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**The Geneva-based Wastes and Chemicals Conventions:
the Questions of Technical Cooperation and of Trade Measures**

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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 focuses on two 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 synergies among them are being negotiated and discussed more extensively, potentially as a model for clustering multilateral environmental agreements.

1. CAPACITY DEVELOPMENT FOR THE ENVIRONMENT AND THE ROLE OF TECHNICAL COOPERATION

Geneva is the venue for a very unusual concentration of three Multilateral Environmental Agreements (MEAs) in the sense that 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 Conventions on transboundary movements of hazardous wastes and chemicals, i.e. the Basel Convention,¹ the Rotterdam Convention on Prior Informed Consent,² and the Stockholm Convention on Persistent Organic Pollutants.³ Thanks to important commonalities there are important 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 except the Rotterdam Convention which is administered jointly by FAO and UNEP. In addition, one should keep in mind two important initiatives: (1) UNEP Chemical's Strategic Approach to International Chemicals Management (SAICM),⁴ a new ambitious comprehensive institutional framework being developed with the objective of becoming an effective instrument of international chemicals policy,⁵ which has developed a Quick Start Program that has its own trust fund;⁶ (2) the Ad Hoc Joint Working Group (AHJWG)⁷ whose mandate consists in enhancing cooperation, coordination and synergies among the three conventions.

Developing countries, especially the least developed countries, tend to suffer from lack of infrastructures with regard to the environmentally sound management of hazardous chemicals and wastes at all levels, i.e. 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 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 the goal which Sagar and VanDeveer call *capacity development for the environment* (CDE) in a comprehensive sense. These

¹ 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>

² 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>

³ Stockholm Convention on Persistent Organic Pollutants. Text of the Convention: http://www.pops.int/documents/convtext/convtext_en.pdf

⁴ <http://www.chem.unep.ch/saicm/>

⁵ 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.

⁶ <http://www.chem.unep.ch/saicm/qsptf.htm>

⁷ <http://ahjwg.chem.unep.ch/>

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.⁸ They also take issue with what they consider the wrong emphasis on implementation. Developing domestic processes to implement international agreements is one thing, 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.⁹

In order to strengthen these “upstream” aspects of policy and regulatory frameworks they 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 waste and chemicals conventions it is particularly pertinent due to their often significant level 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.¹⁰

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

⁸ Ambuj D. Sagar and Stacy D. VanDeveer. 2005. Capacity Development for the Environment: Broadening the Scope. *Global Environmental Politics* 5 (3): 14-22.

⁹ *Ibid.* 16.

¹⁰ *Op. cit.* 17.

based on a clear communication of the risks involved in handling certain materials.¹¹ 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 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 waste and chemicals management. I would therefore suggest the use of the term *technical cooperation* which has been suggested by UNCTAD. 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 wastes and chemicals 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.¹²

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*,¹³ 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,

¹¹ 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.

¹² <http://www.unctad.org/Templates/Page.asp?intItemID=1479&lang=1>

¹³ 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.

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).¹⁴ They have studied a number of official development assistance programs in two specific issue areas,¹⁵ and they conclude 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.¹⁶

Given that technology transfer and technical cooperation more generally are part of capacity building, one may be tempted to wonder about research on the effectiveness of this particular branch of capacity building, be it in wastes and chemicals management or in other areas. Of particular relevance for technical cooperation, as Lynn Mytelka emphasizes, is the notion of *tacit knowledge*¹⁷ which would undoubtedly deserve more attention. The significance of tacit knowledge, introduced by Giovanni Dosi,¹⁸ 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.¹⁹

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.

Last but not least, an increasingly important role is being played by various industries in the various sub-domains of the management of hazardous wastes and chemicals. 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.²⁰

¹⁴ 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.

¹⁵ (1) Combatting Marine Pollution ; (2) Cleaning up nuclear legacies from the Cold War.

¹⁶ VanDeever and Dabelko, *op. cit.* 27.

¹⁷ 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

¹⁸ 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.

¹⁹ Mytelka *op. cit.* footnote 4, referring to Dosi, 1988.

²⁰ 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.

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 problems through public-private partnerships (PPPs) and the construction of modern, integrated disposal facilities.²¹ 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.²²

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. Appalling examples in various Asian and African sites that have been repeatedly documented photographically in the media and which are to be avoided at all cost are workers dismantling electronic equipment and ship wrecks under unprotected exposure to toxic chemicals and heavy metals, made worse by run-offs from these sites into the ground water.²³

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 hazard thanks to the specific knowledge of the nature of the situation and the solutions which are available. Only when this set of information has been ascertained does it make sense for public authorities to discuss and negotiate the acquisition of appropriate technical tools, as well as their installation and the 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 for our purposes. I therefore prefer UNCTAD’s term *technical cooperation* which 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 capacity building in the service of the chemicals and wastes conventions.

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,²⁴ the Rotterdam

²¹ *Ibid.* 90.

²² *Ibid.* 91.

²³ Claire Doole. Le commerce des nouveaux déchets toxiques explose. *Le Courrier* 15 mars 2008, p. 7.

²⁴ <http://www.basel.int/centers/centers.html>

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,²⁵ and the Stockholm Convention has a special status thanks to its access to funding from the Global Environment Facility.²⁶ Other activities to support capacity building for the environment in this issue area consist 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.²⁷ 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.

2. THE ROLE OF TECHNOLOGY TRANSFER IN THE CASE OF THE WASTES AND CHEMICAL CONVENTIONS

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. That applies to the case under discussion as much as to most other cases. 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 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 barriers²⁸ 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

²⁵ See for instance <http://www.fao.org/docrep/008/ae947e/ae947e0k.htm>

²⁶ http://www.gefweb.org/interior.aspx?id=246&ekmense=c580fa7b_48_134_btlink

²⁷ A Guide to Cooperation on the Basel, Rotterdam and Stockholm Conventions. UNEP, Geneva, 2004, 12 p.

²⁸ 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.

thanks to the importation of Environmental Goods and Services (EGSs).²⁹ 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. This is of course a broad trade policy question that goes beyond the confines of this investigation, we shall limit ourselves here to the chemicals and wastes conventions.³⁰

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 very difficult 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 deposit 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 the 2006 illegal dumping in Abijan.³¹ 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.

²⁹ 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.

³⁰ For a detailed and up to date 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*, 31 p. *EcoLomics Occasional Papers Series*. (1), 31 p.

³¹ 580 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 convenience, 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.

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.

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*.³² 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 pronounced technical nature of its scientific description and of the medical concerns show the importance of adequate public disclosure of possible toxic emissions,³³ 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. It is up to responsible government bodies to develop and implement regulatory frameworks and to force private industry to assume its 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

³² John H. Barton, 2007. *New Trends in Technology Transfer*. Geneva: ICTSD Issue Paper No. 18, 41 p. (p. 10).

³³ Jeniffer Clapp and Peter Dauvergne. 2005. *Paths to A Green World: The Political Economy of the Global Environment*. Cambridge, MA: MIT Press.

of time in Naples which generated worldwide headlines at the beginning of 2008 are a striking example of such illegal schemes.³⁴ 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.³⁵ The Convention has entered into force in 2001, however its very important 2003 Kiev Protocol on Pollutant Release and Transfer Registers (PRTR)³⁶ 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.³⁷

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 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.³⁸ Even though it is not an MEA in the global

³⁴ See for instance <http://forum.greenpeace.org/int/showthread.php?p=50843>

³⁵ 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>

³⁶ http://www.unece.org/env/pp/prtr/docs/PRTR_Protocol_e.pdf

³⁷ From the Protocol's Web site <http://www.unece.org/env/pp/prtr.htm>

³⁸ 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

sense as 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.³⁹ The Convention's key paragraph which relates to technology issues is contained in Annex A. 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.⁴⁰

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 transfer⁴¹ which covers, among others, the Basel and the Stockholm Conventions.⁴² The Basel Convention contains several references to technology and to the need to assist developing countries in the improvement of their capacities in this domain (see Annex B of this article for some selected citations). The fifth Conference of the Parties 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.⁴³ 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 identification of hazard characteristics, appropriate technologies, and the elaboration of national plans.⁴⁴ 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 establishment of regional centers. These are presently the subject of a feasibility

matters governed by this Convention, including the competence to enter into treaties in respect of these matters.

³⁹ 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

⁴⁰ Kofi A. Annan, former Secretary-General of the United Nations (1997-2006)

<http://www.unece.org/env/pp/>

⁴¹ 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

⁴² The other key trade-related Conventions covered are the CBD, CITES, and the Montreal Protocol.

⁴³ Decision V/1, <http://www.basel.int/meetings/cop/cop5/ministerfinal.pdf>

⁴⁴ <http://www.basel.int/techmatters/index.html>

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.”⁴⁵

3. TRADE-RELATED ENVIRONMENTAL MEASURES OF THE WASTE AND CHEMICALS CONVENTIONS

All three Conventions address certain trade-related environmental issues, they are part of a group of about twenty MEAs which contain trade-related provisions in their mandate. Therefore they are included in the ambit of the WTO's Division on Trade and Environment, in the relatively broad and long-term discussions of its Committee on Trade and Environment (CTE), and to a lesser extent also in 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, or the GATT Council regarding exceptions under its Art. XX. The relationship of the three conventions with the WTO is arguably less direct than that of certain other MEAs (such as the Cartagena Protocol of the Convention on Biological Diversity⁴⁶ or the FAO's International Treaty on Plant Genetic Resources for Food and Agriculture)⁴⁷ because 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.⁴⁸

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 Agreement distinguishes between these voluntary and mandatory provisions,⁴⁹ whereas the SPS

⁴⁵ UNEP-UNCTAD Capacity Building Task Force 2007, *op. cit.* fn. 41p. 20.

⁴⁶ <http://www.cbd.int/biosafety/default.shtml>

⁴⁷ <http://www.fao.org/AG/cgrfa/itpgr.htm>

⁴⁸ For a more detailed discussion of the WTO's role and function in trade and environment matters see e.g. 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

⁴⁹ 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.

Agreement treats voluntary and mandatory international standards (such as the non-binding Codex Alimentarius), guidelines and recommendations at the same level.⁵⁰ 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.⁵¹ The TBT Agreement uses a somewhat different language to convey essentially the same idea,⁵² 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 litigation related to the Rotterdam and the Stockholm conventions as long as all litigants are Parties of the 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).⁵³

The trade policy aspects of these conventions need to be dealt with on two levels. On one hand we are dealing with the environmental "goods" that are traded, i.e. 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. 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 hazardous chemicals used in manufacturing processes. 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

http://www.wto.org/english/docs_e/legal_e/17-tbt_e.htm

⁵⁰ SPS Agreement Annex A Definitions

http://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm

⁵¹ 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.

⁵² 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.

⁵³ 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.

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*⁵⁴ 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 because it is highly contested for its 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 according to numerous testimonies.⁵⁵ 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.⁵⁶

Given 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. Negotiations and discussions at WTO bodies other than the CTE touch upon this kind trade and environment issues, especially the SPS and the TBT Committees. The WTO

⁵⁴ 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.

⁵⁵ See e.g. <http://www.google.com/search?q=paraquat+declaration+of+berne>

⁵⁶ 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

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, i.e. 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 because 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. XI⁵⁷ on the General Elimination of Quantitative Restrictions, but depending on the Dispute Settlement Body's interpretation, it may or may not be considered justified under GATT Art. XX(b) on General Exceptions.⁵⁸

There are two other MEAs which have a comparable potential impact on agriculture, namely the Cartagena Protocol of the Convention on Biological Diversity,⁵⁹ 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.⁶⁰ The main purpose of these two agreements is to preclude protectionist measures while at the same time an importing country is able to protect its biodiversity. The complexity which the DSB could be facing in such cases may well go beyond that of customary 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 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 for unnecessarily long periods which represent 'undue delay' prohibited by the SPA Agreement's Annex C 1.(a).⁶¹ 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

⁵⁷ The WTO's Legal Texts including the WTO agreements are available at http://www.wto.org/english/docs_e/legal_e/legal_e.htm

⁵⁸ 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

⁵⁹ <http://www.cbd.int/biosafety/default.shtml>

⁶⁰ <http://www.fao.org/AG/cgrfa/itpgr.htm> ; <http://www.planttreaty.org/>

⁶¹ Wüger, Daniel. 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>

a future argumentation based on precautionary measures.⁶² In the chemicals and wastes conventions the objective is different from the above-mentioned cases, there is no *a priori* 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, 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.⁶³ Unintentional 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.⁶⁴ 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 in isolation is 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."⁶⁵ 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.⁶⁶ The Stockholm Convention is the only one of the three which benefits from funding from the Global Environment Facility. As far as its near-term plans are concerned, like the Rotterdam Convention, it is presently working to establish compliance procedures. Finally, it has scheduled its first effectiveness evaluation in 2009, five years after its entry into force.⁶⁷

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

⁶² Oliva, Maria Julia. 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>

⁶³ Stockholm Convention Art. 3

⁶⁴ *Idem.* Art. 5 and 6.

⁶⁵ UNEP ETB 2007 *op. cit.*, footnote 112,

⁶⁶ *Ibid.* Art. 9.

⁶⁷ *Ibid.* p. 25.

dumping grounds for toxic and radioactive waste on numerous occasions given that this 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.⁶⁸

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 MEAs⁶⁹ which includes our three Conventions.⁷⁰ The 1989 Basel Convention is the earliest MEA which incorporates the Prior Informed Consent (PIC) principle which 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.⁷¹ 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*⁷² where environmental concerns were challenged successfully by Argentina, Canada and the US in spite of the Biosafety Protocol which the Panel could have recognized as an international standard in the sense of the TBT's Annex.⁷³ This is indeed what Makane

⁶⁸ For a further discussion of trade-related environment measures, especially the Basel Convention (1000-1005) see : Alam, Shawkat. 2007. Trade Restrictions Pursuant to Multilateral Environmental Agreements: Developmental Implications for Developing Countries. *Journal of World Trade* 41 (5): 983-1015.

⁶⁹ 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

⁷⁰ The other MEAs covered are CITES, Montreal Protocol, Cartagena Protocol.

⁷¹ Rotterdam Convention Art. 7.3 and 10.2.

⁷² *Op. cit.* fn. 54.

⁷³ 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,

Moïse Mbengue is hinting at in the case of the Stockholm Convention (in 2001, several years before the latter 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].⁷⁴

To conclude, 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 and corruption 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 is 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, especially if one considers that a case implying one or a small number of chemicals could set a precedent for very large commercial stakes related to other chemicals used in similar applications. In terms of the legal, economic and more generally societal concerns at stake here we need to look at the WTO dispute which arguably comes closest to these three MEAs in terms of its potential impact on both the environment and the economy, namely *EC-Biotech*,⁷⁵ especially because in both cases very important agricultural

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.

⁷⁴ « 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).

⁷⁵ *Op. cit.* fn. 54.

interests are at stake which in many if not most countries are politically particularly sensitive.

ANNEX: COMPENDIUM OF THE MOST IMPORTANT TECHNOLOGY-RELATED PROVISIONS

Annex A – Aarhus Convention

Article 6 – Public Participation in Decisions on Specific Activities

6. Each Party shall require the competent public authorities to give the public concerned access for examination, upon request where so required under national law, free of charge and as soon as it becomes available, to all information relevant to the decision-making referred to in this article that is available at the time of the public participation procedure (...)

(a) A description of the site and the physical and technical characteristics of the proposed activity, including an estimate of the expected residues and emissions;

Annex B – Basel Convention⁷⁶

Preamble

Aware of the need to continue the development and implementation of environmentally sound low-waste technologies, recycling options, good house-keeping and management systems with a view to reducing to a minimum the generation of hazardous wastes and other wastes...

Article 4 - General Obligations

2. Each Party shall take the appropriate measures to:

(a) Ensure that the generation of hazardous wastes and other wastes within it is reduced to a minimum, taking into account social, technological and economic aspects;

Article 10 - International Co-operation

2. (...) the Parties shall:

(c) Co-operate, subject to their national laws, regulations and policies, in the development and implementation of new environmentally sound low-waste technologies and the improvement of existing technologies with a view to

⁷⁶ Basel Convention, text : <http://www.basel.int/text/con-e-rev.pdf>

eliminating, as far as practicable, the generation of hazardous wastes and other wastes and achieving more effective and efficient methods of ensuring their management in an environmentally sound manner, including the study of the economic, social and environmental effects of the adoption of such new or improved technologies;

(d) Co-operate actively, subject to their national laws, regulations and policies, in the transfer of technology and management systems related to the environmentally sound management of hazardous wastes and other wastes. They shall also co-operate in developing the technical capacity among Parties, especially those which may need and request technical assistance in this field;

(e) Co-operate in developing appropriate technical guidelines and/or codes of practice.

Article 13 - Transmission of Information

3. The Parties, (...) shall transmit, through the Secretariat, to the Conference of the Parties (...) a report on the previous calendar year, containing the following information:

(h) Information on measures undertaken for development of technologies for the reduction and/or elimination of production of hazardous wastes and other wastes.

Article 16 - Secretariat

1. The functions of the Secretariat shall be:

g) To receive and convey information from and to Parties on:

- sources of technical assistance and training;
- available technical and scientific know-how;

Annex C – Rotterdam Convention⁷⁷

Article 14 - Information exchange

1. Each Party shall, (...) facilitate:

(a) The exchange of scientific, technical, economic and legal information concerning the chemicals within the scope of this Convention...

Article 16 – Technical assistance

The Parties shall, taking into account in particular the needs of developing countries and countries with economies in transition, cooperate in promoting technical assistance for the development of the infrastructure and the capacity necessary to manage chemicals to enable implementation of this Convention. Parties with more advanced programmes for regulating chemicals should provide technical assistance, including training, (...)

⁷⁷ Rotterdam Convention, text: http://www.oztoxics.org/waigani/pic/conve_c3.html

Annex IV Information and Criteria for Listing Severely Hazardous Pesticide Formulations in Annex III

Part 3.(c) The existence of handling or applicator restrictions involving technology or techniques that may not be reasonably or widely applied in States lacking the necessary infrastructure;

*Annex D – Stockholm Convention*⁷⁸

Article 5 - Measures to reduce or eliminate releases from unintentional production

Each Party shall at a minimum take the following measures (...)

(d) Promote (...) the use of best available techniques for new sources within source categories which a Party has identified as warranting such action in its action plan,

(f) For the purposes of this paragraph and Annex C:

(i) "Best available techniques" means the most effective and advanced stage in the development of activities and their methods of operation (...)

(ii) "Techniques" includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned;

Article 12 - Technical assistance

1. The Parties recognize that rendering of timely and appropriate technical assistance in response to requests from developing country Parties and Parties with economies in transition is essential to the successful implementation of this Convention.

2. The Parties shall cooperate to provide timely and appropriate technical assistance to developing country Parties and Parties with economies in transition, (...)

4. The Parties shall establish, as appropriate, arrangements for the purpose of providing technical assistance and promoting the transfer of technology (...). These arrangements shall include regional and subregional centres for capacity-building and transfer of technology to assist developing country Parties and Parties with economies in transition to fulfil their obligations under this Convention. Further guidance in this regard shall be provided by the Conference of the Parties.

5. The Parties shall, in the context of this Article, take full account of the specific needs and special situation of least developed countries and small island developing states in their actions with regard to technical assistance.

Article 13 - Financial resources and mechanisms

⁷⁸ Stockholm Convention, text: http://www.pops.int/documents/convtext/convtext_en.pdf

6. A mechanism for the provision of adequate and sustainable financial resources to developing country Parties and Parties with economies in transition (...) is hereby defined. The mechanism may also include other entities providing multilateral, regional and bilateral financial and technical assistance.

Annex C - Unintentional Production

Part V: General guidance on best available techniques and best environmental practices

B. Best available techniques

The concept of best available techniques is not aimed at the prescription of any specific technique or technology, but at taking into account the technical characteristics of the installation concerned, its geographical location and the local environmental conditions. Appropriate control techniques to reduce releases of the chemicals listed in Part I are in general the same.

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