

These factors contribute to the conclusion that nanotechnologies and nanomaterials may present an issue of global concern warranting international action. In view of the specific issues raised by nanotechnologies, an effective framework for undertaking international action will be needed. Such a framework should be global in coverage; precautionary,

participatory, and transparent; comprehensive in terms of the scope of risks addressed throughout the life cycle of nanomaterials; and adaptive and flexibly designed so that it can respond to new and unforeseen issues. No such framework now exists.

Several international organizations have begun addressing some of the issues raised by the rapid development of nanotechnologies and the potential environmental health risks of nanomaterials. The Organization for Economic Co-Operation and Development (OECD) has established two working parties: the Working Party on Manufactured Nanomaterials to coordinate research activities among its members; and the Working Party on Nanotechnology to provide advice on a number of policy-related issues. The International Organization for Standardization (ISO) created a technical group (TC 229) to produce standards for classification, terminology and nomenclature, basic metrology, calibration and certification, and environmental issues with respect to nanotechnology. The United Nations Educational, Scientific and Cultural Organization (UNESCO) has worked since 2005 on mapping the wide ethical and political dimensions of nanotechnologies from a global perspective, and on exploring the implications they may have for its members.

Each of these processes can make important contributions to bridging the knowledge gap and mapping the wide scope of issues that need to be addressed. None of these organizations, however, has the combination of capacity, mandate, and universal membership required to adequately and comprehensively address nanotechnology and nanomaterials as an issue of global concern. They thus cannot reasonably be expected to serve as the main forum to address nanotechnologies and nanomaterials as an issue of global concern. Nevertheless, they can play important roles in the context of the needed global framework.

Similarly to those processes, none of the existing multilateral environmental agreements (MEAs) provide the needed global framework for nanotechnologies and nanomaterials. Although none of the chemicals MEAs use particle size to define their scope or obligations, a few could, at least in theory, be used to address some issues linked to the release of nanomaterials into the environment.

The Stockholm Convention on Persistent Organic Pollutants (POPs) could potentially address those nanomaterials that are organic and satisfy the Stockholm criteria of toxicity, persistence, bioaccumulation, and long-range environmental transport. At present, however, the current knowledge gap would likely not support the listing of any existing nanomaterials in the Convention. Moreover, most of the known existing nanomaterials are not organic chemicals.

The Basel Convention on Transboundary Movement of Hazardous Waste could be used to regulate waste containing nanomaterials, provided that they qualify as “hazardous waste” as defined by the Convention. However, given the poor state of current knowledge, it may be difficult or even impossible to define environmentally sound management of some wastes containing nanomaterials. Significant progress will first need to be made to further understand the toxicity of nanomaterials throughout their life cycle, before the provisions of the Basel Convention can be used effectively.

The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention) could be used to provide countries with the right to require their prior informed consent before other countries could export products or articles containing specific hazardous nanomaterials to them. However, the nature of the Rotterdam Convention makes it difficult to list new substances so that they may become subject to its controls; ordinarily, only substances that are already banned or severely restricted in two or more countries may be considered for listing, which means that the Convention takes a somewhat backward-looking, rather than forward-looking, precautionary approach; and new listings are made on a chemical-by-chemical basis, making it difficult for the Convention to address nanomaterials in a comprehensive manner. Moreover, the Rotterdam Convention is not intended to address the regulation of chemicals beyond the tool of prior informed consent in international trade.

The Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) contains important principles about transparency, public participation and access to justice that could guide the creation and operation of a global nanotechnologies framework.

The Strategic Approach to International Chemical Management (SAICM) is a global process that is currently addressing nanotechnology as an emerging issue. As such, it could provide an appropriate forum to begin addressing nanotechnology and nanomaterials as an issue of global concern in a comprehensive manner. It is global and intended to balance relevant North-South concerns; it includes broad participation by governments, international organizations, and civil society; it has an appropriately broad mandate with objectives covering risk reduction, information sharing and governance, all highly relevant in the context of nanotechnologies and nanomaterials as an emerging issue of global concern; and it is based on principles of transparency, public participation and precaution.

List of Acronyms and Abbreviations

BIAC	Business and Industry Advisory Committee to the OECD
BSI	British Standard Association
CEN	European Committee for Standardization
COMEST	World Commission on the Ethics of Scientific Knowledge and Technology
EHS	Environment and Health Safety
EU	European Union
GM	Genetically Modified
GPA	Global Plan of Action
ICCM	International Conference on Chemicals Management
IEC	International Electrotechnical Committee
IFCS	International Forum on Chemical Safety
IO	International Organization
IOMC	Inter-Organization Programme for the Sound Management of Chemicals
ISO	International Organization for Standardization
ITU	International Telecommunication Union
MEA	multilateral environmental agreements
NGO	non-governmental organization
OECD	Organization for Economic Co-Operation and Development
PIC	prior informed consent
POP	persistent organic pollutant
SAICM	Strategic Approach for International Chemicals Management
SCENIHR	Scientific Committee on Emerging and Newly Identified Health Risk
TUAC	Trade Union Advisory Committee
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USEPA	United States Environmental Protection Agency
WHO	World Health Organization
WPMN	Working Party on Manufactured Nanomaterials
WPN	Working Party on Nanotechnology

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1. Introduction

1. Few technologies have triggered as many comments, hopes, fears and radical statements as nanotechnology. The rapid development of nanotechnology and its growing importance for all aspects of society have been called a "nano-revolution" and heralded as being on a par with the industrial revolution.[1]

2. Nanotechnology promises to be a transformational technology, such as electricity and the steam engine, with profound implications for all sectors of the economy, including agriculture and food, energy production and efficiency, the automotive industry, cosmetics, medical devices and drugs, household appliances, computers, environmental remediation technologies and weapons.[2] Nanotechnology is unusual in several respects that simultaneously enhance its potential benefits and risks and complicate consideration of whether and, if so, how to regulate it. That consideration is further complicated by the potential flow of nanomaterial through international trade channels as both products and wastes, and by the potential long-range transport of some of these materials after their release into the environment.

3. This paper explores questions of how and whether manufactured nanomaterials should be addressed as an issue of global concern. The paper is presented in five Parts:

Part 1 (the present Part) is the Introduction.

Part 2 describes basics of nanotechnology terminology, properties, benefits, and risks.

Part 3 evaluates whether the potential release of nanomaterials into the environment presents an issue of global concern, such that international action is

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[1] For examples, see *The Ethics and Politics of Nanotechnology*, UNESCO, 2006, p.3 ("nano could lead the next industrial revolution"), available at http://unesdoc.unesco.org/images/0014/001459/145951e.pdf

[2] "Some experts consider the emergence of nanotechnology to be an industrial revolution that—much like the invention of electricity—will have an enormous impact on society, the economy and life in general" in *Nanotechnology, small matters, many unknown*, Swiss Re, 2004, p.7 available at http://www.swissre.com/resources/31598080455c7a3fb154bb80a45d76a0-Publ04_Nano_en.pdf

needed, and identifies the essential characteristics of an international approach to this issue of global concern.

Part 4 assesses existing international actions and processes that currently deal with nanomaterials and nanotechnologies.

Part 5 provides an overview of existing multilateral environmental agreements that might be used to address issues raised by nanotechnology and manufactured nanomaterials as an issue of global concern.

4. Numerous other aspects of nanotechnology have been identified and warrant further analysis, but are beyond the scope of this paper. For example, the use of nanotechnology in military applications, human enhancement, or surveillance may raise important questions of ethics, human rights, privacy, equity, and international law.

2. Nanotechnology Basics

2.1. Terminology

5. The use of the term "nanotechnology" commonly refers to the branch of science and engineering devoted to designing, producing and using structures, devices and systems by manipulating atoms and molecules at the nanoscale, i.e., those having one or more dimension on the order of 100 nanometers (100 millionth of a millimeter) or less.[3] The products of these efforts are called "nanomaterials," consisting of nanoparticles and the grouping of these particles into structures that may be larger than nanoscale.

6. Several definitions of "nanotechnology" and "nanotechnology products" have been developed, often for specific purposes. Because nanoscience and nanotechnology have emerged rapidly and recently, the vocabulary used within the contributing disciplines has not always been consistent. Also, there have been, and continue to be, serious challenges what, exactly, should fall within the precise scope of the nanoscale.

7. This report uses the various nanotechnology terms in a manner that is consistent with the "Publicly Available Specification on the Vocabulary for Nanoparticles" of the British Standards Institution (BSI 2005) and also used by the Scientific Committee on Emerging and Newly Identified Health Risk (SCENIHR) of the European Commission. These include the following:

Nanoscale: one or more dimensions of the order of 100 nanometer (nm) or less.

[3] There is a growing debate of whether it is appropriate to define nanoparticles only through their size or to limit the definition to particles under 100 nm. See, for example, *Discussion Paper on Nanotechnology Standardization and Nomenclatures Issues*, Friends of the Earth Australia, August 2008, available at http://www.ecostandard.org/downloads_a/2008-10-06_foea_nanotechnology.pdf). These issues will not be addressed in the present paper.

Nanoscience: the study of phenomena and manipulation of materials at atomic, molecular and macromolecular scales, where properties differ significantly from those at a larger scale.

Nanotechnology: the design, characterization, production and application of structures, devices and systems by controlling shape and size at the nanoscale.

Nanomaterial: material with one or more external dimensions, or an internal structure, which could exhibit novel characteristics compared to the same material without nanoscale features.

Nanoparticle: particle with one or more dimensions at the nanoscale.

Nanostructured: having a structure at the nanoscale.

2.2. Properties, Benefits, Risks

8. Many examples exist in the natural world of structures with one or more dimensions at the nanoscale. Some technologies have, in the past, incidentally involved such nanostructures. Only recently, however, has it been possible to manufacture nanostructures intentionally.

9. Nanotechnology applications frequently give materials very different properties compared to material of the same chemical composition made at larger sizes.[4] These new properties are associated with the very large surface-area-to-volume ratios experienced at these dimensions, and with the quantum effects that are not exhibited by larger-sized particles. Examples include nanomaterials of very thin films used as catalysts and electronics; two-dimensional nanotubes and nanowires for optical and magnetic systems; and nanoparticles used in cosmetics, pharmaceuticals, and coatings.

10. Nanoscale materials may dissolve differently, have different magnetic properties, react differently to chemicals, or reflect light differently than they would in the bulk form. Carbon is a familiar example. The properties of two forms of pure carbon, graphite and diamonds, are well-known. However, when carefully shaped into tiny nanotubes, carbon can become ten times stronger, while remaining ten times lighter, than steel.

11. Nanotechnology applications may have potentially significant, beneficial impacts on society. Nanotechnology has already been embraced by numerous industrial sectors, such as information and communications, but it is also used in sectors such as the food and feed industries, energy technology, and medicines and medical devices, to name a few. Nanomaterials are also promoted as offering new opportunities for the reduction of environmental pollution.

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[4] *Modified Opinion on the Appropriateness of Existing Methodologies to Assess the Potential Risks Associated with Engineered and Adventitious Products of Nanotechnology*, The European Commission, available at http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_003b.pdf. (the 2006 SCENHIR Summary).

12. Nevertheless, "hopes that nanotechnology will be an essential part of solving the globe's energy, food, and water problems should be tempered by recalling a century of revolutionary technologies that failed to live up to their early promises such as nuclear energy, supersonic airplanes or gene therapy."[5] As the United Nations Environment Programme (UNEP) *Global Environmental Outlook 2007* (the *2007 GEO Year Book*) notes, the potential new opportunities of nanotechnologies for the reduction of environmental pollution and impacts need to be carefully assessed:

> Public and private organizations have been quick to recognize the apparent benefits of nanotechnology, but there is a corresponding need to assess the full costs of this emerging field, including the life cycle costs of products. For example, many nanostructured materials save energy while being used but their manufacture may be very energy intensive. Cost-benefits analysis must take into account the true environmental impacts of these materials – and the fate and transport of nanoparticles released in the environment must be more fully investigated. [6]

13. Furthermore, the emergence of these new nanomaterials has raised concerns about their potential health and environmental impacts. In 2006, the Scientific Committee on Emerging and Newly Identified Health Risks (SCENHIR), an independent scientific committee advising the European Commission, published a revised opinion noting that "these newly identified processes and their products may expose humans, and the environment in general, to new health risks, possibly involving quite different mechanisms of interference with the physiology of human and environmental species."[7]

14. Based on this 2006 revised opinion, the Directorate General for Health and Consumer Protection of the European Commission stated:

> The new materials may also represent new health risks. Humans have developed mechanisms of protection against various environmental agents of different sizes. However, until recently, they had never been exposed to synthetic nanomaterials and their specific characteristics. Therefore the normal human defense mechanisms associated with, for example, immune and inflammatory systems may well not be able to respond adequately to these nanoparticles. In addition, nanoparticles may also disperse and persist in the environment, and therefore have an impact on the environment.[8]

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[5] See, Gary.E. Marchant and Douglas J. Sylvester, "*Transnational Models for the Regulation of Nanotechnology*," Journal of Law, Medicine and Ethics, Winter 2006, p.1, available at http://cns.asu.edu/cns-library/documents/Marchant_Independent.pdf.

[6] *Global Environmental Outlook*, United Nations Environment Programme, 2007, p.66, available at http://www.unep.org/geo/yearbook/yb2007/PDF/GYB2007_English_Full.pdf.

[7] Supra, note 4, at 8. Available at http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_003b.pdf.

[8] See the European Commission Summary presentation of the 2006 SCENIHR report, question 1, "*what is nanotechnology*," level 2, available at http://ec.europa.eu/health/opinions2/en/nanotechnologies/l-2/1-introduction.htm.

3. Do Nanotechnologies and Materials Comprise an Issue of Global Concern such that International Action Is Warranted?

15. Faced with the dramatic societal changes that nanotechnologies may bring, and responding to concerns expressed by both civil society and the scientific community, a number of countries have begun to review the capacity of their national regulatory systems to adapt to the new nano-paradigm and to address some of the specific issues raised by the rapid development of nanotechnologies.[9] Nevertheless, as David Rejeski, Director of the Woodrow Wilson Center for Scholars Project on Emerging Nanotechnologies, notes, "most countries are taking a wait-and-see approach, assuming that existing regulations will deal with nanotechnology, even if new materials emerge with radically different properties."[10,11]

16. Moreover, recent history demonstrates that the nature of many chemicals, including international trade in such substances, requires them to be managed at the international level throughout their life cycles, notwithstanding the regulatory activities that individual States may undertake. For example, the fact that Persistent Organic Pollutants (POPs) are toxic, last a long time in the environment, bioaccumulate, biomagnify, and can travel long distances through wind and water, convinced States that the environmental health risks of POPs could be addressed effectively only through a global, legally binding approach.[12] Similarly, the 2002 Global Mercury Assessment, published by UNEP and the Inter-Organization Programme for the Sound Management of Chemicals (IOMC), concluded that mercury is an issue of global concern due to its significant negative effects on human health and the environment, its ability to bioaccumulate in ecosystems, its persistence in the environment once anthropogenically introduced, and its long-range atmospheric transport,[13] even though a large number of countries had been regulating many mercury uses and sources for years.[14] Trade in dangerous substances has also been recognized as an issue of global concern, warranting

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[9] See, for example, *Regulatory Aspect of Nanomaterials*, Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee, COM(2008) 366 final, 17 June 2008, available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0366:FIN:EN:PDF.

[10] *Comment on a Framework Convention for Nanotechnology*, Environmental Law Reporter, vol. 38, No. 8, p. 10519.

[11] *Novel Material in the Environment: The Case of Nanotechnology*, UK Royal Commission on Environmental Pollution, November 2008, at para. 4.14 and 4.16, available at http://www.rcep.org.uk/novel%20materials/Novel%20Materials%20report.pdf.

[12] "The governing council . . . [c]oncludes that international action, including a global legally binding instrument, is required to reduce the risks to human health and the environment arising from the release of the twelve specified persistent organic pollutants." UNEP Governing Council Decision 19/13 C of 7 February 2007.

[13] See *Global Mercury Assessment*, UNEP Chemicals, 2002, p. 228 and following. Available at http://www.chem.unep.ch/MERCURY/Report/Final%20report/final-assessment-report-25nov02.pdf.

[14] See, for example, Directive 2007/51/EC of the European Parliament and of the Council of 25 September 2007 amending Council Directive 76/769/EEC relating to restrictions on the marketing of certain measuring devices containing mercury, available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:257:0013:0015:EN:PDF; Global Mercury Assessment, s*upra* note 13, section 9.2.3 for a general overview.

the negotiation and adoption of international instruments such as the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (the Basel Convention).[15]

17. These examples demonstrate that international frameworks may be necessary when countries, acting alone, cannot address the challenges posed by the production, use, transport, trade, or disposal of certain substances and technologies. While responsible action by individual countries is essential, the environmental, health and other societal challenges potentially posed by nanotechnologies may be simply too broad to be addressed solely through national initiatives, and may require an international regulatory framework to support collective action.

18. The balance of this Part identifies criteria that could characterize an issue of global concern, evaluates whether nanotechnologies and nanomaterials fulfill these criteria, and identifies some of the characteristics that international actions with respect to nanotechnology and nanomaterials should have.

3.1. Identifying criteria that may characterize an issue of global concern

19. The rapid development of nanotechnologies and commercialization of nanomaterials should be examined first in light of customary principles of international environmental law, as they are now enshrined in the 1992 Rio Declaration on Environment and Development (the Rio Declaration) and other international instruments. For example, the principle of addressing transboundary damages of industrial processes by means of international law is reinforced by Rio Principle 19, which called for information exchange "at an early stage and in good faith" on activities that "may have a significant adverse transboundary environmental effect."[16] UNEP recognized the relevance of this principle in the context of the rapid development of nanotechnologies in its *2007 GEO Year Book*, which states that "[i]ncreased international cooperation is also needed to address transboundary issues involving the development and use of nanomaterials and products."[17]

20. The rise of nanotechnologies as an object of enhanced international cooperation, and the potential need for an international regulatory framework for nanotechnologies, should also be evaluated in light of other parts of the Rio Declaration, namely: Principle 6, relating to the special attention and needs of developing countries; Principle 13, on the further development of international law regarding liability and compensation for adverse effects of environmental damages; and Principle 14, relating to the relocation and transfer

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[15] See Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Preamble ("Mindful that growing threat to human health and the environment posed by the increased generation and complexity, and transboundary movements of hazardous wastes and other wastes…") available at http://www.basel.int/text/con-e-rev.pdf.
[16] Rio Declaration on Environment and Development, adopted on 13 June 1992, available at http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163.
[17] S*upra* note 6, p. 2.

to other States of any activities that cause severe environmental degradation, or are found to be harmful to human health.[18]

21. As discussed in the International Forum on Chemical Safety (IFCS) thought starter, *International Transport of Lead and Cadmium via Trade: An International Concern?*, three common considerations underlie the development of most multilateral chemicals and environmental agreements:

(i) The international community perceives that certain substances or activities present an unacceptable risk to human health or the environment.

(ii) An action (or failure to act) by one or more countries may increase the risk of harm to other countries from the substances or activities.

(iii) These potentially affected countries find it difficult or impossible to protect themselves unilaterally from the increased risk.[19]

22. The following sub-sections of this part will evaluate the applicability of each of these criteria to nanomaterials to assess the potential for nanotechnologies and nanomaterials to be considered an issue of global concern.

3.2. Potentially unacceptable risks of nanomaterials to human health and the environment: Toxicity, persistence and bioaccumulation

3.2.1. Toxicity of nanomaterials

23. The unique physicochemical properties of nanomaterials may be associated with a similarly unique toxicity profile. In effect, "some of the same unique properties that make manufactured nanoparticles suitable for certain applications also raise questions about the impacts of nanoparticles on human health and the environment."[20]

24. "Toxicity and fate of nanoparticles is [sic] affected by a variety of physicochemical properties such as size and shape, as well as surface properties such as charge, area, reactivity, and coating type on the particle."[21] There are, to date, no known screening processes that would help identify the specific properties or characteristics that

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[18] See *supra* note 16.

[19] Erika Rosenthal & Glenn Wiser, *International Transport of Lead and Cadmium via Trade: an International Concern?* Intergovernmental Forum on Chemical Safety Thought Starter, U.N. Doc. IFCS/FORUM-VI/03.TS (2008), available at http://www.who.int/entity/ifcs/documents/forums/forum6/f6_03ts.en.doc.

[20] Background information in relation to the emerging policy issues of nanotechnology and manufactured nanomaterials, SAICM/ICCM.2/INF/34, §8, available at http://www.saicm.org/documents/iccm/ICCM2/meeting%20documents/ICCM2%20INF34%20nano%20background%20E.pdf.

[21] A. Nel, T. Xia, N. Li, *Toxic potential of materials at the nanolevel*, Science, Vol. 311:622-627, 2006 abstract available at http://www.ncbi.nlm.nih.gov/pubmed/16456071; Oberdörster G, et. al., *Principles for characterizing the potential human health effects from exposure to nanomaterials: elements of a screening strategy*, Particle and Fibre Toxicology 2:8, 2005 available at http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1260029.

would be of particular concern in terms of health or environmental toxicity. Thus, it is not feasible to produce a general toxicity profile for nanomaterials under the present state of knowledge.

25. Due to the large variety of nanoparticles and nanomaterials and the fast-evolving discoveries in this sector, the knowledge gap for producing such a profile is tremendous. Furthermore, despite that knowledge gap, the funding dedicated to investigate the potential health and environmental impacts of nanotechnologies remains very limited, with only an estimated three to five percent of nanotechnology research funding being spent on investigating the potential health and environmental impacts of nanomaterials.[22]

26. Nevertheless, there is already compelling evidence of the environmental or human toxicity of certain nanomaterials, including the potential for certain types of carbon nanotubes to mimic the effect of asbestos, causing severe pathologies such as granulanomas and mesothelioma.[23] Other preliminary studies have demonstrated that high oral doses of nanoparticle zinc powder can cause severe damage to organs or changes in physiological function.[24] Adverse environmental impacts of some nanomaterials have also been established. For example, nanoparticle titanium dioxide (TiO_2) can cause mortality or behavioral or physiological changes in species such as water fleas, fish or algae that are used as environmental indicator species, especially when exposed to UV light.[25] Also, high levels of nanoscale aluminum stunt root growth in five major commercial crops species.[26]

27. In its most recent scientific opinion, the SCENHIR wrote that despite considerable and persisting knowledge gaps:

> Information regarding the ecotoxic effects of nanoparticles is growing steadily. For some nanomaterials, toxic effects on environmental organisms have been demonstrated, as well as the potential to transfer across environmental species,

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[22] For US and EU figures, see *supra* note 6, at 62.

[23] "It was demonstrated that similar inflammatory reactions can be induced by these specific nanotubes as induced by asbestos." See *Opinion on the Most Recent Developments in the Risk Assessment of Nanomaterials*, SCENIHR, 19 January 2009, at 9, available at http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_023.pdf.

[24] Bing Wang, et al., *Acute Toxicity of Nano-and Micro-scale Zinc Powder in Healthy Adult Mice*, abstract and article outline available at http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TCR-4H3JJCB-2&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=f033c5a3e5ab94ebec8e3e5448d25287.

[25] See, for example, K. Hund-Rinke & M. Simon, *Ecotoxic Effect of Photocatalytic Active Nanoparticles (TiO2) on Algae and Daphnids*" 2006, Environ Sci Poll Res 13(4):225-232, abstract available at http://www.informaworld.com/smpp/content~content=a909166265~db=all or B. Lovern & R. Klaper *Daphnia Magna Mortality When Exposed to Titanium Dioxide and Fullerene (c60) Nanoparticles*, Environ Toxicol Chem 25(4):1132-1137, 2006, abstract available at http://www.setacjournals.org/perlserv/?request=get-abstract&doi=10.1897%2F05-278R.1&ct=1.

[26] "*Particle surface characteristics may play an important role in phytotoxicity of alumina nanoparticles,*" Yang L, Watts DJ (2005), Toxicol Lett. Volume 158(2):122-32, available at http://nanotoxcore.mit.edu/tox%20core/nano%20toxicity%20papers/Yang,%20Watts,%202005.pdf.

indicating a potential for bioaccumulation in species at the end of that part of the food chain.[27]

28. In consequence, although there is no general toxicity profile for nanomaterials yet, the existing evidence of toxicity for certain types of nanomaterials, including those with some of the largest production output (namely carbon nanotubes), and the established potential for acute and long-term toxicity of other existing nanomaterials, points toward the existence of potential unacceptable risks to human health and the environment.

3.2.2. Bioaccumulation of nanomaterials

29. The factors that make it presently impossible to develop a general toxicity profile of nanomaterials similarly make it difficult fully to evaluate their uptake into, and distribution within, the human body. As a result, information currently available on the potential for bioaccumulation of nanomaterials is limited.

30. Nevertheless, based on existing environmental studies, the United States Environmental Protection Agency (USEPA) and other environmental regulatory agencies have acknowledged that "[b]acteria and living cells can take up nanosized particles, providing the basis for potential bioaccumulation in the food chain."[28]

31. In its 2006 revised opinion, the SCENHIR reported that "[m]aterials with very low solubility or degradability could accumulate within biological systems and persist there for long durations."[29] Indeed, available information on nanomaterials points toward the potential for bioaccumulation of some nanoparticles (e.g., quantum dots).[30] Studies published in 2007 show that the presence of some nanoparticles enhances the bioaccumulation of other toxic substances in aquatic organisms.[31] Moreover, recent studies show that, not only do nanoparticles bioaccumulate in individual organisms, but they can also be transferred to the offspring of exposed organisms, thereby risking an intergenerational toxic legacy from nanomaterials.[32]

32. The potential for nanomaterials to bioaccumulate in living organisms and to enhance the bioaccumulation of other toxic substances may pose severe risks to human health and, by extension, possibly to other animals.

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[27] *Supra* note 23 at, p.55.
[28] *Nanotechnology White Paper*, USEPA, at p. 50, February 2007 available at http://www.epa.gov/OSA/pdfs/nanotech/epa-nanotechnology-whitepaper-0207.pdf (citing Biswass and Wu, 2005)
[29] *Supra* note 7, at p. 21.
[30] See *supra* note 23, at p.10
[31] Zhang et. al., *Enhanced Bioaccumulation of Cadmium in Carp in the Presence of Titanium Dioxide Nanoparticles*, Chemosphere, vol. 67, no1, pp. 160-166, 2007, abstract available at http://www.ncbi.nlm.nih.gov/pubmed/17166554?ordinalpos=9&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum.
[32] Takeda *et al.*, *Nanoparticles Transferred from Pregnant Mice to Their Offspring Can Damage the Genital and Cranial Nerve Systems*, Journal of Health Science, Volume 55, number 1, February 2009

3.2.3. Persistence of nanomaterials in the environment

33. Available data on the potential persistence of nanoparticles in the environment remain scarce. However, as is the case for bioaccumulation, some nanoparticles are likely to behave in the same way as their bulk precursors. If nanomaterial is engineered from a bulk material that is not biodegradable, then the potential for the nanomaterial to persist in the environment is quite strong. According to the USEPA *Nanotechnology White Paper*, "[m]any of the nanomaterials in current use are composed of inherently nonbiodegradable inorganic chemicals, such as ceramics, metals and metal oxides, and are not expected to biodegrade."[33] Furthermore, the specific characteristics of some nanomaterials, such as their capacity to form aggregates or have very low solubility or degradability, indicate that they may have a strong potential for persistence in the environment.[34]

34. Significant investigative research is urgent and necessary to better assess the potential for environmental persistence of manufactured nanomaterials. When considered in light of the potential of some nanomaterials to cause adverse health effects and to bioaccumulate, the very likely persistence in the environment of at least some nanomaterials points to their high potential to present an unacceptable risk to human health, thus giving rise to an issue of global concern warranting international action.

3.3. An act or omission by one or more countries may increase the risk of harm to others

35. According to Principle 2 of the Rio Declaration, "States have, in accordance with the Charter of the United Nations and the principles of international law . . . 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 control."[35] Under Principle 14, "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."

36. The rapid and as-yet poorly regulated development of nanotechnology and nanomaterials risks violating both of these principles. Because the potential damages caused by nanomaterials, if realized, are likely to carry cross-border consequences, a State's failure adequately to regulate the production, use, or disposal of nanomaterials could cause transboundary damages to another State. As with any other type of emerging technology, especially in times of economic crisis, some States might be tempted to enter a "race-to-the-bottom," in terms of labor and environmental standards, in order to attract investment and outpace their rivals in the short term development of new applications. The prevention of these possibilities is likely to require the adoption of global minimum environmental and labor standards for nanotechnologies, which will only be feasible through coordinated international action.

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[33] *Supra* note 28, at p. 50.
[34] *Supra* note 23.
[35] *Supra* note 16.

37. Furthermore, when assessing whether an international coordinated approach in this regard is required, one should consider the possibility that, in the absence of such an approach, international trade law could have a "chilling effect" on the ability or willingness of individual States to take unilateral measures to address an environmental or health risk that can be traced to international trade. Nevertheless, World Trade Organization (WTO) rulings suggest that trade-related environmental and health measures taken by States pursuant to multilateral efforts should not run afoul of WTO rules.[36] Legal scholars have commented:

> [T]he potential for conflicts between international trade law and unilateral efforts by States to protect themselves from environmental health risks that may result from international trade may be a factor in determining whether unilateral action or an international, coordinated approach would be most effective in avoiding, reducing or mitigating health and environmental harms caused by the international trade of these metals throughout their lifecycles.[37]

3.4. Countries find it difficult or impossible to protect themselves unilaterally from increased risks

38. When States perceive that it is difficult or impossible to protect themselves unilaterally from a transboundary risk to human health or the environment, they historically have made use of international agreements to address the problem. Examples include treaties regarding international watercourses, hazardous wastes, ozone depleting substances, biological diversity, endangered species, greenhouse gases, and persistent organic pollutants (POPs). The existence of a similar situation in nanotechnology and nanomaterials, particularly if there is widespread recognition of international vulnerability to the risk of harm, is therefore a key factor in evaluating whether the risks constitute a global concern warranting an international, coordinated approach.[38]

3.4.1. Long-range transport of nanomaterials

39. The capacity of nanomaterials to be transported over long distances by wind, water, and wildlife is highly dependent on an array of factors, including the size of the particles, their individual bioaccumulation and persistence properties as discussed above, as well as the chemical properties of the medium considered (e.g., water pH).

40. Although there is still a very large knowledge gap in these areas that makes the long-range environmental transport capacities difficult to assess, according to studies cited by the USEPA *Nanotechnology White Paper*, "[s]ea surface microlayers. . . may have the potential to sorb nanoparticles and transport them in aquatic environments over

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[36] *Report of the Appellate Body, United States – Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/RW, adopted on 21 Nov. 2001, paras. 111-34; N. Bernasconi-Osterwalder, et al, *Environment and Trade: A Guide to WTO Jurisprudence*, 128-35 (Earthscan: London, 2006).
[37] *Supra* note 20, at § 56.
[38] See *id.* at § 53.

long distances."[39] Furthermore, according to the UNEP *2007 GEO Year Book*, "engineered nanoparticles can remain airborne over a long period because of their small size and light weight. This may increase the likelihood that they will travel long distances, cross borders and interact with gases and other airborne particles."[40] In addition to the proven bioaccumulative and persistent qualities of some nanomaterials, we should anticipate that long-range environmental transport of some nanomaterials is likely and should therefore be considered.

41. Another aspect should also be taken into account when investigating the capacity of nanomaterials to be transported long distances. Nanotechnologies have moved from being an object of research in 2000, to an ensemble of technologies worth $18.2 billion in 2008, and are projected to be worth several trillion US dollars by the middle of the next decade.[41] Meanwhile, the available inventory, compiled by The Project on Emerging Nanotechnologies, identifies more than 800 nanotechnology-based consumer products in the market today.[42] Most of these products are available via the Internet and may be transported across the planet through trade. A large portion of those consumer products are electronic devices. For example, mobile phones and computers, which are known to be the object of major secondary trade, mostly end up in developing countries in the Global South, either as second-hand appliances or waste. This aspect of long-range transport through international trade should not be overlooked when assessing the capacity of nanomaterials to travel long distances from where they are produced throughout their life cycles.

42. Long-range transport of nanomaterials, whether through trade or environmental transport, severely impairs the ability of States to protect themselves unilaterally from associated risks. An international, coordinated approach is the only effective way to address these risks.

3.4.2. Avoiding a North-South nano divide

43. In the modern era of international environmental law, States have acknowledged the interdependence of development and environmental issues. Principle 5 of the Rio Declaration summarizes this interdependence: "All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world."[43] In accordance with Principle 5, bridging the existing North-South development divide and preventing its expansion should be considered when addressing the development of nanotechnologies.

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[39] *Supra* note 28, at p. 49 (citing Moore, 2006; Schwarzenbach et al., 1993); and *supra* note 33.
[40] *Supra* note 6 at 67 (citing Biswas and Wu, 2005).
[41] See, for example, *Societal Implications of Nanoscience and Nanotechnology*, M.C. Roco, & W. Bainbridge, eds., 2001 (mentioning the figure of US $1 trillion by 2015 or Lux research mentioning the 2008 figure and forecasting $3.1 trillion in revenue across the value chain by 2015).
[42] Woodrow Wilson Center for Scholars Project on Emerging Nanotechnologies, http://www.nanotechproject.org/inventories/consumer/.
[43] *Supra* note 16.

44. Some scholars have argued that the introduction of many previous technologies, for example, during the industrial revolution, has benefited the rich, while further marginalizing the poor.[44] UNESCO specifically noted the possibility of this divide further widening as a result of nanotechnology in its report, *The Ethics and Politics of Nanotechnologies*: "As with previous advances in science and technology, developing nations risk being distanced by a 'knowledge divide' if they cannot find ways to participate on equal footing with other countries." [45] This report, among other evidence, shows the potential for nanotechnology to widen existing divides by creating a specific North-South "nano divide."

45. As noted by a report from the Meridian Institute regarding the opportunities and risks of nanotechnologies for the poor, adequately managing the potential health and environmental risks of nanomaterials requires advanced infrastructures, know-how and an efficient and enforceable regulatory framework that may not be available to a number of developing countries.[46] Thus, trade patterns of nanotechnology goods and wastes could expose developing countries to negative health impacts from products containing nanomaterials, which could, in turn, have detrimental effects on their sustainable development, regardless whether such countries develop nanotechnologies on their own.

46. In addition, "[t]here are concerns as well that developed countries will benefit more from nanotechnology and that developing countries will suffer more from potential risks (e.g. occupational health and safety standards may be lower, waste management and waste disposal infrastructure may not be adequate for nanomaterials and nano-enabled products)."[47]

47. Considering the globalization of the economy and existing trade patterns, it will be impossible for States to unilaterally limit the potentially devastating effects of an increased North-South nano divide. Managing the various concerns created by a potential North-South nano divide through a coordinated international approach could therefore be a very effective tool. This approach could allow developing countries to adequately manage the potential health and environmental risks of this new technology, and could offer a path that increases the possibility that nanotechnologies contribute to achieving the 2015 United Nations Millennium Goals and the SAICM 2020 goal.

3.4.3. Limiting trade disruption

48. Based on the experience of the past decade in the development of biotechnology and its trade-related consequences, there is a clear risk that nanotechnology could lead to

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[44] For an example of the societal impacts of technology introductions, see R.W. Fogel, *The Escape From Hunger and Premature Death, 1700-2100: Europe, America and the Third World*, 2004.
[45] *Supra* note 1.
[46] See *Nanotechnology and the Poor, Opportunities and Risks*, January 2005, at 10, available at http://www.meridian-nano.org/gdnp/NanoandPoor.pdf.
[47] *Supra* note 20, at 7.

serious international trade disruptions.[48] This may be exacerbated by the fact that political and regulatory attitudes towards new technologies, and the risks they may present, vary greatly among the various regions of the planet. For example, the precautionary approach practiced in Europe can have very different results than the business and market-friendly approach prevalent in the United States.[49]

49. These contrasting approaches can result in regulatory systems in which the lack of data on the safety of a substance or product can lead to restricted market access (the "no data-no market" rule), or systems in which the burden of the proof of safety of a substance or product is placed on the regulator, rather than the producer. Given the general lack of data in the field of nanomaterials safety, and the fast development of the nanotechnology market, this difference in approach could result in significant market disruptions. These market disruptions, if not dealt with in an adequate time and manner, could prove highly detrimental to the development of the technology and potentially beneficial applications, especially for developing States, as has been the case for trade in genetically modified plants and organisms.

50. Harmonization of the trade-related aspects of nanotechnologies is difficult or impossible through uncoordinated or unilateral actions. Avoiding nanotechnology market disruptions through international regulatory convergence can only be achieved by a coordinated international approach that enhances opportunities for responsible development of nanotechnologies and makes social acceptance of nanomaterials more likely.

3.5. Adequately addressing nanotechnology and nanomaterials as an issue of global concern

51. The preceding analysis suggests that at least some nanotechnology products are likely to represent an unacceptable risk to human health and the environment; that the failure to address that risk by one or more countries could increase the risks of harm to other countries and to world stability (*e.g.*, by widening the North-South divide and disrupting trade); and that it could be impossible for a country to protect itself unilaterally from the increased risk. Despite the very early stage of development of nanotechnologies and the nano-market, and the very large knowledge gap on the intrinsic properties of nanomaterials, nanotechnologies and manufactured nanomaterials may present an issue of global concern.

52. Nanotechnologies and nanomaterials raise a large number of closely interconnected issues that may be effectively addressed only through an international cooperative framework. As discussed below, that framework should be: (1) global,

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[48] Marcus Schaper,. *Nanotechnology and the Lessons (Not) Learnt from the Transatlantic Biotechnology Dispute*, 2006 (Europe and the United States appear to be headed on a collision course with regard to nanotech that promises to run almost perfectly parallel to the ongoing dispute about the adequate regulation of biotech in foods) abstract available at http://www.allacademic.com/meta/p_mla_apa_research_citation/0/9/8/9/3/p98930_index.html.

[49] See *supra* note 1, at 16.

participatory, and transparent; (2) comprehensive in terms of risks, life cycle and issues addressed; (3) adaptable and flexible; (4) precautionary; and (5) effective.

53. Global, participatory and transparent: As an issue of global concern, manufactured nanomaterials and nanotechnologies represent a challenge for the entire international community and therefore warrant a global framework of cooperation. The need for a global framework is particularly apparent after considering the cross-boundary harmful impacts of nanomaterials on human health and the environment, as well as the broader development issues such as preventing the widening of the North-South nano divide, preventing international trade disruptions, and preventing a race to the bottom in the regulation of nanotechnologies and materials. In particular, if the issue of the North-South nano divide is to be adequately addressed, all members of the international community will need to help balance the interests and concerns of developing countries against the market interests of those countries leading the development of nano-sciences and applications. The inclusion of all stakeholders is vital to adequately address trade disruption, social acceptance, and all other concerns, while also providing transparency in all aspects of a negotiated framework. Experience "has established that active participation from a broad and diverse range of NGOs enhances the quality of decision-making and increases the legitimacy of decisions made."[50]

54. Comprehensive. "A multi-pronged approach is likely to be the most effective way to address environmental, health, and safety concerns, given the complexity and likely pervasiveness of the technology, the uncertainty regarding the potential hazards, and the multimedia nature of the environmental problems that could arise."[51] The framework should thus have a sufficiently broad mandate to address nanotechnology and nanomaterials in a comprehensive way. This mandate should allow the process to address, in a comprehensive manner, the wide set of issues raised by the rapid development of nanotechnologies and dispersion of manufactured nanomaterials. The mandate might include: managing the wide scope of potential harmful effects of nanomaterials to environment and human health, including transboundary effects; considering nanomaterials through their whole life cycle, from research and development to disposal; addressing issues of transboundary harm; addressing the risks of a widening of the existing North-South divide; making sure that nanotechnologies are "socially directed towards solving the problems that are the most urgent for the largest number of people";[52] and limiting trade disruption, while addressing the social acceptability of nanomaterials.

55. Adaptable and flexible. "A generic issue facing any future regulation of nanotechnology will be how to keep the regulatory structure current and properly aligned

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[50] Glenn M. Wiser, *Transparency in 21st Century Fisheries Management: Options for Public Participation to Enhance Conservation and Management of International Fish Stocks*, 2000, at p.33, abstract available at http://www.informaworld.com/smpp/content~content=a906025821~db=all.

[51] L.K. Breggin & L.Carothers, *Governing Uncertainty: The Nanotechnology Environmental, Health, and Safety Challenge*, 2006, available at http://www.eli.org/pdf/research/nanotech/nanocolumbiaarticel%20final.pdf.

[52] See *supra* note 1, at 19.

with this rapidly evolving technology."[53] Due to the knowledge gap that is slowly being bridged, and the extent of discoveries still to be made in nanoscience and nanotechnology, this framework should be flexible and capable of adapting to the evolution of scientific knowledge, as well as to the fast evolving market situation of nanomaterials. In the meantime, according to the UK Royal Commission on Environmental Pollution, bridging the knowledge gap in this context might take "several decades"[54]; "as a consequence, and however good the research effort, significant uncertainties and area of ignorance will remain."[55]

56. Precautionary. Acknowledging the existing serious concerns regarding the health and environmental impacts of nanomaterials despite the early stage of development of nanoscience, UNEP recommended that the precautionary principle should be used in "[e]valuating the potential environmental impacts of engineered nanomaterials prior to their mass production…"[56] In accordance with Principle 15 of the Rio Declaration,[57] an adequate comprehensive international framework should therefore include a precautionary approach. This approach is also supported by Swiss Re, one of the world leaders in reinsurance,[58] as well as by UK's Royal Society, the world oldest scientific institution.[59] This need for a precautionary approach was also supported by the Forum VI of the Intergovernmental Forum on Chemical Safety (IFCS), in Dakar, Senegal, which recommended that "[g]overnments and industry apply the precautionary principle as one of the general principles of risk management throughout the life cycle of manufactured nanomaterials."[60]

57. Effective. It is essential that any new international cooperative framework must be effective. For example, such a framework should include all relevant States, and should have appropriate institutional and financial support. A related question—whether to address nanotechnologies and nanomaterials under either a voluntary or a legally binding framework—may be affected by many considerations. As detailed in UNEP's *Study on Options for Global Control of Mercury*,

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[53] See *supra* note 5, at 8.
[54] *Summary of the publication 'Novel material in the environment: The Case of Nanotechnology'* UK Royal Commission on Environmental Pollution, November 2008 p.13, available at http://www.rcep.org.uk/novel%20materials/Novel%20materials%20summary.pdf.
[55] See *supra* note 54.
[56] See *infra* note 6 at 73 ("Evaluating the potential environmental impacts of engineered nanomaterials prior to their mass production is essential to address the environmental and health concerns and to develop sustainable nanotechnologies.").
[57] Principle 15 of the Rio Declaration states: "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."
[58] "The precautionary principle should be applied whatever the difficulties", See *supra* note 2, p. 47.
[59] *Nanoscience and nanotechnologies*, The Royal Society and The Royal Academy of Engineering, 2004, at Recommendation R4 p.85, available at http://www.nanotec.org.uk/report/chapter10.pdf.
[60] *Final report from the VIth session of the Intergovernmental Forum on Chemical Safety, Dakar, Senegal,* 15-19 September 2008. IFCS/FORUM-VI/07w, available at http://www.saicm.org/documents/iccm/ICCM2/meeting%20documents/ICCM2%20INF5%20IFCS%20Forum%20VI.doc.

> Voluntary political commitments may allow for greater experimentation, adaptation and flexibility, because they are easier to change than legally binding commitments, which typically require a formal amendment process. That said, a variety of approaches have been used in binding international environmental agreements to provide flexibility in light of changing scientific knowledge or other factors. . . . When negotiating a policy instrument, they may be strategic in balancing the ambitiousness of a commitment against its enforceability.[61]

The question of whether nanotechnologies and nanomaterials should be dealt with through a voluntary or binding instrument warrants a separate study and will therefore not be addressed here.

4. Existing International Processes Addressing Nanotechnology or Nanomaterials

58. Various issues linked to the rapid development of nanotechnologies and widespread release of nanomaterials are already being addressed by a number of international processes. This Part will briefly describe the most prominent of these processes, and then assess their potential role in addressing nanomaterials as an issue of global concern.

4.1. Organization for Economic Co-Operation and Development (OECD)

4.1.1. OECD Working Party on Nanotechnology and Working Party on Manufactured Nanomaterials

59. International cooperative activities on nanotechnology are quite recent. Long before becoming the object of potential international cooperation, nanomaterials and nanotechnologies were considered a new field of human knowledge[62] with large potential as a driver of innovation and economic development.[63] In this context, the OECD, whose main objectives include supporting economic growth and contributing to growth in world trade,[64] was the first international organization to address the subject of nanotechnology.

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[61] Study on Options for Global Control of Mercury, UNEP(DTIE)/Hg/OEWG.1/2, available at http://www.chem.unep.ch/mercury/OEWG/documents/c3)/English/K0762755%20OEWG-1-2.pdf.

[62] On 29 December 1959, Physicist Richard Feynman presented his now famous talk, *There's plenty of room at the bottom*, available at http://www.its.caltech.edu/~feynman/plenty.html. It first mentioned the possibility of direct manipulation of individual atoms as a more powerful form of synthetic chemistry than those used at the time. The talk explored applying such ideas to denser computer circuitry and nano-medicine bots. In 1986, K. Eric Drexler further explored the Feynman's idea and explored new ones such as self-replication, now considered the next frontier of nanotechnologies in his book, *Engines of Creation: The Coming Era of Nanotechnology*, available at http://e-drexler.com/p/06/00/EOC_Cover.html

[63] See, for example, *Shaping the World Atom by Atom*, the National Science and Technology Council Committee on Technology and The Interagency Working Group on Nanoscience, Engineering and Technology, 1999, available at http://www.wtec.org/loyola/nano/IWGN.Public.Brochure/IWGN.Nanotechnology.Brochure.pdf.

[64] See OECD website, "About OECD," at http://www.oecd.org/pages/0,3417,en_36734052_36734103_1_1_1_1_1,00.html.

60. The OECD first acknowledged the opportunities and challenges posed by nanotechnologies in 2005 during a special session on the potential implications of manufactured nanomaterials for human health and environmental safety. This special session was held during the 38th Joint Meeting of the Chemicals Committee and the Working Party on Chemicals, Pesticides and Biotechnology.

61. In September 2006, the OECD formed the Working Party on Manufactured Nanomaterials (WPMN) as a subsidiary body of its Chemicals Committee. The declared aim of this Working Party is to "promote international co-operation in human health and environment safety related aspects of manufactured nanomaterials in order to assist their safe development."[65]

62. The OECD WPMN consists of the 30 OECD members,[66] the European Union, and a number of observers. Observers include: the ISO Technical Committee 229,[67] the World Health Organisation (WHO), the United Nations Environmental Program (UNEP), the Business and Industry Advisory Committee to the OECD (BIAC), the Trade Union Advisory Committee to the OECD (TUAC), environmental NGO representatives, and representatives from a number of non-OECD countries.[68]

63. The OECD WPMN currently has eight different projects:[69]

- **Development of an OECD Database on Human Health and Environmental Safety (EHS) Research**, chaired by Australia. The main objective of this project is developing a global resource that identifies research projects addressing EHS issues associated with manufactured nanomaterials.
- **EHS Research Strategies on Manufactured Nanomaterials (including Occupational Health and Safety),** chaired by Germany. This project aims to improve information exchange and identify common research needs to help address EHS issues associated with manufactured nanomaterials and then undertaking to meet those research needs.
- **Safety Testing of a Representative Set of Manufactured Nanomaterials**, co-chaired by the United States and European Union. The aim of this project

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[65] OECD Environment, Health and Safety News, 21 November 2007, http://www.oecd.org/dataoecd/2/57/39618090.pdf.

[66] Australia, Austria, Belgium, Canada, Czech republic, Denmark, European Commission, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxemburg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States.

[67] See *infra* Section 4.2.

[68] China, Thailand, Brazil, Russia and Singapore.

[69] See *Current development / activities on the safety of manufactured nanomaterials / nanotechnologies*, OECD, ENV/JM/MONO(2008)29, 2008, available at http://www.olis.oecd.org/olis/2008doc.nsf/LinkTo/NT0000799E/$FILE/JT03257288.PDF.

is to agree on a representative set of manufactured nanomaterials to be tested for their safety, using appropriate test methods.[70]

- **Manufactured Nanomaterials and Test Guidelines**, co-chaired by the United States and European Union. The objectives of this project are: 1) to review existing OECD test guidelines for adequacy in addressing manufactured nanomaterials, and 2) to identify the needs in the development of new or revised existing test guidelines.
- **Co-operation on Voluntary Schemes and Regulatory Programs**, chaired by Canada. The goals of this project are: 1) to identify common elements of the various national information gathering initiatives, in place or planned; 2) to identify applicable current and proposed regulatory regimes, examining how they address information requirements, hazard identification, risk assessment, exposure mitigation, and risk management of manufactured nanomaterials; and 3) to share information on existing or proposed guidance documents on practices to reduce occupational or environmental exposure to, or releases of manufactured nanomaterials.
- **Co-operation on Risk Assessment**, chaired by the United Kingdom. The aim of this project is to evaluate risk assessment approaches for manufactured nanomaterials through information exchange and identify opportunities to strengthen and enhance risk assessment capacity.
- **The Role of Alternative Methods in Nano Toxicology**, chaired by the United Kingdom. This project aims at evaluating and, where applicable, validating *in vitro* and other methodologies.
- **Exposure Measurement and Exposure Mitigation** chaired by the United States. The objective of this project is to develop guidelines on exposure measurement and exposure mitigation, with an initial focus on occupational settings.

64. In addition to the WPMN, the OECD directorate for science, technology and industry created the Working Party on Nanotechnology (WPN) in March 2007 to "advise on emerging policy-relevant issues in science, technology and innovation, related to the responsible development and use of nanotechnology."[71] The WPN has six focus areas:

- The **Indicators and Statistics Program**, led by Canada. This group focuses on collecting and reviewing data on, *inter alia*, worldwide research and development activities, applications, and definitions. The group aims to provide reliable, comparable and validated indicators and statistics for nanotechnology.

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[70] See the list of 14 selected representative nanomaterials and endpoints for testing at http://www.olis.oecd.org/olis/2008doc.nsf/LinkTo/NT000034C6/$FILE/JT03248749.PDF.

[71] *OECD Working Party on Nanotechnologies (WPN): Vision statement*, available at http://www.oecd.org/document/35/0,3343,en_21571361_41212117_42378531_1_1_1_1,00.html.

- The **Companies and Business Environments Program**, led jointly by Canada and Switzerland, surveys the commercialization of nanotechnology and analyzes its impact on business activity.
- The **International Research Collaboration Program**, led by the Netherlands, aims to facilitate international research collaboration by identifying relevant websites.
- The **Outreach and Public Engagement Program**, led by the United Kingdom, seeks to identify and promote good communication and public engagement activities.
- The **Policy Dialogue Program**, led jointly by France and Ireland, surveys science and technology policies relating to nanotechnology in OECD countries.
- The **Global Challenges: Water Program**, led by the OECD, examines the opportunities for nanotechnology in addressing the global challenge of providing accessible and affordable drinking water to all.[72]

4.1.2. The role of OECD activities in addressing nanotechnologies and nanomaterials as issues of global concern

65. The OECD's activities regarding nanotechnology and manufactured nanomaterials are beneficial for the better understanding of the issues raised by the rapid development of nanotechnologies and trade in nanotechnological products. They may not, however, substitute for a comprehensive and global cooperation framework warranted to address nanotechnologies and manufactured nanomaterials as an issue of global concern.[73]

66. The OECD's objectives include, among other things, boosting employment, supporting sustainable economic growth, contributing to growth in world trade, and maintaining financial stability.[74] However, addressing issues such as limiting transboundary effects from toxic chemicals or avoiding the North-South nano divide, which are considered issues of global concern and critical to nanotechnologies and nanomaterials, do not belong to OECD's objectives. Therefore, nanotechnological issues may not be adequately and comprehensively addressed by the OECD.

67. Furthermore, the OECD's membership consists of only a limited number of countries and is dominated by the wealthiest nations of Europe, North America and Asia.[75] Its outreach is therefore limited to its membership and, to a lesser extent, the observers. The OECD may not provide an adequate forum for addressing the various

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[72] *OECD presentation on the Working Party on Nanotechnologies (WPN)*, 2008, available at http://www.oecd.org/dataoecd/55/8/40994143.pdf.
[73] See *supra* sub-section 3.5 of this study
[74] See OECD website, 'About OECD', at http://www.oecd.org/pages/0,3417,en_36734052_36734103_1_1_1_1_1,00.html.
[75] See *supra* note 66.

issues that make nanotechnologies and manufactured nanomaterials an issue of global concern (*e.g.*, as an unacceptable risk to human health and the environment, where the action or inaction by one country creates risks, which will prove difficult if not impossible to for other countries to protect themselves unilaterally). As an issue of global concern, manufactured nanomaterials and nanotechnologies represent a challenge for the entire international community and therefore warrant a global framework of cooperation.

68. Although the OECD seems to welcome the participation of non-member countries,[76] participation to the WPMN and WPN is governed by the rules set out in the outreach strategy of the chemical committee of OECD,[77] which provides for the consideration of a number of elements when establishing contact with non-members, including:

- Whether and in what ways association of non-members with its work would be of benefit to the OECD;
- Whether economic growth and/or the welfare of members are influenced to a significant degree by the policy orientations of non-members;
- Whether non-member participation will facilitate the achievement of the mandate and the program of work of the Chemicals Committee or one or more of its subsidiary bodies;
- The consequences that non-members' participation might have on the working methods, program of work and Secretariat resources allocated to the work under the Chemicals Committee;
- Whether, in the case of full participants, the non-member has been found to be willing and able to commit to the relevant OECD Acquis, as appropriate; and
- The full range of vehicles to engage non-members in the work of the Chemicals Committee.[78]

69. These conditions limit the capacity of the WPN and WPMN to address issues presented by the rapid development of nanotechnologies and rapid growth in the trade of nanomaterials. Although the OECD's inability to address these issues adequately may have ramifications for non-member countries, addressing this limitation may not be a priority of member countries, the main promoters of nanotechnologies and nanomaterials.

70. Both the WPN and WPMN have great promise as tools to bridge the existing knowledge gap in the field of nanotechnology and manufactured nanomaterials. They can, therefore, contribute significantly to development and implementation of a

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[76] See *supra* note 20 at § 56.
[77] Available at http://www.oecd.org/document/48/0,3343,en_2649_34365_35077680_1_1_1_1,00.html.
[78] *Outreach Strategy for the Chemical Committee: Elements to be Considered in Relation to Participation of Non-Members*, OECD, available at http://www.oecd.org/document/48/0,3343,en_2649_34365_35077680_1_1_1_1,00.html.

comprehensive global cooperation framework, but they may not be the best forum to develop the architecture of such a framework.

4.2. Standardization Bodies

71. Three bodies are responsible for the planning, development and adoption of international standards. The International Organization for Standardization (ISO) is responsible for all sectors except for: electrotechnical, which is the responsibility of the International Electrotechnical Committee (IEC), and most telecommunications technologies, which are largely the responsibility of the International Telecommunication Union (ITU). These standardization bodies are described briefly below, and then assessed for their ability to address nanotechnology and nanomaterials as an issue of global concern.

4.2.1. International Organization for Standardization (ISO)

72. ISO is a legal association, the members of which are the national standardization bodies of some 158 countries, supported by a Central Secretariat based in Geneva, Switzerland.[79]

73. The primary objectives of the ISO are to facilitate the international coordination and unification of industrial standards.[80] In 2005, ISO established Technical Committee 229 (TC 229) to produce standards for classification, terminology and nomenclature, basic metrology, calibration and certification, and environmental issues with respect to nanotechnology. TC 229 also aims at developing standardized test methods that will focus on physical, chemical, structural, and biological properties of nanomaterials.[81] The British Standards Institution (BSI) chairs TC 229,[82] which currently consists of 28 Participating Countries[83] and eight Observer Countries.[84,85]

74. According to the ISO, "[m]any of the standards developed by TC 229 will be anticipatory since most nanotechnological development, and the resulting business, lies in the future. The implementation of anticipatory standards for nanotechnology will accelerate the adoption of nanotechnology-based products, particularly by identifying

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[79] See ISO/TC 229 Business Plan, at p.2, available at http://isotc.iso.org/livelink/livelink?func=doc.Fetch&nodeid=6507632

[80] http://www.iso.org/iso/about/the_iso_story/iso_story_founding.htm.

[81] *Nanotechnology Standards for Health, Safety, and Environmental Factors*, Nanotechnology Law Report, 2008, available at http://publicaa.ansi.org/sites/apdl/Documents/News%20and%20Publications/Other%20Documents/Series%20on%20Nanotechnology%20Standardization/Nano-Law-Report-WG3-07-08.pdf

[82] http://www.iso.org/iso/iso_technical_committee?commid=381983.

[83] "A member body of ISO is the national body "most representative of standardization in its country." Member bodies are entitled to participate and exercise full voting rights on any technical committee and policy committee of ISO. See http://www.iso.org/iso/about/iso_members/member_bodies.htm.

[84] "Correspondent members do not take an active part in the technical and policy development work, but are entitled to be kept fully informed about the work of interest to them." See http://www.iso.org/iso/about/iso_members/correspondent_members.htm.

[85] *Supra* note 79 at 6.

standard measurement and characterization methodologies for nanomaterials and nanodevices."[86]

75. TC 229 has four working groups:

- Working group 1 on **Terminology and Nomenclature** is convened by Canada. The objectives of this group are to define and develop unambiguous and uniform terminology and nomenclature in the fields of nanotechnology to facilitate communication and to promote common understanding.

- Working group 2 on **Measurement and Characterization** is convened by Japan and aims at developing standards for measurement, characterization, and test methods for nanotechnologies, taking into consideration needs for metrology and reference materials.

- Working group 3 on **Health, Safety and the Environment** is convened by the United States, and aims at developing "science-based standards in the area of health, safety and environmental aspects of nanotechnologies."[87]

- Working group 4 on **Material Specifications** is convened by China. At the time of publication the exact scope of this working group was still being drafted. However, working group 4 is currently developing three work items to examine raw materials with respect to their purpose in a variety of uses. The first two work items specify the characteristics and measurement methods for engineered nanoscale titanium dioxide (nano TiO_2) and calcium carbonate (nano $CaCO_3$). BSI directs the third work item, a guide to specifying nanomaterials.[88]

76. Although most of the 28 standards currently under development under TC 229 are in the proposal or preparatory stages,[89] two have already been published: ISO/TS 27687:2008, on terminology and definition for nano objects, i.e. nanoparticle, nanofibre and nanoplate; and ISO/TR 12885:2008, on health and safety practices in occupational settings relevant to nanotechnology.

77. According to the OECD and ISO, the WPN, WPMN and TC 229 routinely coordinate through their secretariats and national representatives.

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[86] *Id.* at 5.
[87] *Id.* at 13.
[88] For more information on the TC 229 working group, see *id.* at *11*; see also Dr. Peter Hatto, *ISO presentation of TC 229*, /FORUM-VI/6 INF, available at http://www.who.int/ifcs/documents/forums/forum6/f6_06inf.en.doc.
[89] See http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_tc_browse.htm?commid=381983&published=on&development=on.

4.2.2. Other standardization bodies

78. Although the ISO is the major international standardization organization, other global or regional bodies undertake activities that are relevant to nanotechnology and nanomaterial standardization.

79. The International Electrotechnical Committee (IEC) has created a technical group modeled after the ISO TC 229: the IEC Technical Committee 113 (TC 113). The purpose of this technical committee, which consists of 15 participating members and 11 observer members and is chaired by the German National Committee, is to deal with relevant nanotechnological considerations when developing generic standards for electrical and electronic products and systems. These typically concern optics, magnetics and electromagnetics, electroacoustics, multimedia, telecommunication, and energy production. The TC 113 seeks to develop standards in these areas on terminology and symbols, measurement and performance, reliability, design and development, and electromagnetic compatibility.[90]

80. The European Committee for Standardization (CEN) defines itself as a business facilitator in Europe that tries to remove trade barriers for European industry and consumers. It defines its mission as fostering the European economy as a part of global trade, the welfare of European citizens, and the environment.[91] Through its services, it provides a platform for the development of European Standards and other technical specifications. CEN created a technical group (TC 352) at the end of 2005, dedicated to developing standards addressing various aspects of nanotechnology and nanomaterials.[92]

81. For topics of mutual interest to ISO TC 229 and CEN, it is expected that work should be carried out under the Vienna Agreement (a cooperation agreement between ISO and CEN), which grants a leading role to ISO.[93]

4.2.3. The role of standardization bodies in addressing nanotechnologies as an issue of global concern

82. Nanomaterials and nanotechnologies generally fulfill all criteria accepted by the international community in defining an issue of global concern.[94] In this regard, they raise a number of issues, including issues specific to the area of chemicals management, such as toxicity, bioaccumulation and long-range transport. They also raise broader development issues such as the widening of the North-South divide or the risk of disruption of international trade. Each of these issues warrants a comprehensive global cooperation framework on nanotechnology and nanomaterials, with a mandate to deal with such broad issues.

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[90] See http://www.iec.ch/support/tcnews/2006/tcn_1106/tcn_news2.htm.
[91] See http://www.cen.eu/cenorm/aboutus/index.asp.
[92] See http://www.cen.eu/CENORM/sectors/sectors/nanotechnologies/index.asp.
[93] See CEN TC 352 business plan executive summary, available at http://www.cen.eu/nr/cen/doc/ExecutivePDF/508478.pdf.
[94] See Section 3 of this study.

83. The objective of ISO and other standardization bodies is generally limited to facilitating trade through the harmonization of standards. Thus, standardization bodies cannot be considered adequate fora for the comprehensive consideration of nanomaterials and nanotechnologies as an issue of global concern. They may, however, have an important role to play in creating a common language and a common frame of reference for the development of a reliable nanotechnology market through the standardization of vocabulary, scientific definitions, and tools for risk assessment.

4.3. UNESCO

4.3.1. UNESCO's activities relating to nanotechnology

84. Since the 1970s, the science and technology activities of the United Nation Educational, Scientific and Cultural Organization (UNESCO) have mostly dealt with ethical questions,[95] the objective being to promote principles and ethical norms to guide scientific and technological development and social transformation. "The increasing awareness of ethical problems in relation to science and technology was manifested in the establishment by the member states of UNESCO, in 1998, of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST)."[96]

85. Nanotechnology was considered in two COMEST meetings held in Rio de Janeiro in December 2003 and Bangkok in March 2005. Following these meetings, the division of Ethics and Technology of UNESCO decided to establish an expert group on nanotechnology.[97]

86. A primary report drafted by this expert group in 2005 called for 1) awareness raising and debates on nanotechnologie, 2) ethics education, and 3) research and development policies. This report recommended the drafting of voluntary guidelines on scientific ethics and nanotechnology as a way to inspire the development of national regulations, as well as the creation of National Commissions or Committees to deal with emerging technologies.[98]

87. Based on this report, the UNESCO Expert Group on Nanotechnology published a study in 2006 entitled "Ethics and Politics of Nanotechnology."[99] This publication first acknowledges the fact that "nanotechnology might pose new forms of hazard or exposure to risks, and therefore new questions about how to deal with them."[100] The study then mentions the actions that corporations and researchers take to address the risks and the benefits of nanotechnology, and those that they fail to take in addressing ethical and political issues. In this context, risk management procedures are cited as accurately

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[95] See *supra* note 1.
[96] *Id.* at 4.
[97] Outline of a Policy Advice on Nanotechnologies and Ethics, April 2006, available at: http://portal.unesco.org/shs/fr/files/9702/11502051321NanoPolAdvice_Outline_Apr06.pdf/NanoPolAdvice_Outline_Apr06.pdf.
[98] *Supra* note 97.
[99] See *supra* note 1.
[100] *Supra* note 1 at 14.

stating the risks (and occasionally the benefits) of newly created substances, materials and devices, but as not addressing any of the wider issues about the ethical or political meaning of this risk. Issues such as who will bear the risk, how the risk will be distributed internationally, and who will be given the power to make decisions based on these analyses, are not addressed by these risk management procedures.[101]

88. The report also points to several other ethical and political concerns related to the development of nanotechnology including consumer awareness, labeling and the promotion of standards and regulations on nanoparticles, intellectual property, and the degree of confidence in scientific evidence held by experts and the public at large.[102]

89. By drawing parallels with the introduction of genetically modified (GM) food, and lessons from other past environmental and food crises, UNESCO advocates that international organizations serve as effective mediators or facilitators in the dialogue between the public and scientists. "If nanotechnology research is to be socially directed towards solving the problems that are the most urgent for the largest number of people, then there is a need for people and institutions who can connect scientists, funders and entrepreneurs in search of problems with local experts and experts in areas other than nanotechnology." [103]

4.3.2. UNESCO's potential role in a global cooperation framework for nanotechnologies and nanomaterials

90. The mandate of UNESCO is to "contribute to peace and security by promoting collaboration among the nations through education, science and culture. . . ."[104] UNESCO's mandate does not encompass addressing issues such as management of dangerous chemicals or their transboundary effects. Thus, although UNESCO is a global inter-governmental organization whose membership consists of 193 member States and six associate members,[105] it cannot serve as the main forum for comprehensively addressing all aspects of nanotechnologies and manufactured nanomaterials as an issue of global concern.

91. However, as mentioned in UNESCO's *Outline of a Policy Advice on Nanotechnology and Ethics*, "UNESCO can take initiatives to map the ethical dimensions of nanotechnologies from a global perspective, and to explore implications for its Members States and possible actions for the Organization."[106] UNESCO should therefore actively participate in the global cooperation framework regarding nanotechnology and manufactured nanomaterials.

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[101] *Id.*
[102] *Id.* at17.
[103] *Id.* at 19.
[104] Article 1 of the Constitution of the United Nations Educational, Scientific and Cultural Organization, adopted in London on 16 November 1945, available at http://www.un-documents.net/unesco-c.htm.
[105] See UNESCO's web site at http://portal.unesco.org/en/ev.php-URL_ID=11170&URL_DO=DO_TOPIC&URL_SECTION=201.html.
[106] *Supra* note 97 p.1.

4.4. The Strategic Approach to International Chemical Management

92. The Strategic Approach to International Chemicals Management (SAICM) is a policy framework adopted by the International Conference on Chemicals Management, on 6 February 2006 in Dubai, to foster the sound management of chemicals. SAICM was developed to support the achievement of the goal that, by the year 2020, chemicals are produced and used in ways that minimize adverse impacts on the environment and human health, as agreed at the 2002 World Summit on Sustainable Development in Johannesburg.[107]

93. Following a call to participant stakeholders to nominate what they considered to be emerging issues for consideration by the second International Conference on Chemical Management (ICCM-2), on 10-15 May 2009, in Geneva, Switzerland, several participants suggested that ICCM-2 should discuss the issue of nanotechnologies and manufactured nanomaterials. Pursuant to the input from Japan,[108] the Inter-Organization Program for the Sound Management of Chemicals (IOMC),[109] and the International Forum on Chemical Safety (IFCS),[110] nanotechnology and manufactured nanomaterials were nominated as an emerging issue to be considered by ICCM-2. In this context, Switzerland and the United States prepared two papers to stimulate discussion on the issue.[111]

5. The Potential of Multilateral Environmental Agreements

94. In *The Ethics and Politics of Nanotechnology*, UNESCO concluded that "the most pressing issue may not be determining the exact toxicity of nanoparticles, but creating new and enforcing old regulations on industries who create and process these new materials" [112] to address both eco-toxicological aspects of nanomaterials and broader social and ethical impacts. A number of existing multilateral environmental agreements (MEAs) dealing with international chemicals management, such as the Stockholm Convention on Persistent Organic Pollutants (POPs) or the Basel Convention, could prove relevant in addressing some of the issues raised by nanotechnology and

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[107] See SAICM homepage at http://www.saicm.org/index.php?ql=h&content=home.
[108] See *Compilation of submissions received from stakeholders to the questionnaire on emerging policy issues*, SAICM/InfDisc/INF/1, at p.12, 13 available at http://www.saicm.org/documents/OELTWG/Informal%20discussions/ID%20INF1%20issues%20compilation.pdf.
[109] See *supra* note 108, at 64-70.
[110] *Id.* at 41-45.
[111] *Background information in relation to the emerging policy issues of nanotechnology and manufactured nanomaterials*, SAICM/ICCM.2/INF/34, available at http://www.saicm.org/documents/iccm/ICCM2/meeting%20documents/ICCM2%20INF33%20emerging%20issues%20list.pdf; *Proposed Element of Cooperative Work on Nanotechnology* incorporated into document SAICM/ICCM.2/10/Add.1. available at http://www.saicm.org/documents/iccm/ICCM2/emerging%20issues/Nano/Proposed%20cooperative%20actions%20on%20nano.doc.
[112] See *supra* note 1, at 15.

manufactured nanomaterials as an issue of global concern. This Part will provide an overview of existing MEAs that might be used to address such issues.

5.1. The Stockholm Convention

95. POPs are toxic chemicals that can remain intact in the environment for long periods, travel long distances throughout the environment, and accumulate in the fatty tissue of humans and wildlife.[113] The Stockholm Convention is a global treaty to protect human health and the environment from POPs. It was adopted 22 May 2001 and entered into force on 17 May 2004.[114]

96. Because the Stockholm Convention does not distinguish pollutants on the basis of particle size, it could be used to regulate nanomaterials that exhibit the characteristics of POPs. Some nanomaterials have been shown to exhibit the POPs criteria of toxicity, persistence, bioaccumulation and long distance environmental transport. However, most existing manufactured nanomaterials would arguably not fall within the scope of the Stockholm Convention because they are not organic (inorganic) compounds.[115] For example, because zinc powder is an inorganic compound, it may not fall within the scope of the Stockholm Convention. Similarly, although carbon allotropes, such as carbon nanotubes, have been shown to mimic the effects of asbestos,[116] they are not considered organic; therefore, they also may not fall within the scope of the Convention.

97. In the case of bioaccumulation, the presence of certain nanomaterials may enhance the bioaccumulation of other toxic substances in aquatic organisms,[117] even though the nanomaterials themselves are not bioaccumulative. This type of effect may not be covered by the Stockholm Convention; thus, such nanomaterials may not be subject to the Convention.

98. In summary, the Stockholm Convention is designed to address chemicals that possess the specific characteristics of POPs. Although some nanomaterials may belong in this category, and could therefore be dealt with under the Stockholm Convention, the Convention may cover only a fraction of existing nanomaterials that raise issues of global concern. Moreover, the Convention would likely not be capable of addressing the broader societal issues raised by the manufacture and release of nanomaterials.

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[113] See Stockholm Convention on Persistent Organic Pollutants (POPs), annex D, art. 1 (b), (c), (d), and (e), U.N. Doc. UNEP/POPS/CONF/4 available at http://chm.pops.int/Portals/0/Repository/convention_text/UNEP-POPS-COP-CONVTEXT-FULL.English.PDF.

[114] See http://chm.pops.int/Convention/tabid/54/language/en-US/Default.aspx#convtext.

[115] Organic compounds are defined as any member of a large class of chemical compounds whose molecules contain carbon. For historical reasons, a few types of compounds such as carbonates, simple oxides of carbons and cyanides as well as the allotropes of carbon are considered inorganic. See http://en.wikipedia.org/wiki/Organic_compound.

[116] See section 3.2.1.

[117] See *supra* note 31.

5.2. The Basel Convention

99. The Basel Convention aims to protect human health and the environment against the adverse effects resulting from the generation, management, transboundary movement and disposal of hazardous and other wastes. It came into force in 1992 and now has 172 Parties.[118]

100. Transboundary movements of waste containing nanomaterials that fit the Basel Convention's definition of hazardous wastes should fall within the scope of the Convention. Under the Convention, such wastes include, for example, "chemical substances arising from research and development. . . which are not identified and/or are new and whose effects on man and/or the environment are not known."[119] The question of whether waste containing nanomaterials could or should be considered hazardous waste requires more in-depth study, taking into account on-going debates surrounding the definition of hazardous wastes under the Basel Convention.

101. The concept of environmentally sound management of wastes[120] is used throughout the Basel Convention to define the obligations of the Parties in relation to transboundary movements of hazardous and other wastes, as, for example, in Article 4, §§ 2(e),[121] 2(g),[122] or 8.[123] However, the United Kingdom Royal Commission on Environmental Pollution notes that with regard to nanomaterials, "there is a consensus that mechanisms of toxicity are poorly understood"[124] and specifies "our inquiries suggested that very little thought has been given to their environmental impact as they become detached from products in use or at the point of final disposal."[125] Given this poor state of current knowledge, it may be difficult or even impossible to define environmentally sound management of some wastes containing nanomaterials.

102. While the Basel Convention can potentially be used to address transboundary movement of waste containing nanomaterials, significant progress will first need to be made to further understand the toxicity of nanomaterials throughout their life cycle, before the provisions of the Basel Convention can be used effectively.

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[118] http://www.basel.int/ratif/convention.htm accessed on 25 April 2009.
[119] See Basel Convention, Annex 1, section Y14. "Waste chemical substances arising from research and development or teaching activities which are not identified and/or are new and whose effects on man and/or the environment are not known."
[120] Article 2.8 defines environmentally sound management of hazardous wastes as "taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes."
[121] Each Party shall take the appropriate measures to: "Not allow the export of hazardous wastes or other wastes to a State or group of States (…) if it has reason to believe that the wastes in question will not be managed in an environmentally sound manner (…)."
[122] "Each Party shall take the appropriate measures to Prevent the import of hazardous wastes and other wastes if it has reason to believe that the wastes in question will not be managed in an environmentally sound manner."
[123] "Each Party shall require that hazardous wastes or other wastes, to be exported, are managed in an environmentally sound manner in the State of import or elsewhere."
[124] See *supra* note 11, at 30.
[125] *Id.* at 6.

5.3. The Rotterdam Convention on Prior Informed Consent

103. The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (the Rotterdam Convention) was signed in Rotterdam, The Netherlands, on 10 September 2004 and entered into force on 24 February 2004.[126] This Convention creates legally binding obligations for the implementation of the Prior Informed Consent (PIC) procedure. It applies to banned[127] or severely restricted[128] chemicals and severely hazardous pesticide formulations that are listed in Annex III, the "PIC list." Parties may export listed substances to other Parties only if the prospective importing Party first provides its informed consent. A number of types of chemicals are not included in within the Convention's scope, including "pharmaceuticals, [both] human and veterinary drugs,"[129] and "[c]hemicals used as food additives."[130]

104. To date, no State has adopted a specific regulation with regard to nanomaterials, and no nanomaterial has been banned, restricted or labeled as hazardous in any State Party to the Convention. The Rotterdam Convention does not, therefore, apply to any nanomaterial so far. In the event that a Party to the Rotterdam Convention wishes to nominate a nanomaterial to be listed on Annex III, it would have to comply with the procedures laid out in Articles 5 and 7.

105. The Rotterdam Convention could be used to provide countries with the right to require their prior informed consent before other countries could export products or articles containing specific hazardous nanomaterials to them. However, the nature of the Convention makes it difficult to list new substances so that they may become subject to its controls; ordinarily, only substances that are already banned or severely restricted in two or more countries may be considered for listing, which means that the Convention takes a somewhat backward-looking, rather than forward-looking, precautionary approach. New listings are made on a chemical-by-chemical basis, making it difficult for the Convention to address nanomaterials in a comprehensive manner. Moreover, the

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[126] See http://www.pic.int/home.php?type=t&id=5&sid=16.

[127] Article 2(b) of The Convention for the Application of Prior Informed Consent Procedure for Certain hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention) defines a banned chemical as 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. It includes a chemical that has been refused approval for first-time use or has been withdrawn by industry either from the domestic market or from further consideration in the domestic approval process and where there is clear evidence that such action has been taken in order to protect human health or the environment." Available at http://www.pic.int/en/ConventionText/ONU-GB.pdf.

[128] Article 2(c) of the Rotterdam Convention defines a severely restricted chemical as a "chemical virtually all use of which within one or more categories has been prohibited by final regulatory action in order to protect human health or the environment, but for which certain specific uses remain allowed. It 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, and where there is clear evidence that such action has been taken in order to protect human health or the environment."

[129] Article 3(e).

[130] Article 3(f).

Rotterdam Convention is not intended to address the regulation of chemicals beyond the tool of prior informed consent in international trade.

5.4. The Aarhus Convention

106. The United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the Aarhus Convention) was adopted on 25 June 1998 in the Danish city of Aarhus. It entered into force on 30 October 2001.[131] The objective of the Aarhus Convention is to "guarantee the rights of access to information, public participation in decision-making, and access to justice in environmental matters."[132] The Aarhus Convention is open to non-UNECE States, but none have become parties so far.

107. As its formal title suggests, the Aarhus Convention contains three broad themes or "pillars": access to information; public participation; and access to justice. It also contains a number of general features, such as the definition of "public authorities."[133] The Aarhus Convention aims to establish common, general standards to strengthen the effectiveness and legitimacy of environmental policies.[134] The Convention also contains a more general requirement on Parties to promote the application of its principles within the framework of international bodies in matters relating to the environment.[135]

108. Rather than providing a framework to address nanotechnology and nanomaterials as an issue of global concern, the provisions of the Aarhus Convention lay down principles that could guide the operations of a future global cooperation framework on nanotechnology and nanomaterials, warranted by the recognition of these topics as an issue of global concern.

5.5. SAICM

109. SAICM is a global process including delegations from over 160 States[136] and twelve inter-governmental organizations, including the OECD, WHO and ILO.[137] NGOs

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[131] See http://www.unece.org/env/pp/.
[132] UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention), 25 June 1998, art. 1, available at http://www.unece.org/env/pp/documents/cep43e.pdf.
[133] http://www.unece.org/env/pp/contentofaarhus.htm.
[134] "Vision and Mission" of the Aarhus Convention Strategic Plan, adopted by the Meeting of the Parties to the Aarhus Convention, in Riga, Latvia, 13 June 2008, available at http://www.unece.org/env/pp/LTSP/LTSP_draft_for_public_comment_v_2007_03_06.doc.
[135] Aarhus Convention art. 3.7.
[136] See the list of SAICM national focal points, available at http://www.saicm.org/documents/List%20of%20SAICM%20National%20Focal%20Points%20web.doc.
[137] See the list of SAICM focal points in Intergovernmental Organizations available at http://www.saicm.org/documents/List%20of%20SAICM%20IGO%20Focal%20Points%20web.doc.

have the status of full participants[138] in the SAICM process, which now includes 60 NGO focal points.[139]

110. SAICM's broad mandate includes "[e]nvironmental, economic, social, health and labour aspects of chemical safety," as well as "[a]gricultural and industrial chemicals, with a view to promoting sustainable development and covering chemicals at all stages of their life-cycle, including in products."[140] The SAICM Overarching Policy Strategy states that the SAICM's objectives include "ensuring that existing, new, and emerging issues of global concern are sufficiently addressed by means of appropriate mechanisms."[141] The objectives also cover risk reduction, information sharing, and governance, which are all highly relevant to addressing nanotechnologies and nanomaterials as an emerging issue of global concern. The SAICM process puts a strong emphasis on balancing North-South concerns.[142] It includes specific approaches and provisions which are particularly relevant to addressing nanomaterials as an issue of global concern, particularly those relating to transparency, public participation, and precaution.[143]

5.6. Conclusion

111. As an issue of global concern, nanotechnologies and nanomaterials warrant a global cooperative framework that allows them to be addressed in a comprehensive manner. Such a framework should be global, participatory, and transparent; comprehensive in terms of risks, life cycle and issues addressed; adaptable and flexible to take into account new experience and scientific knowledge; precautionary; and effective. While existing international instruments and processes can be used to help bridge the knowledge gap, they are insufficient to address all of the issues raised by nanotechnologies and nanomaterials in a comprehensive manner.

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[138] See "*Implementing the Strategic Approach to International Chemical Management*", presentation prepared by the SAICM secretariat, September 2006, Slide 11, available at http://www.unep.org/civil_society/GCSF8/pdfs/SAICMSep06.ppt.

[139] See the list of SAICM NGO focal points at http://www.saicm.org/documents/List%20of%20SAICM%20NGO%20Focal%20Points%20web.doc.

[140] SAICM Overarching Policy Strategy Articles 3(a) and (b), available at http://www.saicm.org/documents/saicm%20texts/SAICM_publication_ENG.pdf.

[141] *Id.* para. 14(g).

[142] *Id.* paras. 8(a), 10(a), 10(b), 15(a), and 17(b).

[143] See, for example, *id.* para. 16(b) in relation to cross sectoral governance, para. 16(k) with regard to promoting mutual supportiveness between trade and environmental policies, para. 15(c) to adequately address confidential and commercial information, and para. 14(e) on applying the precautionary principle.

ANNEX 5

Main Analytical Points
of the UNCTAD Trade and Environment Review 2009/2010
Press Briefing
Friday, 5 February 2010, 11:30am in Conference Room III

http://www.unctad.org/Templates/WebFlyer.asp?intItemID=5304&lang=1

http://www.unctad.org/en/docs/ditcted20092_en.pdf

- The global economic and financial crisis and the interrelated climate and food crises have imposed themselves as defining parameters for policy-making today. Understanding the causes and consequences of these crises and drawing lessons from them should spur dramatic economic and policy changes. Indeed, economic crises tend to trigger major changes in conceptual, political and management thinking and may lead to new policies, technologies and management practices.

- The key message of the Trade and Environment Review 2009/2010 is that the current inter-related economic, climate and food crises offer a window of opportunity to embark on a path of more resilient and sustainable economic growth. The key challenge is to avoid responding to the crisis with measures that perpetuate economically, socially and environmentally unsustainable production and consumption patterns. The key opportunity is to seek ways to respond to the crises by identifying dynamic synergies to initiate change. The analysis in the Review demonstrates that economy and ecology are not an "either-or" trade-off. Sustainability is also good macro-economic management and lucrative private business.

- Developing countries can seize real opportunities for cleaner growth, including low-carbon growth. While complex and long, the process of greening economies can and should be gradually piloted towards selected “poles of clean growth”. The term clean and sustainable growth “poles” is very much linked to their catalytic role for other sectors of the economy. Such poles can generate positive spillover effects in other sectors, even under conditions of no or imperfect internalization of many key externalities. The three most promising "clean growth poles" according to the Review are:

  - Enhancing energy efficiency, often implemented in combination with material and resource efficiency;
  - Mainstreaming sustainable agricultural practices, including organic agriculture; and
  - Harnessing the use of off-grid renewable energy technologies for sustainable rural development.

These areas are most likely those that will be at the core of the next (Kondratiev) wave of innovation and will constitute very dynamic markets.

- The Trade and Environment Review focuses its analysis particularly on the more than 100 low-income and least developed countries, which have not caused the economic, financial and climate crises, but have to bear the full brunt of their consequences. The key question of the Review is: How can those countries effectively mitigate the current inter-related crises while transiting to a qualitatively and structurally different growth and development model?

- Based on an in-depth analysis of the root causes of the current systemic economic and financial crisis, the Review highlights the need for a pro-active mitigation strategy. This strategy addresses ecological, social and financial reform in an interrelated way tying new green growth poles to job and income-generating activities as well as financial reform.

- The three growth poles advocated in the Trade and Environment Review lead to relatively quick clean growth impulses that, in the short and medium term, have negative costs and short pay back periods even under current conditions. In this regard, the Review counters the myth that currently only a limited number of low-cost crises-mitigation opportunities exist, that more effective results could only be achieved with new technologies, and that mitigation costs are very high. The analysis rather confirms that many of the required technologies already exist and that mitigation costs are not an insurmountable hurdle, but creating the necessary economic incentives and structures as well as building related technical, human and institutional capacities will be the most significant political challenge. The Review underlines that harnessing the identified clean growth poles has as much, if not more, to do with leadership and political will than with technical, infra-structural and other capacity challenges. It is also inseparably tied to reform of the international financial system for effectively crowding in private funds.

- The Review highlights the importance of far more pro-active government roles in particular in stimulating structural change and related technological progress as well as supportive technical, human and institutional capacities so that the structural and technological effects lead to a qualitatively different growth and development path that over-compensates the negative ecological impact of the scale effect. This will require a far more pronounced use of active industrial policies reversing the trend of government passivity advocated under neoliberal growth policies. Such shift to active industrial policies may require a bigger policy space under current rules of the multilateral trading system. It also requires a new pro-active partnership with development partners.

- Finally, the Review cautions that the operational implications of greening economies should not be confined to "getting the prices right", including recommendations on removing all subsidies, putting a price on nature or a tax on carbon. Correcting market failures is a step in the right direction, but only when it is placed in the broader context of sustainable development. When this is not done, the result is often not only harmful for social and developmental goals, it also undermines support for environmental goals. In short, reliance on "getting prices right" alone would be both ineffective and inequitable. Other policies are needed to offset the equity impacts of higher energy, material and resource costs, and to launch the development of new technologies.