BASEL CONVENTION

12th TRAINING COURSE

Workshop on the Strengthening of Co-operation Based on Chemicals and Hazardous Wastes Conventions

BASEL CONVENTION REGIONAL CENTRE BRATISLAVA

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Prague, March 15 – 17, 2004

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UNEP

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Workshop on the Strenghtening of Co-operation Based on Chemicals and Hazardous Wastes Conventions

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Foreword

Safety chemicals and waste management are areas of particular importance for the Czech Republic as a country with the relatively strong chemical industry. Waste management is covered with the strong legislation in the Czech Republic. A strict quantification of non-hazardous and hazardous waste, their separation, recovery and utilization is followed by secured and controlled final disposal. Utilization and disposal facilities are evaluated according to environment impact assessment process.

Bearing in mind the responsibility of our country for the global state of the environment, the Czech Republic started in 90s of the 20th century to participate very actively in international programs and agreements focused on dealing with environmental problems caused or connected with chemicals and wastes. As the other countries we felt an urgent need for securing that the steps done within the framework of these programs and agreements are effectively co-ordinated and coherent. At the global level this need was pictured in the Implementation Plan adopted at the World Summit on Sustainable Development (Johannesburg, 2002). However, we are aware of the fact that the successful implementation of the Plan will be based on active approach of all individual countries. Therefore the Ministry of the Environment of the Czech Republic came with the idea of the "Workshop on the strengthening of co-operation based on chemicals and hazardous wastes conventions" for stakeholders involved in the process of implementation of the Basel, Stockholm, Rotterdam Conventions and the Montreal Protocol in the Central Europe.

Although we are living in the time of internet, e-mail and other modern means of communication, we still believe that the personal contact among the relevant stakeholders is essential and helps to make "alive" ideas and wishes what are often proclaimed at the high level.

The outcomes of the workshop show that there are many of areas where the co-operation on the sub-regional level could be very useful. I strongly believe that the sub-regional discussion started in Prague will continue thanks to activities of the Basel Convention Regional Centre in Bratislava and will result into sub-regional projects focused on solution of problems common for the countries concerned.

Moreover, we would be very happy to share our experience gained at the workshop with other countries and therefore we prepared in co-operation with the Basel Convention Regional Centre in Bratislava and Basel Convention Secretariat this publication. I hope you will find it interesting and motivating.

Libor Ambrozek
Minister of the Environment
of the Czech Republic

Contents

Welcome Address

by Mrs. Dana Lapešová, Head of Basel Convention Regional Centre in Bratislava

Ladies and Gentleman,

Its is a pleasure for me to have the opportunity to open the 12th BCRC Workshop on strengthening of co-operation based on chemical and hazardous wastes conventions. This workshop is prepared in close co-operation among the Secretariat of the Basel Convention, Ministry of Environment of the Czech Republic and Basel Convention Regional Centre in Bratislava. We are able to meet here thanks to the Trust Fund of the Basel Convention and the Ministry of the Environment of the Czech Republic.

Please, let me welcome our guests: Mr. Tomáš Novotný, Deputy Minister – Director General of Section of International Relations, Ministry of Environment of the Czech Republic, Mr. Jiří Hlaváček, Director of the European Union Department, Ministry of Environment of the Czech Republic, Mr. Michal Pastvinský, Director of Global Relations Department, Ministry of Environment of the Czech Republic, Mr. Nelson Sabogal, Senior Programme Officer, Secretariat of the Basel Convention and Mr. Suresh Raj, Capacity Building Manager, UNEP/DTIE. I would like also to welcome you our participants.

This workshop is the 12th organised by the BCRC Bratislava. The idea to organise the workshop on strengthening of co-operation among Multilateral Environmental Agreements came from the Ministry of the Environment of the Czech Republic. Czech Ministry had willingness to host representatives from seven European countries.

Because most of you participate in the workshop organised by BCRC Bratislava for the first time, please, let me give you a brief information about our activities. BCRC Bratislava was established in 1995 as a unit within the Slovak Environmental Agency, Centre of the Waste and Environmental Management. We started our activities in 1997. We have served 19 countries from the CEE region. Priority areas of our Centre were as follows:

- adoption and implementation of the Basel Convention into national legislation
- setting up environmentally sound hazardous wastes management systems
- introduction of the waste management information system at the national level
- technologies for the environmentally sound treatment and disposal of hazardous wastes
- promotion of public awareness
- control system of transboundary movement of hazardous wastes.

We organised eleven workshops and finalised six projects in accordance with the priority areas, Business Plan and 10-Year Strategic plan for the Implementation of the Basel Convention. There are two other projects in progress.

BCRC Bratislava actively participated in co-operation with other Multilateral Environmental Agreements recently. BCRC was asked to organise a regional workshop on implementation of the Stockholm Convention on POPs for CEE region in Bratislava in April 2002. And we also took part in the Sub-regional Workshop on Implementation of Rotterdam Convention on PIC procedure in Kiev in November 2002. Both workshops show the necessity of co-operation among all the mentioned Multilateral Environmental Agreements.

As I said, the idea to host representatives from 7 countries came from the Ministry of Environment of the Czech Republic. The aim is to share information and exchange of experiences among these four Conventions and also among five CE countries, Germany and Austria. The workshop is also aimed at making clear identification of links among chemicals and hazardous wastes conventions, supporting their implementation and strengthening co-operation among all stakeholders. This means to involve not only national focal points but also customs officers and environmental inspectorates in order to avoid duplicity of activities. In accordance with the decision adopted by the Intergovernmental Negotiating Committee, Multilateral Environmental Agreements should support environmentally sound management of hazardous and chemical wastes through the whole life cycle covering generation, use, trade and final disposal.

From that reason I hope we will have fruitful discussions after each presentation. Some of you know that we will meet together with Focal points from the Basel, Rotterdam and Stockholm Conventions in Riga in three weeks. Riga will host all focal points from these three conventions from our region. We are expected to present our outputs and recommendations there.

Finally, I would like to thank Mr. Nelson Sabogal, Mr. Joachim Wuttke and Mr. Andreas Moser for their support in completing the Agenda of the workshop.

The last but not least I wish all of you a nice and pleasant stay in Prague.

Welcome Address

by Mr. Tomáš Novotný,
Deputy Minister – Director General of Section of International Relations
Ministry of the Environment of the Czech Republic

Ladies and Gentlemen,

It is my pleasure to welcome you at the workshop on the strengthening of co-operation based on chemicals and hazardous wastes conventions here in Prague.

Taking into account paragraph 23 of the Plan of Implementation adopted at the World Summit on Sustainable Development in Johannesburg the Ministry of the Environment of the Czech Republic decided to take a concrete step and to promote the sound management of chemicals and the implementation of multilateral environmental agreements focused on this area. Therefore we were very pleased that the Open-ended Working Group of the Basel Convention at its second meeting in October 2003 approved project proposal prepared in co-operation of the Ministry of the Environment of the Czech Republic, Basel Convention Regional Centre in Bratislava and the Secretariat of the Basel Convention for organizing this meeting.

The Czech Republic is a Party to all international Conventions we should focus within the framework of our workshop on. Basel Convention and Montreal Protocol were already ratified at the time of former Czechoslovakia in 1991, respectively 1990. Rotterdam Convention was ratified by the Czech Republic in June 2000 and Stockholm Convention in August 2002 that means that the Czech Republic was one of the first countries of the world in this regard.

As a recognition of the Czech Republic active approach to these conventions the officials of the Czech Republic were elected to highest positions in their governing bodies. Let me mention that a representative of the Ministry of the Environment was Vice-President of the 5th Conference of the Parties to the Basel Convention in 2000-2002 and Minister of the Environment of the Czech Republic was elected for President of the 15th Meeting of the Parties to the Montreal Protocol for years 2003-2004. Our representative played a very active role by negotiations of the Stockholm Convention as well. Moreover, the Czech Republic was and is hosting some meetings of multilateral environmental conventions and conferences focused on the environment. At the moment we work on the preparation of the 16th Meeting of the Parties of the Montreal Protocol, to be held in Prague in November this year, and of the 7th International Conference on Air Pollution, its Effects and Future - "Acid Rain", to be held in June 2005.

We are aware of our responsibility for a successful implementation of these conventions and difficulty of this task and therefore we would like to exchange our experience in this area with you. I would like to thank the representatives of Austria and Germany that accepted the invitation to our workshop for their preparedness to chair discussion panels focused of relevant waste streams and environmentally sound management of wastes. The Czech Republic and other participating countries are going to become very soon members of the European Union which legislation regulates areas covered by the Conventions and therefore I believe it would be very helpful for representatives of acceding countries to discuss these issues with EU Members.

The purpose of the workshop is to clearly identify links among chemicals and hazardous wastes conventions and to strengthen sub-regional co-operation among the National Focal Points and other stakeholders involved in the process of implementation and enforcement of these instruments in Central European Countries (Poland, Hungary, Slovakia, Slovenia and Czech Republic) and countries from the „Western Europe and Others" regional group (Germany and Austria). We would like to avoid duplication of activities and promote the creation of joint initiatives for our future work in this area.

Outcomes of this workshop as well as presentations that will be delivered during next three days will be used for preparation of the publication on the "lessons learned" of the Workshop which will be distributed to all participants, the secretariats of the four concerned multilateral environmental conventions and relevant authorities in the interested Central and European Countries.

Ladies and gentlemen, I wish you very fruitful discussions and thank you for your attention.

Welcome Address

by Mr. Nelson Sabogal, the Secretariat of the Basel Convention (SBC)

On behalf of the Secretariat of the Basel Convention, I wish to welcome all of you to the workshop organized by the Basel Convention Regional Centre in Bratislava with the financial support of the Trust Fund of the Basel Convention and the Czech Republic.

This workshop was one of the project proposals submitted by the Regional Centre to the second meeting of the Open-Ended Working Group held in October 2003, in order to identify and discuss common issues of the Basel, Rotterdam and Stockholm Conventions and the Montreal Protocol and to strengthening the co-operation among the national Focal Points and other stakeholders involved in the process of implementation and enforcement of these Multilateral Environmental Agreements. The Secretariat recognizes the efforts of the Regional Centre and the host country in order to make this workshop a success and also in order to use it as a model for other Central an Eastern European countries.

We also wish to thank the participation of Austria, Czech Republic, Germany, Hungary, Poland, Slovakia and Slovenia. This workshop is part of the Strategic Plan for the implementation of the Basel Convention adopted at the sixth meeting of the Conference of the Parties held in Geneva in December 2002. The Strategic Plan builds on the achievements of the first decade of the Basel Convention, the Basel Declaration that asserts a vision that the environmentally sound management of hazardous and other wastes is accessible to all Parties, emphasizing the minimization of such wastes and the strengthening of the capacity building.

We hope that this workshop would contribute to the following priority fields of the Strategic Plan:

Field (h) – Co-operation and partnership at all levels between countries, public authorities, international organizations, the industry sector, non-governmental organizations and academic institutions, and

Field (g) – Enhancement of information exchange, education and awareness-raising in all sectors of society.

We also hope that the sharing of information and experience among the countries present and future members of the European Union would help the implementation of the Basel, Rotterdam and Stockholm Conventions and the Montreal Protocol. It is our aim that at the end of the workshop, after the discussions of the Panels, we will have a plan on how the co-operation among these four Multilateral Environmental Agreements could be converted into projects in order to address issues such as inventories, prevention, detection and monitoring of illegal traffic or in other areas that are of importance to your countries.

Part I

Linkages between the Basel, Stockholm and Rotterdam Convention and the Montreal Protocol (with regard to the close entry into force of the Rotterdam and Stockholm Convention)

Basel Convention and its linkages to other MEAs

Nelson Sabogal, Senior Programme Officer
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BASEL CONVENTION

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal:

- Was adopted in 1989.
- Entered into force on 5 may 1992.
- At present 159 countries and the European community are Parties to the convention.
- In response to the concern regarding the transport of hazardous wastes from industrialized countries to developing countries and eastern European countries.
- To establish a control system on transboundary movements of hazardous wastes, based on written notifications.

OBJECTIVES

- To treat and dispose of hazardous wastes as close as possible to their source of generation.
- To reduce transboundary movements of hazardous wastes and other wastes to a minimum consistent with their environmentally sound management.
- To minimize their generation at its source and the hazardousness of wastes.

SCOPE OF THE CONVENTION: ARTICLE 1

The following wastes that are subject to transboundary movement shall be « hazardous wastes » for the purposes of this Convention:

(a) Wastes that belong to any category contained in Annex I, unless they do not possess any of the characteristics contained in Annex III; and
(b) Wastes that are not covered under paragraph (a) but are defined as, or are considered to be, hazardous wastes by the domestic legislation of the Party of export, import or transit.
(c) Wastes that belong to any category contained in Annex II that are subject to transboundary movement shall be "other wastes" for the purposes of this Convention.

IMPLEMENTATION OF THE BASEL CONVENTION

- Notification and control system
- Transmission of information
- Other obligations
- Capacity building, training and technology transfer
- Main mechanism: Regional Centres

NOTIFICATION AND CONTROL SYSTEM: ARTICLE 6

1. The State of export shall notify, or shall require the generator or exporter to notify, in writing, through the channel of the competent authority of the State of export, the competent authority of the States concerned of any proposed transboundary movement of hazardous wastes or other wastes.
2. The State of import shall respond to the notifier in writing, consenting to the movement with or without conditions,

denying permission for the movement, or requesting additional information.

3. The State of export shall not allow the generator or exporter to commence the transboundary movement until it has received written confirmation that:
   (a) The notifier has received the written consent of the State of import; and
   (b) The notifier has received from the State of import confirmation of the existence of a contract between the exporter and the disposer specifying environmentally sound management of the wastes in question.
4. Each State of transit which is a Party shall promptly acknowledge to the notifier receipt of the notification. It may subsequently respond to the notifier in writing, within 60 days, consenting to the movement with or without conditions, denying permission for the movement, or requesting additional information.
   - Require that hazardous wastes and other wastes be accompanied by a movement document from the point at which a transboundary movement commences to the point of disposal.
   - Require that hazardous wastes and other wastes that are to be the subject of a transboundary movement be packaged, labelled, and transported in conformity with generally accepted and recognized international rules and standards in the field of packaging, labelling, and transport, and that due account is taken of relevant internationally recognized practices.
   - Harmonization of forms and procedures for notification between OECD, EU and BC.

TRANSMISSION OF INFORMATION: ARTICLE 13

The Parties shall transmit before the end of each calendar year a report containing the following information:

- Information regarding transboundary movements including:
  - The amount of hazardous wastes category, characteristics, destination, any transit country and disposal method
  - Disposals which did not proceed as intended
  - Efforts to achieve a reduction of the amount of hazardous wastes or other wastes subject to transboundary movement
- Information on disposal options operated within the area of their national jurisdiction
- Information on available qualified statistics which have been compiled by them on the effects on human health and the environment of the generation, transportation and disposal of hazardous wastes or other wastes
- Information on measures undertaken for development of technologies for the reduction and/or elimination of production of hazardous wastes and other wastes

OTHER GENERAL OBLIGATIONS: ARTICLE 4

Each Party shall take appropriate measures:

- Shall prohibit the import of hazardous wastes or other wastes for disposal.
- Shall prohibit or shall not permit the export of hazardous wastes and other wastes to the Parties which have prohibited the import of such wastes.
- Shall prohibit or shall not permit the export of hazardous wastes and other wastes if the State of import does not consent in writing to the specific import.

Environmentally sound management of hazardous wastes and other wastes: Basel Declaration: Obligations

- Generation of hazardous wastes to be reduced to a minimum.
- Ensure the availability of adequate disposal facilities for the environmentally sound management of hazardous wastes.
- Take such steps as are necessary to prevent pollution when involved in the management of hazardous wastes.
- Ensure that the transboundary movement of hazardous wastes and other wastes is reduced to the minimum consistent with the environmentally sound and efficient management of such wastes

BCRCs

Basel Convention Regional Centres for Training and Technology Transfer (BCRCs)

Main functions: Training
Technology Transfer
Information
Consulting
Awareness-raising

Strategic Plan for the implementation of the Convention
Framework Agreement
Business Plans

OPERATIONAL REGIONAL CENTRES

At present 13 Regional Centres in operation:

- Latin America and the Caribbean: Argentina, El Salvador, Trinidad and Tobago, Uruguay
- Africa: Egypt, Senegal, South Africa, Nigeria
- Asia and Pacific: China, Indonesia, SPREP
- Central and Eastern Europe: Russian Federation, Slovakia

ROLE OF THE REGIONAL CENTRES

- Important role in the implementation of the Basel Convention
- Entrusted with the implementation of priority measures of the Strategic Plan by COP6: Main channel for implementing the Strategic Plan
- Business Plans of the Centres
- Carry out projects within the framework of the Strategic Plan:
  - OEWG 1: 15 projects financed totaling US$ 880,000
  - OEWG 2: 6 projects financed totaling US$ 320,000

POTENTIAL OF THE REGIONAL CENTRES

- Preparation and implementation of Business Plans for all BCRCs within the framework of the Strategic Plan of the Basel Convention
- Elaboration of project proposals within the framework of the environmentally sound management of hazardous wastes or chemical substances and/or their import, export and control, presented to OEWG and donor countries.
- Some projects approved by OEWG show the coordination and coherence of the activities between the Basel and Stockholm Conventions.
- Implementation of approved projects
- Focal points of the Basel Convention could be more involved in the development and work of BCRCs
- Updating and improvement the Business Plans of BCRCs
- Legal establishment by a Framework Agreement

ACTIVITIES IN PROGRESS

- Basel Declaration on environmentally sound management and its implementation
- Implementation of the Strategic Plan
  - Priority activities within the framework of the Basel Declaration to be implemented by 2010
  - Strategy for resources mobilization
  - Creation of capacity
- Protocol on Liability and Compensation
- Mechanism to promote implementation and compliance
- Dismantling of ships
- Technical guidelines
  - POPs
  - PCBs, PCTs and PBBs
  - Dioxins and furans
  - DDT
  - Metals and metal constituents
- Partnerships of the Basel Convention
  - Mobile Phones Parternship
- National reporting
- International co-operation
  - Stockholm and Rotterdam Convention
  - International Maritime Organization
  - World Health Organization
  - UNEP

LINKAGES TO OTHER MEAS

Montreal Protocol

- Recovery, recycling and reclamation (Decision IV/24)
- Trade in controlled substances and the Basel Convention (Decison V/24)
- Status of recycled CFCs and halons under the Basel Convention (Decision VII/31)
- Destruction technologies and procedures (Decisions I/12F, II/1, III/10,IV/1, V/26, VII/35, XIV/6)
- Disposal of controlled substances (Decision XII/8)

Similarities

- Non-Compliance Procedure and Mechanism for Promoting Implementation and Compliance (Implementation Committee ←→ Compliance Committee)
- Prevention of Illegal trade
- Relationship with the WTO

Rotterdam Convention

- Export notification and acknowledgement
- Article 10: Obligations in relation to imports of chemicals listed in Annex III
- Article 11: Obligations in relation to exports of chemicals listed in Annex III
- Article 12: Export notification
- Article 13: Information to accompany exported chemicals
- Article 14: Information exchange
- BCRCs could assist in developing the infrastructure and capacity to manage chemicals at the regional level.

Stockholm Convention (Article 6)

Measures to reduce or eliminate releases from stockpiles and wastes

- Identifying stockpiles of POPs
- Manage (handle, collect, transport, storage) stockpiles and wastes in an environmentally sound manner
- Dispose of in such a way that the POP content is destroyed or irreversibly transformed
- Not transport waste across international boundaries without taking into account the Basel Convention
- Not allow recovery, recycling, reclamation, direct reuse or alternative uses of POPs
- Endeavour to develop appropriate strategies for identifying sites contaminated by POPs
- COP shall cooperate closely with the appropriate bodies of the Basel Convention
  - Levels of destruction and irreversible transformation
  - Methods that constitute ESM
  - Levels of POPs that are considered low
- Development of guidelines
- Technical assistance

FOR FURTHER INFORMATION

Visit the Basel Convention's Website:
www.basel.int

Stockholm Convention and its linkages to other MEAs

prepared by UNEP Chemicals, Geneva, Switzerland, presented by Nelson Sabogal, the Secretariat of the Basel Convention

STOCKHOLM CONVENTION PROVISIONS

- **Objective = protection of health and environment**
- **Main provisions:**
  - control measures for intentionally produced POPs
  - control measures for unintentionally produced POPs
  - control measures for stockpiles and wastes
  - general obligations
  - addition of new chemicals
  - financial and technical assistance
  - implementation aspects

THE 12 STOCKHOLM POPs

Chemical	Pesticides	Industrial Chemicals	By-products
Aldrin	+		
Chlordane	+		
DDT	+		
Dieldrin	+		
Endrin	+		
Heptachlor	+		
Mirex	+		
Toxaphene	+		
Hexachlorobenzene	+	+	+
PCBs		+	+
Chlorinated dioxins			+
Chlorinated furans			+

STOCKHOLM CONVENTION PROVISIONS: INTENTIONALLY PRODUCED POPs

INTENTIONALLY PRODUCED POPs – OUTLINE

- Articles 3, 4 and 15(2)
- Annexes A and B
  - Specific exemptions
  - Acceptable purposes
- General exemptions
- Site-limited intermediate exemptions
- Trade restrictions
- Assessment of new and existing chemicals
- Summary

INTENTIONALLY PRODUCED POPs (ARTICLE 3)

Goal = elimination of production and use of all intentionally produced POPs (i.e., industrial chemicals and pesticides)

- Parties shall, for a chemical in: [para. 1]
  - Annex A, "prohibit and/or take the legal and administrative measures necessary to eliminate":
    - production and use, and
    - import and export: i.e., trade is restricted [see para. (2)]
  - Annex B, "restrict its production and use"
    - "acceptable purposes" specified for these chemicals

INTENTIONALLY PRODUCED POPs: SPECIFIC EXEMPTIONS

- Party may register for specific exemption(s) identified in Annexes A or B [Article 4]
  - by informing the Secretariat on becoming a Party
  - Parties will be listed in a publicly available Register
- Duration = 5 years, unless a Party specifies an earlier date
  - may be withdrawn by a Party at any time
  - may be extended for 5 years, subject to COP approval
- Condition: Parties using "specific exemptions" or "acceptable purposes" provisions must take measures to prevent or minimize human exposure and releases to the environment [Article 3, para. 6]

INTENTIONALLY PRODUCED POPs: SPECIFIC EXEMPTIONS (ANNEXES A & B)

Chemical	Production	Use
Endrin	No	No
Toxaphene	No	No
Aldrin	No	Local ectoparasiticide Insecticide
Dieldrin	No	In agricultural operations
Heptachlor	No	Termiticide Termiticide in structures of houses Termiticide (subterranean) Wood treatment In use in underground cable boxes
PCBs	No	Articles in use in accordance with Part II of Annex A (All Parties)
Chlordane	Restricted	Local ectoparasiticide Insecticide Termiticide Termiticide in buildings and dams Termiticide in roads Additive in plywood adhesives
HCB	Restricted	Intermediate Solvent in pesticide Closed system site-limited intermediate
Mirex	Restricted	Termiticide
DDT	Restricted	Intermediate in production of dicofol Intermediate

INTENTIONALLY PRODUCED POPs: PCBs (ANNEX A, PART II)

- **All Parties shall cease production of new PCBs immediately (i.e., entry into force)**
- **All Parties using the PCB specific exemption shall:**
  - eliminate use of in-place equipment containing PCBs by 2025:

  - make determined efforts to identify, label & remove from use equipment with >10% or >0.05% & >5 litres of PCB
  - endeavour to identify & remove from use equipment with >0.005% (50ppm) and >0.05 litres of PCB
  - give higher priority to equipment with higher PCB levels
- **All Parties using the PCB specific exemption shall:**
  - promote measures to reduce exposures and risk:
    - use PCBs only in intact and non-leaking equipment and only in areas where risk of environmental release can be minimized and quickly remedied
    - forbid use in food/feed production and processing areas
    - when used in populated areas (schools, hospitals, etc.)
      - take all reasonable measures to protect from electrical failure which could result in a fire
      - inspect regularly for leaks in equipment
- **All Parties using the PCB specific exemption shall:**
  - not export or import PCB equipment, except for the purpose of environmentally sound management (ESM) of waste
  - not recover liquids with > 50 ppm PCBs for reuse in other equipment (but may maintain/service same equipment)
  - make determined efforts to achieve ESM of wastes containing > 50 ppm PCBs ASAP, and by 2028
  - endeavour to identify articles with > 50 ppm PCB for ESM
  - report to the COP every 5 years on progress in eliminating PCBs [per Article 15]
- **COP will review progress toward the 2025/2028 targets at 5 year intervals, taking into account reports from Parties**

INTENTIONALLY PRODUCED POPs: DDT (ANNEX B, PART II)

- **All Parties shall eliminate DDT production and use except** Parties that notify the Secretariat of their intention to produce and/or use DDT in disease vector control programs
  - these Parties will be included in a special publicly available DDT Register maintained by the Secretariat
    - Parties may withdraw from DDT Register at any time
  - production and/or use must be in accordance with WHO recommendations and guidelines on use of DDT, and only when locally safe, effective and affordable alternatives are not available to the Party
- **Each Party in the DDT Register shall:**
  - report every 3 years on: [Article 15]
    - quantities used
    - conditions of use, and
    - relevance of DDT to Party's disease control strategy
  - develop a national action plan to:
    - confine use of DDT to disease vector control
    - explore alternatives to DDT, and
    - take measures to strengthen health care and reduce incidence of disease
- **All Parties,** within their capabilities, are encouraged to promote research and development to seek alternatives to DDT
- **DDT use will be allowed** until technically and economically feasible alternative products, practices or processes are available to countries that are currently reliant on DDT
- **COP** will review at its first meeting and every 3 years thereafter to see whether DDT continues to be needed for disease vector control

INTENTIONALLY PRODUCED POPs: GENERAL EXEMPTIONS

Chemicals in Annex A or B, are exempt in quantities:

- used for laboratory-scale research [Article 3, para. 5]
- used as a reference standard [Article 3, para. 5]
- occurring as unintentional trace contaminants in products and articles [Annexes A & B, Note (i)]
- occurring as constituents of articles manufactured or already in use before or on date of entry into force of an obligation concerning that chemical [Annexes A & B, Note (ii)]
  - Party must notify Secretariat of product remaining in use
  - Secretariat will make notification publicly available

INTENTIONALLY PRODUCED POPs: SITE-LIMITED EXEMPTIONS [ANNEXES A & B, NOTE (III)]

- HCB or DDT may be produced or used as closed-system site-limited intermediates that are chemically transformed in the manufacture of other chemicals that do not exhibit POPs properties
- Party shall notify Secretariat of:
  - total amounts produced or used
  - nature of site-limited process, and
  - amount of HCB or DDT present in final product
- These notifications will be made publicly available
- Such production or use is not considered a specific exemption
- Duration = 10 years, but may be extended for 10 years, subject to COP approval

INTENTIONALLY PRODUCED POPs: TRADE RESTRICTIONS (ARTICLE 3, PARA. 2)

Convention imposes trade restrictions for all POPs in Annexes A and B

- Imports and exports between Parties are limited to shipments:
  - to Parties with:
    - "specific exemptions" under Annex A or B, or
    - "acceptable purposes" under Annex B
  - intended for environmentally sound disposal [Article 6, para. 1(d)]

Exports to non-Parties may take place but there are conditions on both Non-Party and Party:

- Non-Party shall provide annual certification to exporting Party
  - specifying the intended use of the chemical;
  - expressing commitment to:
    - protect health and environment, by minimizing or preventing releases;
    - comply with the requirements of Article 6, para. 1, concerning POPs stockpiles and wastes; and
    - comply with Annex B, Part II, para. 2 (DDT production and/or use in accordance with WHO recommendations, etc.);
  - supplying information on domestic legislation, regulation, etc.
- Exporting Party shall send certification to secretariat within 60 days

INTENTIONALLY PRODUCED POPs: TRADE RESTRICTIONS (ARTICLE 15, PARA. 2)

Parties shall provide:

- data on, or estimates of, total quantities of POPs in Annexes A and B that were produced, imported and exported, and
- a list of States from which it has imported or to which it has exported POPs in Annexes A and B

Note: COP will decide on frequency and format of such reports

INTENTIONALLY PRODUCED POPs: ASSESSMENT OF CHEMICALS (ARTICLE 3, PARA. 3 & 4)

- **Parties with regulatory and assessment schemes for industrial chemicals and pesticides shall, in conducting assessments of:**
  - **new substances,** take "measures to regulate with the aim of preventing the production and use of" new POPs
  - **in-use substances,** consider the screening criteria for candidates for addition to Convention [Annex D]
- **Note:** These provisions
  - allow the early identification of possible POPs in chemical assessment programs, but
  - do not require Parties to set up such programs

INTENTIONALLY PRODUCED POPs: SUMMARY

- **Considerations for ratification include:**
  - take legal & administrative measures to eliminate and/or restrict production and/or use of POPs in Annexes A & B
  - determine need for specific exemptions
    - inform Secretariat at time of ratification and get into the Register
    - take measures to prevent/minimize human exposure and environmental releases
  - needs for site-limited intermediate and other exemptions
  - measures to comply with trade restrictions
  - reporting requirements
  - special regimes for PCBs and DDT require detailed examination of national circumstances
  - if Party has assessment program(s) for new and/or existing chemicals or pesticides, must evaluate substances for POPs properties using criteria in Annex D

STOCKHOLM CONVENTION PROVISIONS: UNINTENTIONALLY PRODUCED POPs

UNINTENTIONALLY PRODUCED POPs: OUTLINE

- Article 5
  - action plan
  - release reduction or source elimination
  - substitute materials, products, processes
  - source categories:
    - new vs. existing
    - best available techniques (BAT)
    - best environmental practices (BEP)
- Annex C
- Summary

UNINTENTIONALLY PRODUCED POPs [ARTICLE 5]

Goal = "continuing minimization and, where feasible, ultimate elimination" of the total releases of chemicals in Annex C derived from anthropogenic sources

Annex C, Part I

Chemical
Dioxins and furans (PCDD/PCDF)
Hexachlorobenzene (HCB)
Polychlorinated biphenyls (PCB)

- **Parties shall, at a minimum, address:**
  - action plan
  - release reduction or source elimination
  - substitute materials, products, processes
  - potential sources of generation and release
    - new and existing sources
    - best available techniques (BAT)
    - best environmental practices (BEP)

UNINTENTIONALLY PRODUCED POPs: ACTION PLAN [ARTICLE 5, PARA. (A)]

- **An action plan shall:**
  - be developed within 2 years of entry into force
    - may be national, regional, or subregional
    - constitutes part of overall implementation plan in Article 7
  - identify, characterize and address release of chemicals in Annex C
  - facilitate implementation of other requirements in Article 5
  - be implemented!
  - evaluate current and projected releases, including development & maintenance of source inventories and release estimates (note source categories in Annex C)
  - evaluate efficacy of Party's laws and policies to manage such releases
  - develop strategies to reduce releases
  - promote education and training on strategies
  - include a schedule for implementation of action plan
  - review success of strategies every 5 years
    - include this in reports to COP [Article 15]

UNINTENTIONALLY PRODUCED POPs: OTHER MEASURES [ARTICLE 5]

- **Parties shall:**
  - promote application of available, feasible and practical measures to achieve expeditiously realistic and meaningful levels of release reduction or source elimination [para. (b)]
  - promote development and, where appropriate, require use of substitute or modified materials, products and processes to prevent formation and release of POPs in Annex C [para. (c)]
    - note the general guidance in Annex C
    - guidelines will be adopted by COP

UNINTENTIONALLY PRODUCED POPs: 'HIGH POTENTIAL' SOURCES OF POPs

- **The following industrial source categories have the potential for comparatively high formation and release of POPs to the environment: [Annex C, Part II]**

  - waste incinerators
    - municipal, hazardous or medical wastes
    - sewage sludge
  - cement kilns firing hazardous wastes
  - pulp production involving elemental chlorine
  - thermal processes used in metallurgical industry
    - secondary production of aluminum, copper or zinc
    - sinter plants in iron and steel industry
- **For identified 'high potential' industrial sources (including those in Annex C, Part II) Party shall:**
  - for new sources warranting such action: [Article 5, para. (d)]
    - promote, and as provided for in an action plan, require use of best available techniques (BAT)
    - phase in any BAT requirements for new sources in categories in Annex C, Part II as soon as practicable but no later than 4 years after entry into force
    - promote use of best environmental practices (BEP)
  - for existing sources, promote use of BAT & BEP [Article 5, para. (e)]

UNINTENTIONALLY PRODUCED POPs: 'POTENTIAL' SOURCES OF POPs

- **The following industrial source categories have the potential for formation and release of POPs to the environment: [Annex C, Part III]**
  - open burning of wastes (including landfill sites)
  - thermal processes in the metallurgical industry not specified in Part II
  - residential combustion sources
  - fossil-fuel fired utility and industrial boilers
  - firing installations for wood and other biomass fuels
  - motor vehicles, especially those burning leaded gasoline
  - smouldering of copper cables
- **'Potential' sources (continued): [Annex C, Part III]**
  - chemical production processes releasing unintentionally produced POPs (e.g., production of chlorophenols and chloranil)
  - textile and leather dying and finishing
  - shredder plants for the treatment of end-of life vehicles
  - waste oil refineries
  - destruction of animal carcasses
  - crematoria
- **For both new and existing industrial sources of these types, Parties must promote BAT & BEP [Article 5, para. (e)]**

UNINTENTIONALLY PRODUCED POPs: SOURCE CATEGORIES: GUIDANCE [ARTICLE 5, PARA. (F)]

- **Parties should take into consideration:**
  - guidance on BAT and BEP in Annex C
  - guidelines that will be adopted by the COP
    - INC6 mandated an expert group to address this
    - A proposal will be made to COP-1
  - definitions in Article 5:
    Note: Convention defines a new source as one for which the construction or substantial modification commences >1 year after:
    - Convention enters into force for Party, or
    - entry into force for Party of Annex C amendment

UNINTENTIONALLY PRODUCED POPs: SUMMARY

Considerations for ratification include:

- measures to reduce and/or eliminate releases of POPs in Annex C (dioxins, furans, HCB, PCB)
- action plan to be developed within 2 years of entry into force
  - part of Article 7 implementation plan
- action plan to be implemented
  - progress reports provided to COP (per Article 15)
- inventories or estimates of current and projected releases
- for new sources in Annex C:
  - Part II, promote and require BAT (within 4 years)
  - Part III, promote BAT
- for existing sources in Annex C:
  - Parts II and III, promote BAT
- for all types of new and existing sources
  - promote BEP

STOCKHOLM CONVENTION PROVISIONS: STOCKPILES AND WASTES

STOCKPILES AND WASTES: OUTLINE

- Article 6
  - Stockpiles
  - Wastes
  - Contaminated Sites
- Related Issues
  - Trade [Article 3]
  - Unintentionally produced POPs [Annex C]
  - PCB Issues [Annex A, Part II]
  - Adding new POPs [Annex F]
- Summary

STOCKPILES (ARTICLE 6)

Goal = to ensure that stockpiles that consist of or contain a POP in Annex A or B are managed in a manner protective of human health and the environment

- **Parties shall:**
  - develop and implement strategies to identify stockpiles [para. 1 (a)(i) and 1 (b)]
  - manage stockpiles in a safe, efficient and environmentally sound manner (ESM) until they are deemed to be wastes [para. 1 (c)]
    - i.e., no remaining uses by Party
      - no 'specific exemption' or 'acceptable purpose'
    - does not apply to stockpiles that may be exported

WASTES (ARTICLE 6)

Goal = to ensure that wastes, including products and articles upon becoming wastes, that consist of, contain or are contaminated with a POP in Annex A, B or C are managed in a manner protective of human health and the environment

- **Parties shall:**
  - develop strategies to identify:
    - products & articles in use, and
    - wastes

    consisting of, containing or contaminated with a POP in Annex A, B or C [para. 1 (a)(ii)]

- **Parties shall: [para. 1 (d)]**
  - take measures to handle, collect, transport and store wastes in an ESM
  - dispose of wastes
    - in such a way that POP content is destroyed or irreversibly transformed, or
    - otherwise in an ESM when
  - destruction or irreversible transformation is not the environmentally preferred option, or
  - POP content is "low",
    taking into account international rules, standards, etc.
  - not allow recovery, recycle, reclamation, direct reuse or alternative uses of POPs [para. 1 (d)]
  - not transport wastes across international boundaries without taking into account international rules, standards and guidelines (e.g., Basel Convention) [para. 1 (d)]
  - endeavour to develop strategies for identifying sites contaminated by POPs in Annex A, B or C [para. 1 (e)]
    - remediation is not required by the Convention
    - if remediation is attempted, do it in ESM

WASTES: COP ACTIVITIES (ARTICLE 6)

- **COP shall cooperate with appropriate bodies of Basel Convention to establish: [para. 1(e)]**
  - levels of 'destruction' and 'irreversible transformation' [see para. 1(d)]
  - methods that constitute ESM
  - levels of POPs in Annexes A, B and C that are considered "low" [see para. 1(d)]

WASTES: RELATED ISSUES - TRADE

Convention imposes trade restrictions for all POPs in Annexes A and B: [Article 3, para. 2]

- Imports & exports between Parties are limited to shipments:
  - intended for environmentally sound disposal [per Article 6, para. 1(d)], or
  - to Parties with:
    - "specific exemptions" under Annex A or B, or
    - "acceptable purposes" under Annex B

WASTES: RELATED ISSUES - TRADE

- **Exports to non-Parties may take place but there are conditions on both Non-Party and Party**
  - Non-Party shall provide annual certification to exporting Party:
    - expressing commitment to inter alia:
  - protect health and environment by minimizing or preventing releases
  - comply with Convention requirements on stockpiles and wastes [Article 6, para. 1]
  - Exporting Party shall transmit certification to Secretariat within 60 days of its receipt
- **Parties shall provide the following information: [Article 15, para. 2]**
  - data on, or estimates of, total quantities of POPs in Annexes A and B that were produced, imported and exported, and
  - a list of States from which it has imported or to which it has exported POPs in Annexes A and B

  Note: COP will decide on frequency and format of such reports

WASTES: RELATED ISSUES - PCB

- Parties using PCB specific exemption shall: [Annex A Part II]
  - eliminate use of in-place PCB equipment by 2025
  - not export or import PCB equipment, except for ESM of waste
  - not recover liquids with >50 ppm PCB for reuse in other equipment (but may maintain/service same equipment)
  - make determined efforts to achieve ESM of wastes containing >50 ppm PCB ASAP, and by 2028
  - endeavour to identify articles with >50 ppm PCB for ESM
  - report to the COP every 5 years on their progress in eliminating PCB [Article 15]

WASTES: RELATED ISSUES - UNINTENTIONAL POPs

- **Annex C identifies industrial source categories with the potential for formation & release of unintentional POPs:**
  - **Part II: comparatively high potential**
    - waste incinerators
  - municipal/hazardous/medical wastes, and
  - sewage sludge
    - cement kilns firing hazardous wastes
  - **Part III: potential**
    - open burning of wastes (including landfill sites)
    - shredder plants for treatment of end-of-life vehicles
    - smouldering of copper cables
    - waste oil refineries
- **Annex C, Part V (A) identifies general preventive measures to minimize production of POPs (BAT & BEP), including:**
  - use of low-waste technology
  - promote recovery & recycling of materials and wastes
  - improvements in waste management practices

WASTES: RELATED ISSUES - ADDING NEW POPs

- **Annex F requests information** on waste disposal implications in evaluating socio-economic information prior to deciding whether a chemical should be added to Annex A, B or C

STOCKPILES AND WASTES: SUMMARY

- **Considerations for ratification include:**
  - **Stockpiles containing POPs in Annex A or B:**
    - develop and implement strategies for identification
    - manage in ESM until they become wastes
  - **Wastes containing POPs in Annex A, B or C:**
    - develop strategies for identification
    - handle, collect, transport and store in ESM
    - disposal such that POP content is destroyed or irreversibly transformed, or otherwise in an ESM, taking into account international rules, standards, etc.
  - **Wastes containing POPs in Annex A, B or C:**
    - prevent recovery, recycle, reclamation, direct reuse or alternative uses of POPs
    - transport across international boundaries must take into account international rules, standards and guidelines (e.g., Basel Convention)

- **Sites contaminated by POPs in Annex A, B or C:**
  - endeavour to develop strategies for identifying sites
  - if remediation is attempted, do it in an ESM
- **Trade restrictions:**
  - must implement measures in Article 3, para (2) and reporting requirements in Article 15, para. (2)
- **PCB measures:**
  - must implement measures in Annex A Part II
- **Unintentionally produced POPs**
  - address source categories in Annex C, Parts II and III
  - implement BAT and BEP using guidance in Annex C Part V

STOCKHOLM CONVENTION PROVISIONS: MISCELLANEOUS

GENERAL OBLIGATIONS

- Designate a National Focal Point
- Develop, implement and update an implementation plan
- Promote and facilitate a wide range of public information, awareness and education measures for policy makers and all stakeholders
- Encourage and, as resources permit, undertake research, development, monitoring and cooperation on all aspects of POPs and their alternatives
- Report to the COP on:
  - measures taken by Party to implement the Convention
  - effectiveness of the measures taken
  - data concerning trade in intentionally produced POPs

ADDITION OF NEW POPs

- Agreed process will be used to evaluate candidates nominated by Parties.
- Scientific criteria are specified (Annex D):
  - persistence, bio-accumulation, potential for long range transport, and adverse effects.
- Precaution will be incorporated in a number of ways to ensure that all proposed candidates are thoroughly considered on the basis of available data to see if they possess POPs properties.
- POPs Review Committee will be set up at the first COP to advise on proposals submitted by Parties.
- Safeguards will ensure that process is transparent and all Parties get a full hearing on any nominated candidate.

FINANCIAL & TECHNICAL ASSISTANCE

Convention specifications:

- Developing countries and countries with economies in transition will need technical and financial assistance.
- Regional and subregional centres will be established for capacity building and transfer of technology to assist countries in need.
- Developed countries will provide technical assistance and new and additional financial resources to meet agreed full incremental implementation costs.
- Global Environment Facility (GEF) is named as the principle entity of the interim financial mechanism to handle funding of capacity building and other related activities.

IMPLEMENTATION ASPECTS

- Convention will enter into force 17 May 2004
- UNEP provides secretariat
- COP will be established to oversee implementation:
  - must meet within 1 year of entry into force
- thereafter at regular intervals
  - must review effectiveness of Convention, commencing four years after entry into force, and periodically thereafter:
- COP1 will arrange for:
  - comparable monitoring data on presence of POPs and regional/global environmental transport, and
  - reports on monitoring, on regional and global basis
  - COP1 to establish POPs Review Committee

CONVENTION STATUS

- During the signature period (23 May 2001-22 May 2002):
  - 150 countries + EU signed the Convention
- Ratification, acceptance or accession decisions:
  - 51Parties (as of Mrach 8, 2004)
- COP-1 will be held early May 2004 (Uruguay)
  - preparations underway
- Current international action is focused on:
  - NIPs
  - financial and technical assistance for countries in need
- Convention text & information are on UNEP POPs home page: **www.pops.int**

Rotterdam Convention and its linkages to other MEAs

prepared by the Rotterdam Convention Interim Secretariat, presented by Nelson Sabogal, the Secretariat of the Basel Convention

OBJECTIVE OF THE CONVENTION

- To promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm and to contribute to their environmentally sound use.
- How?
  - by facilitating information exchange about chemicals and their characteristics, and
  - by providing for a national decision-making process on their import and export.

BACKGROUND

- 1985 FAO Code of Conduct on the Distribution and Use of Pesticides (Amended 1989 and 2002)
- 1987 UNEP London Guidelines for the Exchange of Information on Chemicals in International Trade (Amended 1989)
- 1989 – 1998 UNEP/FAO Joint Program on the PIC Procedure
- The Negotiation Process
  - UNCED (Rio 1992)
  - Mandate from the governing bodies of UNEP and FAO (1995)
  - Intergovernmental Negotiation (1996 – 1998)
  - Convention and its Final Act Adopted (1998)

WHAT THE CONVENTION ACHIEVES

- Early warning system
- Keeps chemicals-related problems from getting worse
- Empowers developing countries
- Ensures labeling and hazard communication
- Promotes communication and information exchange among countries

SCOPE OF THE CONVENTION

- Applies to:
  - Banned or severely restricted chemicals, and
  - Severely hazardous pesticide formulations.

SCOPE OF THE CONVENTION

- Does not apply to:
  - Narcotic drugs and psychotropic substances
  - Radioactive materials
  - Wastes
  - Chemical weapons
  - Chemicals used as food additives
  - Food
  - Chemicals in small quantities for research and analysis

HOW IT WORKS – KEY ELEMENTS

- PIC Procedure:
  - means to formally obtain and circulate the decisions of importing countries as to whether they wish to receive future shipments of chemicals specifically subject to the Convention and to ensure compliance with these decisions by exporting countries
- Information Exchange
  - provisions for the exchange of information among Parties about a very broad range of potentially hazardous chemicals that may be exported and imported
- Information Exchange provisions include:
  - Informing Parties about national bans or severe restrictions
  - Informing Parties prior to export of a chemical banned or severely restricted in your territory
    - inclusion of a safety data sheet with exported chemicals
    - opportunities for notifying problems caused by a severely hazardous pesticide formulation under conditions of use in their territory; and
    - labelling requirements for chemicals subject to the PIC procedures

COUNTRY RESPONSIBILITIES

- All Countries
  - Nominate a DNA
  - Provide notifications of final regulatory actions to ban or severely restrict a chemical
  - Submit proposals of severely hazardous pesticide formulations (Dev. Countries and EIT)
- Exporting Countries:
  - Communicate import decisions to exporters, industry and other relevant authorities within their country
  - Ensure that exports do not occur contrary to the decisions of importing countries
  - Provide Export Notifications to importing countries
  - Assist importing countries as required
- Importing Countries:
  - Provide import responses (either interim or final), ensuring they apply equally to import from ALL exporters and to any domestic manufacture
  - Acknowledge receipt of Export Notifications
  - Ensure that importers, relevant authorities and, where possible, users are informed of notifications received

KEY PLAYERS

- Designated National Authorities
- Conference of the Parties
- Chemical Review Committee
- Secretariat

DESIGNATED NATIONAL AUTHORITIES (DNAs)

- Focal Point for operation of the PIC procedure
  - Responsible for the administrative functions required by the Convention
- May cover pesticides, or chemicals, or both
- As of 1 September 259 DNAs from 169 states

CONFERENCE OF THE PARTIES (COP)

- Highest Authority of the Convention
- Countries that have become Parties oversee implementation
  - Interim procedure – Intergovernmental Negotiating Committee (INC)
  - Just over 100 countries now participate
- Decides on inclusion of chemicals, establishes subsidiary bodies, defines PIC Regions, etc.

CHEMICAL REVIEW COMMITTEE (CRC)

- Expert Committee
- Review notifications and proposals from Parties
- Make recommendations to COP/INC on chemicals to be added to the Convention
- 29 Members from 7 "PIC Regions"
  - Africa, Asia, Europe, Near East, Latin America, North America, Southwest Pacific
- Interim procedure – interim Chemical Review Committee (iCRC)

SECRETARIAT

- Provided by UNEP and FAO jointly
- Service Parties, eg, convene COP/INC and CRC/iCRC meetings
- Facilitate some aspects of procedures
  - Collect and review notifications
  - Maintain registers, eg, DNA lists
  - Communicate to Parties
- Assist Parties in Convention implementation
- Coordinate with other secretariats
- Other functions as specified in the Convention

SUPPORTING DOCUMENTATION

- PIC Circular
- Notification of Control Action form
- Severely Hazardous Pesticide Formulation Report form
- Decision Guidance Document (DGD)
- Import Response form

INTERIM ARRANGEMENTS

- The resolution on interim arrangements:
  - Brings the voluntary PIC procedure in line with the Convention (interim procedure)
  - Asks the INC to oversee the implementation of the interim procedure and prepare for the Conference of the Parties;
  - All chemicals in Annex III of the convention are subject to the interim procedure, as well as chemicals added by the INC in accordance with the provision of the Convention;

TECHNICAL ASSISTANCE

- Parties shall cooperate in promoting technical assistance for the development of the infrastructure and the capacity necessary to manage chemicals to enable implementation of the Convention;
- Parties with more advanced programs for regulating chemicals should provide technical assistance to other Parties in developing their infrastructure and capacity to manage chemicals.

CURRENT STATUS

- 27 chemicals listed in Convention:
  - 17 pesticides
  - 5 severely hazardous pesticide formulations
  - 5 industrial chemicals
- Six new pesticides, one new hazardous formulations and four new industrial chemicals added to the interim PIC procedure
- CONVENTION ENTERED INTO FORCE
  24 FEBRUARY 2004

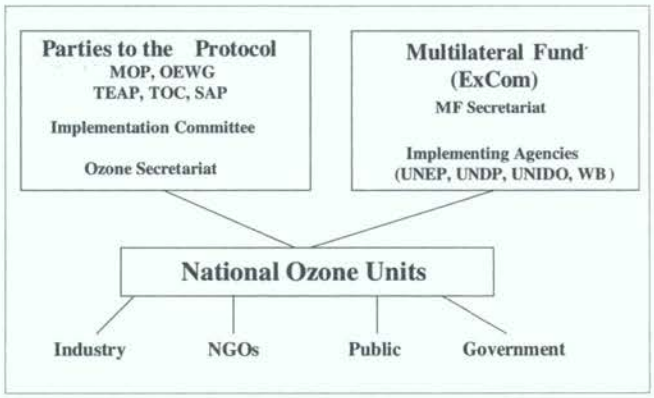
AVAILABILITY OF DOCUMENTATION

Rotterdam Convention Website: WWW.PIC.INT

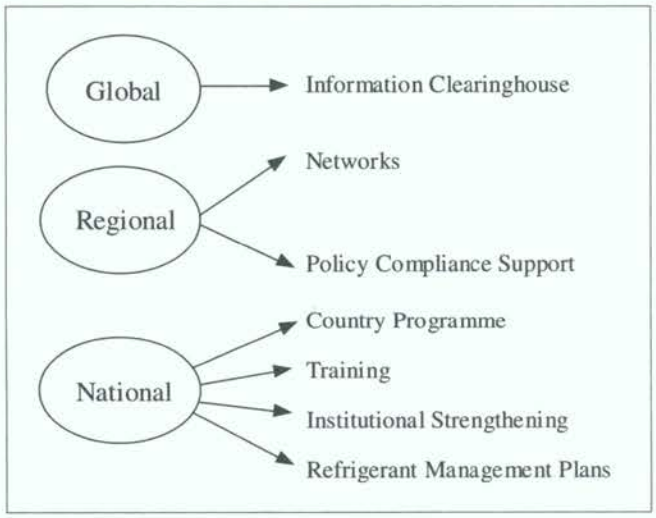
The Montreal Protocol on Substances that Deplete the Ozone Layer

Suresh Raj
Capacity Building Manager, Energy and OzonAction Branch, UNEP DTIE

ORGANISATIONAL STRUCTURE OF THE MONTREAL PROTOCOL



UNEP'S IMPLEMENTING AGENCY ROLE

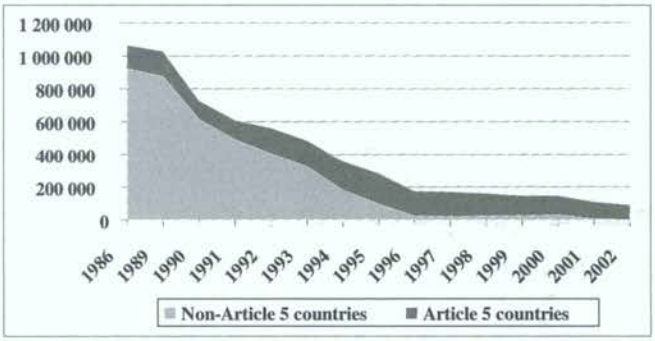


I - MONTREAL PROTOCOL AS A FORERUNNER

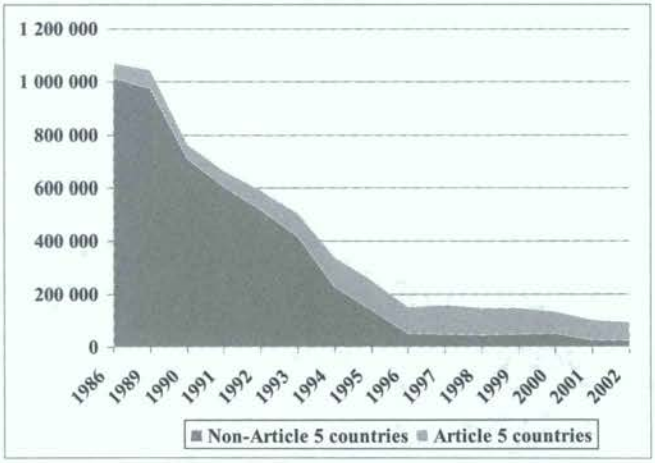
MONTREAL PROTOCOL COMPLIANCE PERIOD FOR A5 COUNTRIES

- MP is regarded a successful MEA
- Success not guaranteed: much work remains to be done in developing countries (known as Article 5 or A5 countries)
- Major milestone in the treaty: compliance phase for A5 countries started in July 1999

A DRAMATIC DECREASE IN CFC CONSUMPTION



... AND CFC PRODUCTION



II - EFFECTIVE COMPLIANCE: UNEP'S COMPLIANCE ASSISTANCE PROGRAMME (CAP)

MEA COMPLIANCE: THE OZONE EXPERIENCE

- With entrance into compliance phase for developing countries, UNEP's OzonAction Programme entered its own "compliance phase"
- The Compliance Assistance Programme (CAP):
  a team of experts on technical and political issues dedicated to countries' compliance

THE CAP TEAM

- Most CAP personnel based in Regional Offices, working closely with countries on an on-going basis

- 85% of CAP professional staff from developing countries
- Team size 45, with 27 P staff
- The biggest Team of its kind - directly implementing a MEA.

HOW CAP ASSISTS A5 PARTIES

- Assist with getting information from countries in a timely fashion
- Education of Parties and NOU training in understanding of the Protocol process
- Increased collaboration with other IAs, the Ozone Secretariat (UNEP) and the MFS (UNEP)

KEY PRINCIPLES OF THE CAP

- The end result - the main variable for success: country's compliance
- Most CAP experts are based in their own regions
- A powerful combination:
  - Regional Director - political support
  - Regional Network Coordinator - coordinates activities of regional teams

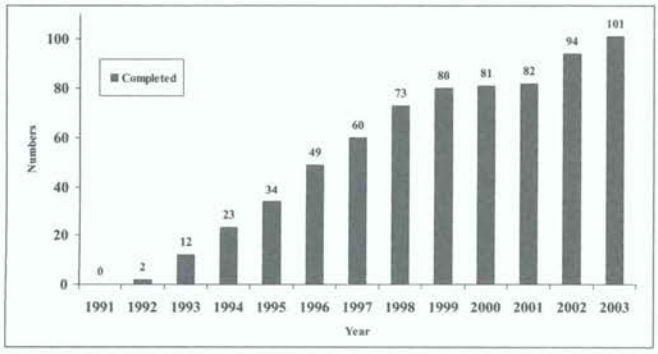
III - INSTITUTIONAL & FUNCTIONAL ASPECTS

COUNTRY PROGRAMME (CP)

- Provides data on consumption and use of ODS.
- Expresses the commitment of the country to phase out ODS as per the Montreal Protocol.
- Supports the development and implementation of a national ODS phase-out strategy.

UNEP has assisted 100 countries develop CPs

COUNTRY PROGRAMMES (UNEP) *(CUMULATIVE)*



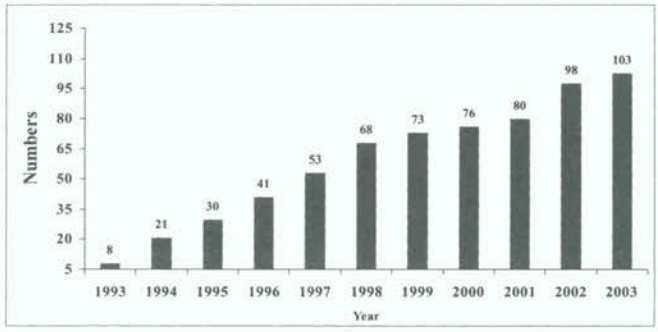
* Including GEF

INSTITUTIONAL STRENGTHENING (IS)

- National Ozone Unit (NOU) established to coordinate in-country activities - data collection, establish licensing system, training, awareness raising.

UNEP has assisted 100 countries with IS projects.

IS PROJECTS (UNEP) *(CUMULATIVE)*

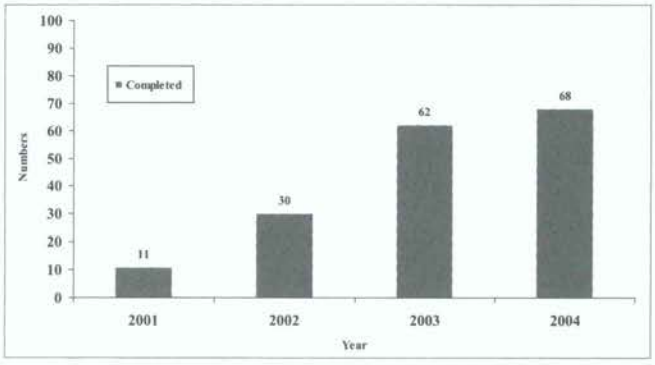


CUSTOMS TRAINING

- Provides customs officers and other stakeholders with the skills necessary to monitor and control imports and exports of ODSs and products (including equipment) containing them.
- Capacity built to detect and minimise illegal trade.

UNEP conducted training in 70 countries; 30 more in the pipeline

CUSTOMS TRAINING *(CUMULATIVE)*

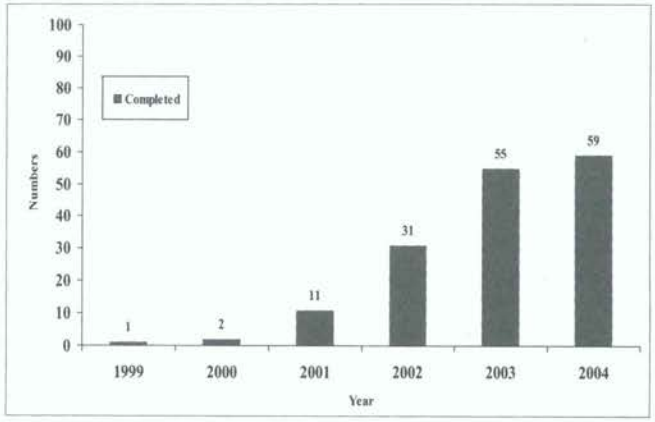


REFRIGERATION TRAINING

- Upgrade the skills of servicing engineers and technicians.
- Good service practices to reduce CFC consumption in the refrigeration and air-conditioning service sector.
- Assist country to comply with the phase out schedule under the Montreal Protocol.

UNEP conducted training in 60 countries; 30 more in the pipeline

REFRIGERATION TRAINING *(CUMULATIVE)*



NETWORKING

- Provides regular forum for officers in NOUs to meet to exchange experiences, develop skills, share knowledge & ideas with counterparts from both developing and developed countries.
- Helps ensure that NOUs have the information, skills and contacts required for managing national ODS phase-out activities.
  UNEP operates 9 Regional Networks involving 143 developing and 20+ developed countries

COUNTRIES IN NETWORKS *(CUMULATIVE)*

III - THE OZONE INFRASTRUCTURE: A RESOURCE TO BE UTILIZED

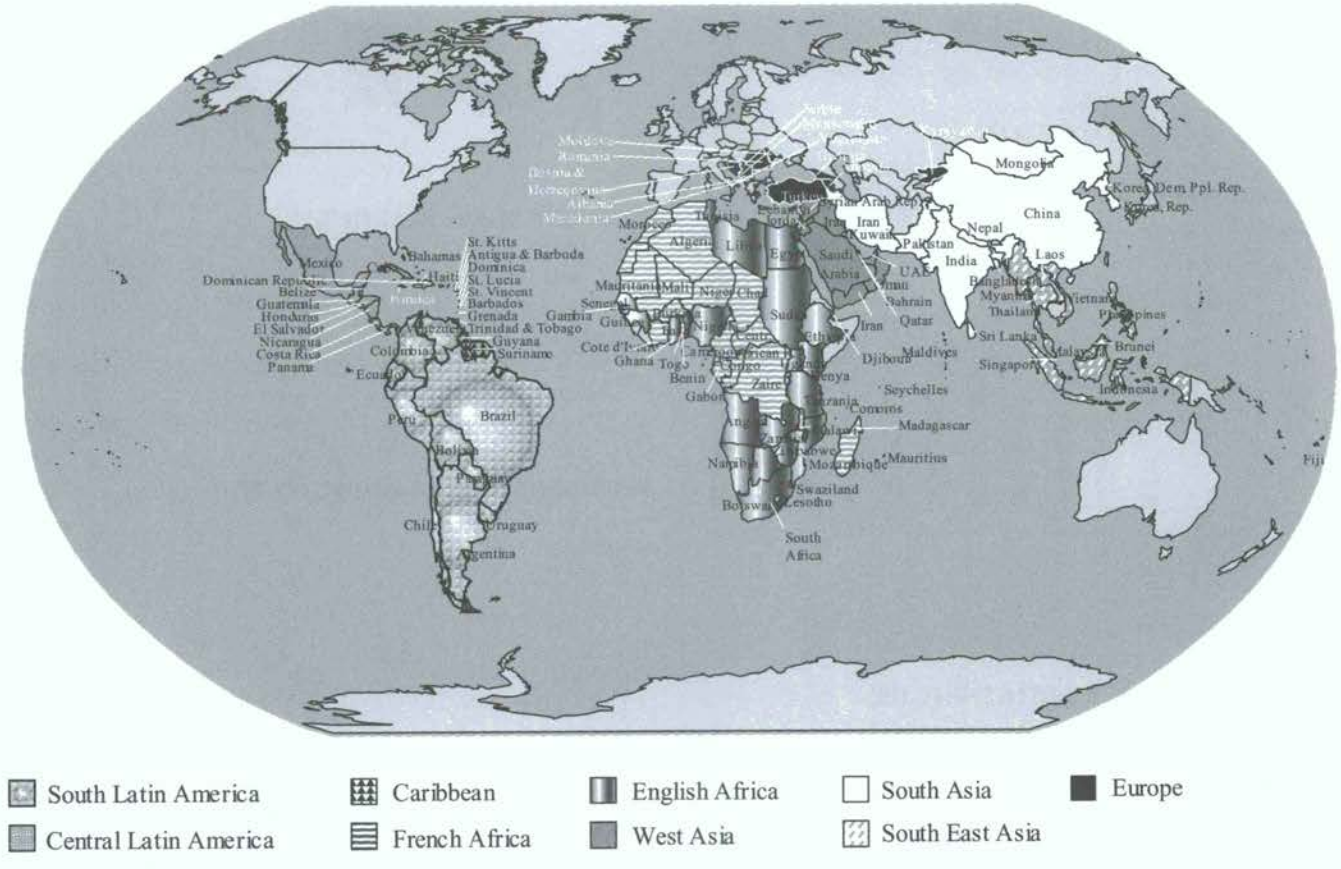
OZONE: AN EXISTING INFRASTRUCTURE

- Institutional:
  - Global: Information Clearinghouse
  - Region: Regional CAP Teams
  - Countries: NOUs - some of them also handle Climate and/ or Chemicals
- Functional:
  - Country Programme
  - Institutional Strengthening
  - Training
  - Networking

OZONE: AN EXISTING EXPERTISE

- Capacity building
- Policy development & enforcement
- Information Clearinghouse
- Sectoral expertise (Refrigeration, Halon, Methyl Bromide,…)
- Illegal trade

REGIONAL CAP



South Latin America
Central Latin America
Caribbean
French Africa
English Africa
West Asia
South Asia
South East Asia
Europe

OZONE: AN MEA IN NEED OF OTHERS EXPERTISE

- Ozone: both atmospheric and chemical issue
- SAP: "Phase-out of the ozone-depleting chemical, methyl bromide, may lead to increased use and numbers of other pesticides which may lead to additional health risks"
- Disposal of waste CFCs
- Ozone uses expertise from other MEAs
  (e.g. Basel Regional Training Centers)

IV - PRACTICAL EXAMPLES AND WAY FORWARD

CHALLENGE 1

- Environmental crime and illegal trade

RESPONSE:

Green Customs Initiative

- Integrated training of customs officers for enforcement of various MEAs.
- Joint initiative of UNEP DTIE, Basel, CITES in partnership with WCO, Interpol, etc.

GREEN CUSTOMS WEBSITE

- Website is partnership of WCO, Interpol, CITES, the Basel Convention, UNEP DTIE's OzonAction Programme, the Ozone Secretariat, UNEP DEC and UNEP DEPI
- Description and background material about Green Customs initiative
- Offers consolidated links to information &training resources for customs officials to combat illegal trade in commodities of environmental concern
- Launched June 2003

www.uneptie.org/ozonaction/customs

CHALLENGE 2

- Support compliance with MEAs through coordinated information exchange and public awareness programmes

RESPONSE: INFORMATION CLEARINGHOUSE

- Since early 1990s: Information Clearinghouse for ozone in UNEP DTIE
- 2002: Communication Strategy for Global compliance
- Similar goals / Similar target groups for ozone and other MEAs
  Integrating MEA Clearinghouses?

CONCLUSIONS

- Montreal Protocol - MEA with universal acceptance and proven track record.
- Other MEAs can benefit from MP implementation experience.
- Parties can influence change - a Decision on better coordination can be introduced at the 16 MOP of the MP in Prague.

The EU and the Chemicals and Hazardous Wastes MEAs

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HEALTH – ENVIRONMENT – DEVELOPMENT

„classical hazards" – poor sanitation conditions (World Health Organization – WHO, 1947)
„modern hazards" – hazardous waste, chemicals (EEC 1967, UNCHE 1972, UNEP 1972)

THE EC AND THE CZECH REPUBLIC AS A PARTIES TO MONTREAL PROTOCOL

- **Montreal Protocol** (16/09/1987) in force 1/1/1989
- EEC from 16/3/1989 (Decision 88/540/EEC of 14/10/1988)
- Czech Republic from 30/12/1990 (resp. 1/1/1993)

- **London Amendment** (29/06/1990) in force 10/08/1992
- EEC from 10/08/1992 (Decision 91/690/EEC of 12/12/1991)
- Czech Republic from 18/03/1997

- **Copenhagen Amendment** (25/11/1992) in force 14/06/1994
- EC from 18/02/1996 (Decision 94/68/EC of 2/12/1994)
- Czech Republic from 18/03/1997

- **Montreal Amendment** (17/09/1997) in force 10/11/1999
- EC from 16/02/2001 (Decision 2000/646/EC of 17/10/2000)
- Czech Republic from 03/02/2000

- **Beijing Amendment**
  (03/12/1999) in force 25/02/2002
- EC from 24/06/2002 (Decision 2002/215/EC of 04/03/2002)
- Czech Republic from 25/02/2002

THE EC AND THE CZECH REPUBLIC AS PARTIES TO THE BASEL CONVENTION

	Adopted	In force	The EC Party from	Relevant Decision	Czech Republic Party from
Basel Convention	22/03/1989	05/05/1992	08/05/1994	93/98/ EEC of 01/02/93	05/05 1992 (01/01/93)
Ban Amendment	22/09/1995			Under preparation	(28/02/00 instrument of approval)
Protocol on Liability and Compensat.	10/12/1999			Under preparation	Under preparation

THE EC AND THE CZECH REPUBLIC AS PARTIES

- **Rotterdam Convention**
- Adopted 10/09/1998
- In force 24/02/2004
- EC Decision 2003/106/EC of 19/12/2002
- Czech Republic from 24/02/2004

- **Stockholm Convention**
- Adopted 22/05/2001
- In force 17/05/2004
- EC Decision under preparation COM(03) 331
- Czech Republic from 17/05/2004

PRIORITIES OF THE EUROPEAN UNION

- 6th Environment Action Programme 2001-2010
- Article 7 (health and quality of life)
  - 1 (b) on chemicals
  - 1 (c) on pesticides
  - 1 (d) on chemicals and pesticides
- Article 8 (sustainable use and management of natural resources and wastes including their hazardousness)
- Towards the Thematic Strategies (Air Quality, Soil Protection, Sustainable Use of Pesticides, Protect and Conserve the Marine Environment, Prevention and Recycling of Waste, Sustainbale Use of Natural Resources)

A EUROPEAN UNION STRATEGY FOR SUSTAINABLE DEVELOPMENT

- address threats to public health

(food safety, sound management of chemicals by 2020, new chemical policy by 2004)

- manage natural resources more responsibly (break links between economic growth, the use of resources and the generation of waste, to develop an Integrated Product Policy)
- WSSD commitments and recommendations (Chapters III, VII of the Implementation Plan)

THE EU AND THE MONTREAL PROTOCOL

- Regulation (EC) No. 2037/2000 of 29 June 2000 on substances that Deplete the Ozone Layer (stricter)
- Compliance with the phasing out of controlled substances as non Article 5 (1) countries
- Essential use Exemptions (e.g. CFCs after 1/1/1996, MDIs,halons after 1/1/1994, CTC after 1/1/1996, MB after 1/1/2005)
- Freeze of HCFCs production on 1/1/2004 (EC freeze on 1/1/2000, phase-out of production on 31/12/2025),
- Phasing-out of consumption of HCFCs on 1/1/2030 (EC voluntary phasing out on 31/12/2009)

THE EU AND THE BASEL CONVENTION

- Proposal for amending a Regulation (EEC) 259/93 on shipments of waste within, into and out of the EC from notification of a shipment through to final disposal/recovery of the waste (prior notification and written consent, notification processed through country of dispatch)
- Shipment be in accordance with national waste management plans,IPPC Directive and BAT
- Final adoption expected in 2005
- Hazardous Waste Directive 91/689/EEC (e.g. mixing ban)

THE EU AND THE ROTTERDAM CONVENTION

- Regulation 2455/92/EEC on Export and Import of Dangerous Chemicals (replacing Regulation EEC/1743/88 and reflecting London Guidelines of 1987 and of 1989 – PIC procedure)
- Replaced by the Regulation 304/03/EC (implementation of the Rotterdam Convention – PIC, export control, labelling)

THE EU AND THE STOCKHOLM CONVENTION

- **Proposal for a Regulation on POPs** and amending Directives 79/771/EC with provision on POPs and on 8 POP pesticides and 96/59 EC on PCB/PCT(ban for the production, use and sale of 12 pollutants, HCH, including lindane allowed to treat timber…till 1/9/06, classification of stockpiles containing POPs as waste for disposal, record releases and national plans to reduce releases), final adoption before June 2004
- **Proposal for a Council Decision concerning the conclusion on behalf of the EC, of the Stockholm Convention on POPs** (before final adoption)
- **Proposal for a Regulation concerning the Registration, Evaluation, Authorisation and Restrictions on Chemicals** (REACH), establishing a European Chemical Agency and amending Directive 1999/45/EC and Regulation (EC) (on POPs) – final adoption 2006

THE EU AND RELEVANT MEAS

- Proper implementation and compliance (effective control mechanisms)
- Promote innovative approaches in order to accelerate the implementation of targets
- Sustainability and integration
- Synergy and linkages
- Equal and transparent involvement of all Parties (national stakeholders)
- Simplifying and efficacy of data collection and of reporting
- Environmental, health, economic and social feasibilities (alternatives, CBA)
- Destruction technologies and sound management
- Stockpiles management and destructions
- International trade related issues (including prevention of illegal trade)
- Capacity building, know-how transfer, sharing information
- Financial mechanisms (including of multilateral and bilateral ODA)

Part II

Joint implementation of the Basel, Rotterdam and Stockholm Convention in participating countries focusing on: Status quo, participating/implementing national authorities and their cooperation, practical experience with the implementation of the MEAs, interference with EU legislation (meeting EU legislation obligations while implementing UN Conventions)

Implementation status in Austria

Implementation of the Basel Convention in Austria Reg. 259/1993 on the Shipment of Wastes

SITUATION IN AUSTRIA, HISTORICAL BACKGROUND

The notification procedure according Article 4 of the Basel Convention was implemented in the Federal Waste Management Act 1991 and became effective by January 1st 1991.

Echoing the wording of the BC the Competent Authority was asked to asses the environmen-tally sound management, including the disposal of residues, in each single case of notifica-tion. Based on the guidance document on preparation of technical guidelines Austrian Stan-dards were used for this assessment.

In 1995 Austria joined the European Union and in 1997 the EU shipment Regulation became effective to Austria.

ACTUAL SITUATION

The shipment regulation is not only the implementation of the BC but also of the OECD Deci-sions C92(39) on the shipment of wastes (three tired listing system) and therefore covers also non hazardous wastes.

Although the EU implementation is based on a direct applicable regulation there is some room for a national implementation.

The general principle of the shipment regulation is that the notifier should notify the shipment to all involved Competent Authorities while the CAs have to answer within a specific time-frame. Nevertheless the Members State may provide for a transmission of the notification by the CA of the exporting state. This approach was chosen in Austria.

Following the internal regulative procedure the notification is transmitted to the State of Im-port and the Transit States only if the national CA has no objections to the export.

This system allows in the case of export to non EU Member states that the national CA can still make an assessment of the disposal facility based on national standards. In the case of an export to another EU MS such an assessment would be based on EU standards.

The shipment regulation is very flexible concerning the designation of one ore more Compe-tent Authorities. While other MS designated a multitude of Competent Authorities located on a local level Austria implemented only one CA on the federal level.

This is not very common in Austria since Austria is a Federal State and the authorities are located on a local level in most cases. Nevertheless for the enforcement of he regulation the centralised system seems to be appropriate at least for a small country like Austria.

The notification procedures in accordance with the shipment regulation are only a small part of the "compliance system" in waste management.

The system is based on a licensing system for waste collectors and waste disposers. These licenses are granted on the local level but a database is kept on a national level.

Further more in the case of hazardous wastes the producer has the obligation to register too. All shipments of hazardous wastes, even within one company, have to be accompanied by a tracking form. If the waste is handed over to another legal person a copy of the tracking form has to be sent to the CA and is registered in a database.

These data are basis of the federal waste management plan and an instrument for inspec-tions too. Beside regular inspections of waste producing and/or disposing facilities there are inspections based on information derived from the hazardous waste database. Eg. if the in-put and the output of a disposal facility do not match over a longer period an inspection might be necessary. Another valuable information is the amount of waste produced per employee. If the figure differs widely from the average the company might perform exceptionally envi-ronmentally sound or dispose off some wastes illegally.

In order to strength this approach it is intended to have specific register numbers for each production unit of a plant.

Competent for the on site inspections are the local are the local authorities in the nine federal provinces. In cases were illegal waste shipments or illegal treatment of hazardous waste might be involved the Federal Ministry has the competence perform inspections on its own.

Additionally to these two tires the custom authorities and the criminal police have established task forces to combat illegal disposal and illegal waste shipments.

Since the accession to the EU the custom authorities are organised partly in mobile inspec-tion groups to perform controls no longer at the border but all over the country. These mobile groups perform on the road controls searching for smuggled commodities, drugs, etc. Additionally inspections of road safety and compliance with the regulation on the shipment of wastes and on the transport of dangerous goods are performed.

The criminal police have established regional task forces of specially trained officers to com-bat environmentally crimes. These task forces are competent to prosecute all kinds of crimes endangering the environment including illegal waste shipments and illegal waste disposal.

The Federal Ministry of Environment performs training courses with these two bodies on a regular basis. These courses include information on legal provisions as well technical training and information (sampling of wastes; how doe's a specific waste look like, etc.).

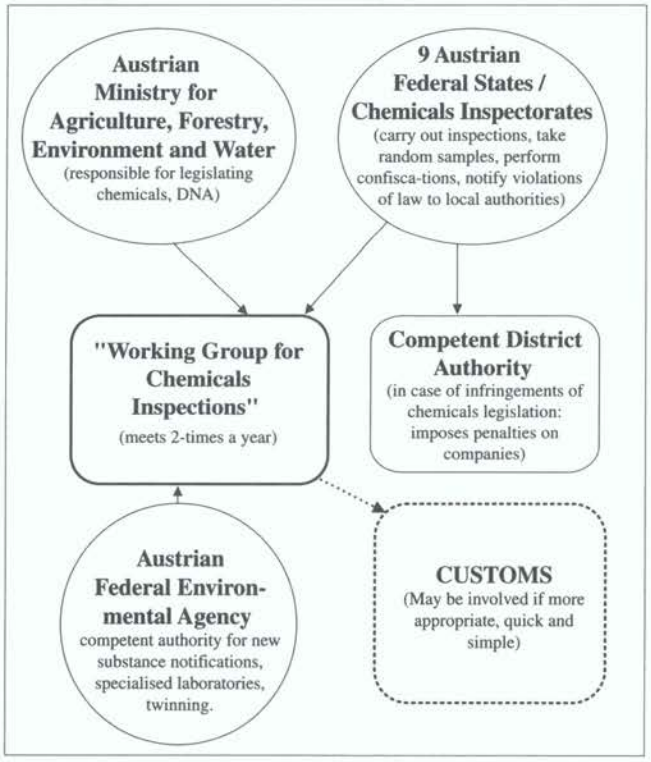
Implementation of the Rotterdam Convention in Austria Reg. 304/2003 on the Export and Import of Dangerous Substances

OVERVIEW OF ENFORCEMENT MEASURES BASED ON THE AUSTRIAN CHEMICALS ACT 96

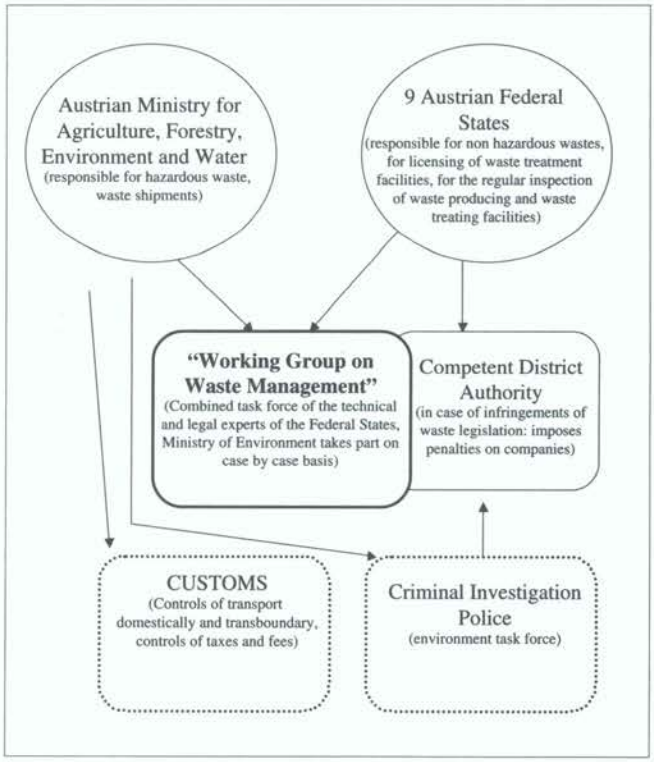
Guiding principle: The head of the provincial government serves as the organ of the Federation for the monitoring of compliance with the Federal Act, its Ordinances and the relevant EC-legislation.

- The task of monitoring shall be entrusted to technically qualified persons.
- These monitoring bodies are authorized to look into substances, preparations or articles when produced, placed on the market or used.
- Unless there is immanent danger the inspection has to be carried out during business hours in the presence of an employee with knowledge of the subject.
- If the chemicals are DUTIABLE under Customs legislation the inspection may only be carried out at a Customs office or during a customs check.
  In the interest of simplicity, promptness and expediency the Federal Minister may assign specially trained bodies of the Customs authorities to undertake the monitoring tasks.
- The monitoring bodies may monitor the manufacturing process, the working equipment and take the required number of samples.

THE ADMINISTRATIVE STRUCTURE IN AUSTRIA



WASTE MANAGEMENT



- The monitoring bodies may inspect the records.
- The representatives of the company shall provide the necessary support & supply all information necessary for the monitoring.
- The representatives of the company can be forced to bear the monitoring activities.
- In case of a reasonable suspicion that the Federal Act is not observed and further measures are necessary the Federal Minister has to be informed in writing.
- The Heads of the provincial governments have to report to the Federal Minister on monitoring activities with an annual report.
- The monitoring bodies can temporarily confiscate substances, preparations and articles in case of the reasonable suspicion that chemicals are imported or exported in violation of (new text!) EC Regulation 304/03.
- Who infringes the (new text!) regulation (EC) 304/03 on export and import of dangerous chemicals will be fined up to 14.530 EURO, in the event of recurrence up to 29. 070 EURO.

Rotterdam Convention – Implementation in Austria

OBJECTIVES

- Protection of human health and environment by exchange of information on dangerous chemicals
- Early warning system on dangerous chemicals
- Building of administrative structures
- Cooperation of DNAs

INTERNATIONAL PIC-PROCEDURE

- 1989 voluntary PIC-procedure based on London Guidelines and Code of Conduct executed by UNEP and FAO
- Negotiations for a legally binding instrument
- 1998 signing of the final multilateral environmental agreement and decision on interim procedure
- 2002 ratification by Austria (World summit Johannesburg)
- 2003 entry into force of the Rotterdam Convention

PIC-PROCEDURE IN THE EU

- 1992 Regulation 2455/92/EEC on Export and Import of Dangerous Chemicals – Implementation of London Guidelines and measures beyond their scope
- Regulation 304/03/EC: replaces 2455/92 – implementation of the Rotterdam Convention, contains also measures beyond its scope and covers export bans of the Stockholm Convention (Annex V)

PIC-PROCEDURE IN AUSTRIA

- Chemicals Act 1996: Minister of Environment is DNA; additional export bans
- Amendment of Chemicals Act 2004: customs authorities will also control exports; chemical inspectorates will be given more investigative powers

REGULATION 304/03/EC

SCOPE

- Chemicals subject to the PIC procedure;
- Chemicals that are banned or severely restricted within the Community
- All chemicals when exported so far as packaging and labelling is concerned
- KEY TERMS used in the Regulation include: chemical; preparation; article; pesticides and industrial chemicals

DEFINITIONS: broadly in line with those used in the Convention, but with some important differences, namely

- The introduction of chemical use subcategories means that more chemicals will be subject to export notification than would otherwise be the case.
- The Regulation's obligations extend to exports to all countries irrespective of whether or not they eventually become Parties to the Convention.

REGULATION

EXPORT BANS:
Article 14: EXPORT CONTROLS ON CERTAIN CHEMICALS AND ARTICLES

- articles
- POPs
- national bans

CONTROL

- The Member States must designate one or more national authorities (DNA) to carry out the administrative functions under the Regulation.
- The Member States have to designate authorities such as customs offices to control imports and exports of chemicals listed in Annex I.
- Chemical Inspectorates Network

LABELLING & SDS

- Exporters of all dangerous chemicals, as defined by Community legislation, must package and label their products in the same way as if they were to be marketed in the European Union unless the importing country has its own specific requirements, taking into account also relevant international standards.
- A safety data sheet must be sent to each importer with the chemical.
- As far as possible, the information on the label and safety data sheet should be in the principal language(s) of the country of destination.

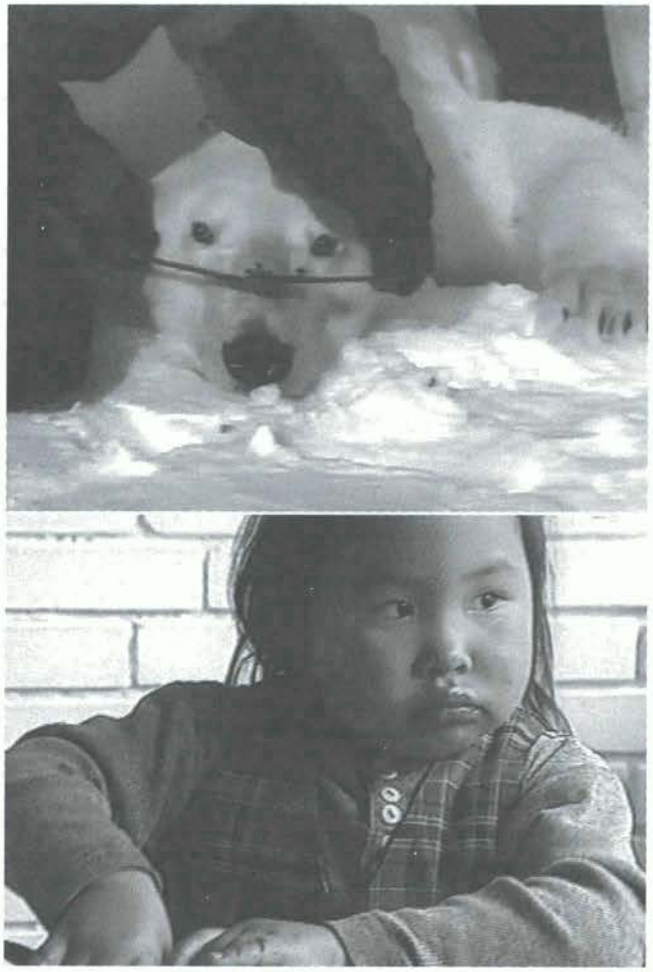
FUNCTIONING OF THE REG.

- The Member States must ensure correct implementation of the Regulation and have a system of penalties for non-compliance that are effective, proportional and dissuasive.
- The Member States must regularly send information on the operation of the various procedures to the Commission, which must regularly report to the European Parliament and to the Council on the overall functioning of the Regulation.

Stockholm Convention – Implementation in Austria

TRANSPORT OF POPS

ALMOST THE END OF THE FOOD CHAIN...



Photos von www.amap.no

PROJECT MONARPOP

Photo von fotocommunity.at

- Recent studies by the Environmental Agency Austria show higher concentrations of POPS in alpine regions
- Concentrations tend to increase in relation to altitude
- MONARPOP: international project of countries of the alpine region, funded partly by the EU (Austria, Germany, Italy, Slovenia, Switzerland)

BASICS

- Ratification August 2002 of the Stockholm Convention and the UNECE Protocol on POPs (LRTAP)
- EU-Regulation on POPs implements these MEAs
- National enforcement actions
- Coordination with other relevant instruments

EXISTING MEASURES IN AUSTRIA

- Production and use of pesticide POPs prohibited by Ordinance 97/1992 on certain active ingredients of plant protection products
- Final destruction of POPs content according to Wastes Act
- Limit values for dioxins in emissions of waste incinerators
- Ordinance according to Chemicals Law on PCB – ban, obligation to replace transformer fillings
- Monitoring programmes: Dioxins in ambient air of major cities, POPs in alpine regions, different studies by provinces

MAIN OBLIGATIONS (I)

MEAs:

- Bans and restrictions on intentionally produced chemicals
- Stockpiles have to be identified and managed in a safe way

POPs regulation:

- Bans and restrictions are transposed in a stricter way than foreseen by the MEAs (e.g. total ban of Lindane) – Art. 3 and Annex I, II, export bans in Annex V of Reg. 304/03

- Stockpiles shall be managed as waste – Art. 5

MAIN OBLIGATIONS (II)

- Measures to reduce releases from unintentional production
  - Release inventories (2 years after entry into force)
  - MS action plans on measures for reduction of the total releases
  - Use of alternative processes in new facilities – Art.6

MAIN OBLIGATIONS (III)

- Waste Management: POPs content has to be destroyed unless that is not the environmentally preferable option
- Art. 7 - POPs content has to be destroyed; cases where this is not the environ-mentally preferable options are defined in Annex V

MAIN OBLIGATIONS (IV)

Implementation plans:

- Each party has to develop an implementation plan till 17 May 2006

Implementation plans:

- MS have to communicate NIPs to the Commission and other MS – Art. 8
- Commission shall draw up a plan for the implementation of Community obligations

MAIN OBLIGATIONS (V)

Research, Monitoring:

- Strengthen and support further research on POPs

Effectiveness evaluation:

- Provide comparable monitoring data, till 17 May 2008

Monitoring:

- Commission and MS have to establish Programmes for regular provision of comparable monitoring data – Art. 9
- Also part of reporting – Art. 12

MAIN OBLIGATIONS (VI)

Reporting:

- Statistical data on production, import, export
- Measures to implement the provisions
- Periodic intervals still to be defined

Reporting Art. 12:

- MS forward every 3 years information on measures, stockpiles, release inventories, presence of PCDD/F to Commission
- Statistical data on production every year
- Commission will compile a report based on EPER and CORINAIR and MS info every 3 years

ADDITIONAL OBLIGATIONS OF THE POPS REGULATION

- Total ban on HCH and Lindane after 31. 12. 2007
- No exemptions for PCBs and pesticidal use of DDT
- Waste management: if destruction is environmentally not preferable, alternative operations can be used – Annex V, Part 2 defines types of wastes and options, limit concentrations will be defined by expert group
- MS have to designate competent authorities – Art. 15

NATIONAL IMPLEMENTATION PLAN

- 2003: current status in Austria was analysed (bans on all intentionally produced chemicals, limit values for industrial procedures, first steps to develop monitoring programmes, ...)
- 2004: NIP will be developed in collaboration with stakeholders

Implementation status in the Czech Republic

Basel Convention Implementation in the Czech Republic

Vladimír Říha, Ministry of the Environment of the Czech Republic

KEY OBJECTIVES

- To reduce transboundary movements of hazardous wastes to a minimum consistent with their environmentally sound management;
- To dispose of hazardous wastes as close as possible to their source of generation;
- To minimize the generation of hazardous wastes in terms of quantity and hazardousness.

RATIFICATION

Ratified in 1991 by Czechoslovakia, for the Czech Republic in force from 1 January 1993.

Amendment to the Basel Convention („Ban Amendment") ratified in 1999.

DESIGNATED NATIONAL AUTHORITIES

Competent authority (for all shipments, incl. transit), focal point, correspondent (Art. 37 of the Shipment Regulation): Ministry of the Environment

Acceptable languages: Czech, Slovak, English

EXEMPTION FROM THE BASEL CONVENTION

The provisions of the Basel Convention do not affect transboundary movements which take place pursuant to the OECD Council Decision C(92)39/FINAL concerning the control of transfrontier movements of wastes destined for recovery operations.

AT PRESENT:

Act on Waste No 185/2001 Coll.
Import prohibitions:
Waste for disposal
Waste for energy recovery
Unilateral control of waste for recovery:
GB030 Aluminium skimmings
GC040 Motor vehicle wrecks, drained of liquids
GK020 Used pneumatic tyres

AFTER ACCESSION:

Shipment Regulation will be directly applicable in the Czech Republic. No transitional measures have been taken.

Proposal of the amendment to the Act on Waste has been submitted to Parliament.

Shipments of waste for disposal will be prohibited (Shipment Regulation, Art. 4(3)a(i)).

SHIPMENT REGULATION

Council Regulation (EEC) No 259/93 on the supervision and control of shipments of waste within, into and out of the European Community

Amended by:
Council Regulation (EC) 120/97
Commisssion Decision 1999/816/EC
Commission Regulation (EC) No 2557/2001

ADDITIONAL EU LEGISLATION

- Commission Regulation (EC) No 1547/1999 determining the control procedures under Council Regulation (EEC) No 259/93 to apply to shipments of certain types of waste to certain countries to which OECD Decision C(92)39 final does not apply
- Council Regulation (EC) No 1420/1999 establishing common rules and procedures to apply to shipments to certain non-OECD countries of certain types of waste
- Commission Decision concerning the standard consignment note referred to in Council Regulation (EEC) No 259/93 on the supervision and control of shipments of waste within, into and out of the European Community 94/774/EC

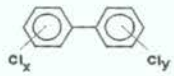
EXPORT OF PCB WASTES 1999 – 2003

Year	Amount (tonnes)
1999	281.84
2000	230.96
2001	96.74
2002	87.27
2003	--

PCB Waste Management in the Czech Republic

Jaromír Manhart, Department of Waste Management, manhart@env.cz
Ministry of the Environment of the Czech Republic, www.env.cz

- **High industrial use in the 1930s and 1940s**
- **Man-made chemicals - 209 congeners**
- **Industrial products, by-products at industrial processes**
- **Widely applied in industry:**
  - **Close systems**
  - **Open systems**
- **Close:** coolants and lubricants in transformers, dielectric fluids in capacitors, hydraulic fluids and heat-transfer media.
- **Open:** plastificators, additives into carbonless copy paper, lubricants, inks, impregnating and paint agents, glue, wax, cement and plaster additives, lubrication of cast blocks, materials for dust separators, sealing liquids, flame retardants, immersion oils and pesticides.



SOURCES AND PRODUCTION

- In former Czechoslovakia in 1959-1984 were produced Delor in Chemko Strazske - Slovakia
- 21,500 tonnes PCB and 1,600 tonnes of waste

In the world:

- Monsanto USA/UK
- Bayer Germany
- Prodelec France
- Kanagafuchi Japan
- Cros Spain, etc.

Trading names of PCB products:

Alc, Apirolio, Bakola, Cloresil, Delofet O-2, Delorit, Duconal, Delotherm, Euracel, Fenclor, Hyvol, Inerteen, Montar, Santovac, etc.

WHY WERE PCBs USED?

- low vapour pressure
- high boiling point (278-415 °C)
- low solubility in water (20 °C, 15 ppb)
- good solubility in many organic solvents and in lubricants
- good thermal conduction
- high dielectric constant
- high-temperature resistance
- inert
- insulting
- lipophilic
- colorless-light yellow-dark brown

CAPACITORS PCB-FREE PRODUCER – ZEZ ZAMBERK CR

- CLAKN 1-0,4/8 m(cap.) = 11.5 kg m (fluid) = 3.3 kg/3.3 l
- CLAQN 1-0,4/8 m(cap.) = 11.5 kg m (fluid) = 3.3 kg/3 l
- CNAKP 1-0,4/12,5 m(cap.) = 1.8 kg m (fluid) = 0.3 kg/0.3 l
- CNAKP 3-0,4/10 m(cap.) = 1.6 kg m (fluid) = 0.6 kg/3.7 l
- CLAKK 1-0,4/10 m(cap.) = 13 kg m (fluid) = 3.4 kg/3.7 l
- CLAJV 1-0,4/12,5 m(cap.) = 3.2 kg m (fluid) = 0.7 kg/0.8 l
- CPAJK 2-6,3/100 m(cap.) = 46 kg m (fluid) = 12 kg/12 l
- CPAKS 2-6,3/100 m(cap.) = 36 kg m (fluid) = 6 kg/6 l
- CPAKS 2-6,3/200 m(cap.) = 49 kg m (fluid) = 10 kg/10 l
- COAKN 1-0,44/17 m (fluid) = 4.6 kg/5 l
- etc.
- Capacitors free of PCB

CAPACITORS PCB-FREE PRODUCER – ZEZ ZAMBERK CR

- CLAKN 1-0,4/8 m(cap.) = 11.5 kg m (fluid) = 3.3 kg/3.3 l
- CLAQN 1-0,4/8 m(cap.) = 11.5 kg m(fluid) = 3.3 kg/3 l
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- etc.
- Capacitors free of PCB

ENVIRONMENTAL FATE

- evaporate very slowly and soluble in water,
- found in soils, surface waters, sediments, air throughout the world,
- resistance to degradation,
- persistent long after their use
- accumulation in the environment,
- eco-toxic,
- enter to human body - inhalation, direct contact, through the skin, food chain,
- transmission in breast milk and across the placenta
- concentration is low in tropical area and higher in temperate or Polar Regions

GOALS

- The CR candidates to EU
- Council Directive 96/59/EC on PCB?(one of POPs)
- Inventory of PCB and basic results of PCB
- Implementing of decontamination of waste and equipment containing PCB
- Concentration limit 50 ppm or lower???
- Decontaminate/Dispose by the end of 2010

STRATEGY TO ACHIEVE THE GOALS

- inventory of PCB
- collection of PCB
- safe and environmentally suitable disposal
- monitoring of activities by ČIŽP

Necessity: cooperation State authorities and Private sector

LEGISLATION COVERING PCB

Act No. 185/2001 Coll., on waste sets up:
- definition of PCB and concentration limit 50 mg/kg
- term of equipment containing PCB
- equipment containing PCB and subject to record-keeping

Decree No.384/2001 Coll., on managing PCBs
- technical requirements, including measures
- methods of determining the total PCB concentration
- details of the method proving non-existence of PCB
- the labelling method for the PCB-containing and decontaminated equipment

Government Regulation No. 1972003 Coll., on the Waste Management Plan of the Czech Republic (for 10 years)
- 3.3.1. Wastes containing PCBs1) and installations containing such wastes

3.3.1. Wastes containing PCBs[1)] and installations containing such wastes

a) provide for completion and evaluation of inventories of equipments containing PCBs in amounts greater than 5 dm^3 and establish conditions for decontamination of PCB equipments with contents greater than 50 mg/kg PCB;
b) prepare plans for decontamination or disposal of the PCB equipments in the National inventory;
c) prepare a methodology for the collection and subsequent disposal of PCBs equipments not subject to the National inventory;
d) prepare a proposal for issuing passports for sites in the Czech Republic contaminated with PCBs.

INVENTORY OF PCB

- Lists of Facilities (Checklists for inventory)
- Inventory lists No. 0 - No. 3 in decree on PCBs
- Created by Centre for Waste Management (CeHO) in Prague

Subsystem:
- list of laboratories
- list of samplers
- system of distribution of unified samples
- list of persons and subjects authorized in PCB waste management (assembly, concentration, collection, purchasing, sorting, transport, storage)

RESULTS OF INVENTORY

- amount of equipment (transformers, capacitors),
- concentration PCB (the sum of 6 congeners, namely PCB 28, 52, 101, 138, 153, 180 expressed in [mg/kg] and rounded to 0,5 mg/kg),
- number of holders (owners) and other information separated according to 13 regions of the CR and Prague

The Czech National Inventory of PCBs in the period 1.1.2002 – 31.1.2004

Number of the owners (holders) or the operators of PCB-containing wastes or equipments	222

The Inventory of PCBs in the Czech Republic in the period of 1.1.2002 – 31.1.2004						
	Equipment/waste containing PCBs			Equipment/waste that may contains PCBs (it is/it will be analysed)?????		
	Pieces	Amount of operational liquid [kg]	Amount of operational liquid [t]	Pieces	Amount of operational liquid [kg]	Amount of operational liquid [t]
Total amount	20375	470924,27	470,92427	8874	3558291,98	3558,29198

The Inventory of PCBs in the Czech Republic in the period of 1.1.2002 – 31.1.2004							
	Equipment/waste containing PCBs			Equipment/waste that may contains PCBs (it is/it will be analysed)			
Electric equipment/waste	Code No.	Pieces	Amount of operational liquid [kg]	Amount of operational liquid [t]	Pieces	Amount of operational liquid [kg]	Amount of operational liquid [t]
Power transformer	10	122	272208	272,208	1555	2378158	2378,158
Choke	11	4	10541	10,541	54	65410	65,41
Reactor	12			0	2	29920	29,92
Electro-filter transformer (separator)	13			0	63	44289	44,289
Tap-changing switch (in transformer)	15			0	2	2000	2
Voltage transformer instrumental (VTI)	16			0	22	3221	3,221
Current transformer instrumental (CTI)	17			0	16	2588	2,588
Condenser/Capacitor	20	10549	138381,6	138,3816	2715	29543,5	29,5435
Condenser/Capacitor (less than 5 l)	20	9698	42793,67	42,79367	13	65	0,065
Switch/Circuit breaker	25			0	1511	61646,88	61,64688
Other electric equipment with liquid dielectric	30			0	1608	617781,1	617,7811
Hydraulic mining machinery	40			0	1057	244107,5	244,1075
Industrial machinery with heat-bearing liquid (jacketed kettle, tarmacadam plant etc.)	60	2	7000	7	3	1070	1,07
Other equipment	70			0	249	76199	76,199
Tank with operational liquid containing PCB	81			0	3	2093	2,093
Barrel of operational liquid containing PCB	83			0	1	200	0,2
Total amount		20375	470924,27	470,92427	8874	3558291,98	3558,29198

WORKING GROUP FOR PCB

- Problems
- "Big holders (owners)"
- Members of WG PCB
- Individual cooperation with MoE
- Filling and Sending of Checklists of Facilities (Form - Paper, E-mail)
- pcb@env.cz

IMPLEMENTATION PROGRAM FOR PREPARING PLANS FOR DECONTAMINATION/DISPOSAL OF EQUIPMENTS CONTAINING PCBS IN THE CZECH NATIONAL INVENTORY

- Finalized late in March
- Technical conditions of decontamination of transformers
- Technical conditions of concentration and collection of PCB waste
- List of companies authorized to concentrate, collect, purchase, sort, transport or storage PCB waste (aprox. 70)
- Techniques and technologies for decontamination/disposal of PCB
- Pilot project of decontamination of transformers
- Health aspects

DISPOSAL CAPACITY FOR HAZARDOUS WASTE IN THE CZECH REPUBLIC

- There are 36 landfill sites currently in operation for hazardous waste
- 4 cement factories with rotary kilns
- 53 hazardous waste incineration plants (incinerated of 61,000 tonnes of HW)

WASTE PRODUCTION IN 2002

Hazardous Waste	**1.29 mil. tonnes**
Non-hazardous Waste	32.60 mil. tonnes
Total	38.64 mil. tonnes
Share of municipal waste (non-hazard)	**4.75 mil. tonnes**

DISPOSAL POSSIBILITY OF PCB IN THE CR

- 1 hazardous waste incineration plant
- Capacity 10,000 tonnes/year
- Concentration limit of chlorine 12 kg/hour = 150 tonnes pure PCB or 1560 tonnes of capacitors/year
- Oil, capacitors (up to 50 kg), soil, sludge, construciton waste containing PCB
- The lowest price 1,5 EUR per kg

NEW FACILITY IN THE CR ???????

EXPORT OF PCB WASTE IN TONNES

YEAR	1998	1999	2000	2001	2002
Code of waste	Amount of waste / tonnes				
13 03 01	8.29	53.44	18.6	–	–
16 02 01	118.2	228.4	212.364	96.74	87.27

EXISTING DECONTAMINATION FACILITIES IN THE WORLD

Decontamination methods

- Orion b.v. – Netherlands
- ABB AG – Germany
- Tredi – France
- Tokyo Power Company Ltd.

PRICES AND INVESTMENT

- Price for incineration in the CR 1,5 EUR per kg (incl. transport)
- Price for export to EU countries from the CR 2,5 – 3,5 EUR per kg (incl. transport)
- Decontamination of transformers in energy company 1,5 EUR per kg (changing of oil, including analysis after 6 month)
- Poor financial situation of a number of large industrial and agricultural enterprises

FEES FOR LANDFILLING

Rate of the basic fee for landfill waste disposal (EUR/ton)				
Waste category	2002 to 2004	2005 to 2006	2007 to 2008	2009 and beyond
Hazardous	33	36	42	52
MSW + other	6	9	12	15

Rate of the risk-related fee for the disposal of hazardous waste (CZK/t)				
Waste category	2002 to 2004	2005 to 2006	2007 to 2008	2009 and beyond
Hazardous	61	76	100	137

FEES FOR INCINERATION

Incineration of HW 120 – 350 EUR/ton

Implementation of the Rotterdam Convention

Darina Liptáková, PhD. Dep. of Environmental Risks at Ministry of Environment of the Czech Republic

- The Czech Republic ratified the Rotterdam Convention in 1999 and accepted condition of the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.
- Legal conditions have supported process of international trade cooperation of the export-import for improving conditions of banned or restricted chemical substances and formulations in the Czech Republic too.

PROCEDURE FOR NOTIFICATION OF BANNED OR SEVERELY RESTRICTED CHEMICALS

- Key provision of the Convention was given by the Article 2 which has identified banned chemicals and severely restricted chemicals.
- The procedures for notification of banned and severely restricted chemicals have been given by the Article 5.
- Notification according to Article 5 has included :
  1. Properties, Identification and Using of Chemicals;
  2. Final Regulatory Action by Annex 1.

THE NOTIFICATION PROCESS IN PRACTICE

- The Czech Republic notified by the PIC procedure a number of dangerous chemical substances in the country.
- The Czech Republic conditions are laid down in Act No.157/ 1998 Code and Decree No. 301/1998 Code, on the list of chemical substances and chemical preparations, production, marketing and using of which is restricted as last amended.
- The chemical substances which are contained in this list have been included to relevant PIC form.

APPLICATION OF PRIOR INFORMED CONSENT PROCEDURE IN INTERNATIONAL TRADE

- The Process of Trade has been supported by Act No. 157/1998 Code On chemical substances and chemical preparations and Amending some other Acts and by implementing Decree No. 302/1998 Code, laying down the List of Chemical Substances and Chemical Preparations Production, Import and Export which has restricted as last amended
- The Czech Republic accomplished terms for about 98 % of chemicals listed in Annex III. The rest of that will be provided after negotiations with the Ministry of Agriculture of the Czech Republic as soon as possible.

PROFESSIONAL OPINION

- Chemical Review Committee reviews the formulation against the criteria in Annex II which recommends whether the chemical can be included to the IN/COP.
- IN/COP recommendation and draft DGD (Decision Guidance Document) to including in the interim PIC procedure, Annex III.
- By decision IN/COP and DGD the chemical substance or product goes on Convention list.

NEAR FUTURE

- The current Act on chemical substances and chemical preparations will be replaced by the Act No. 356/2003 Code which enters into force on May 2004. It allows the implementation by the Regulation (EC) No. 304/2003 of the European Parliament and of the Council
- Broad spectrum of measures (seminars, training course) is organized for all stakeholders (industries, customs, state administration)

The Stockholm Convention and its implementation in the Czech Republic

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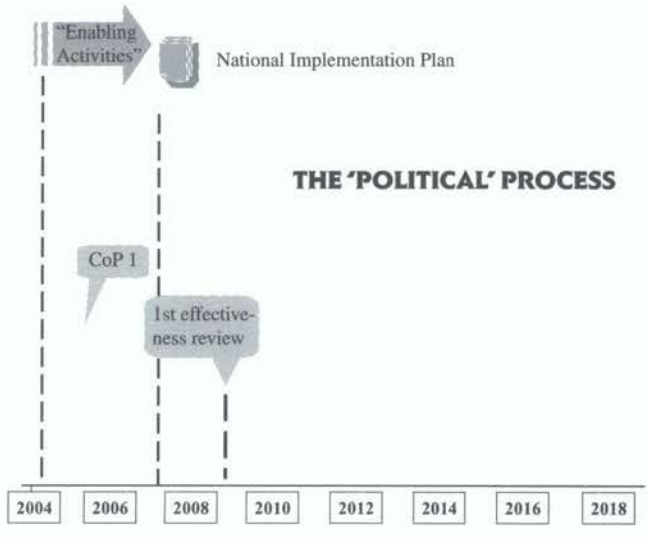
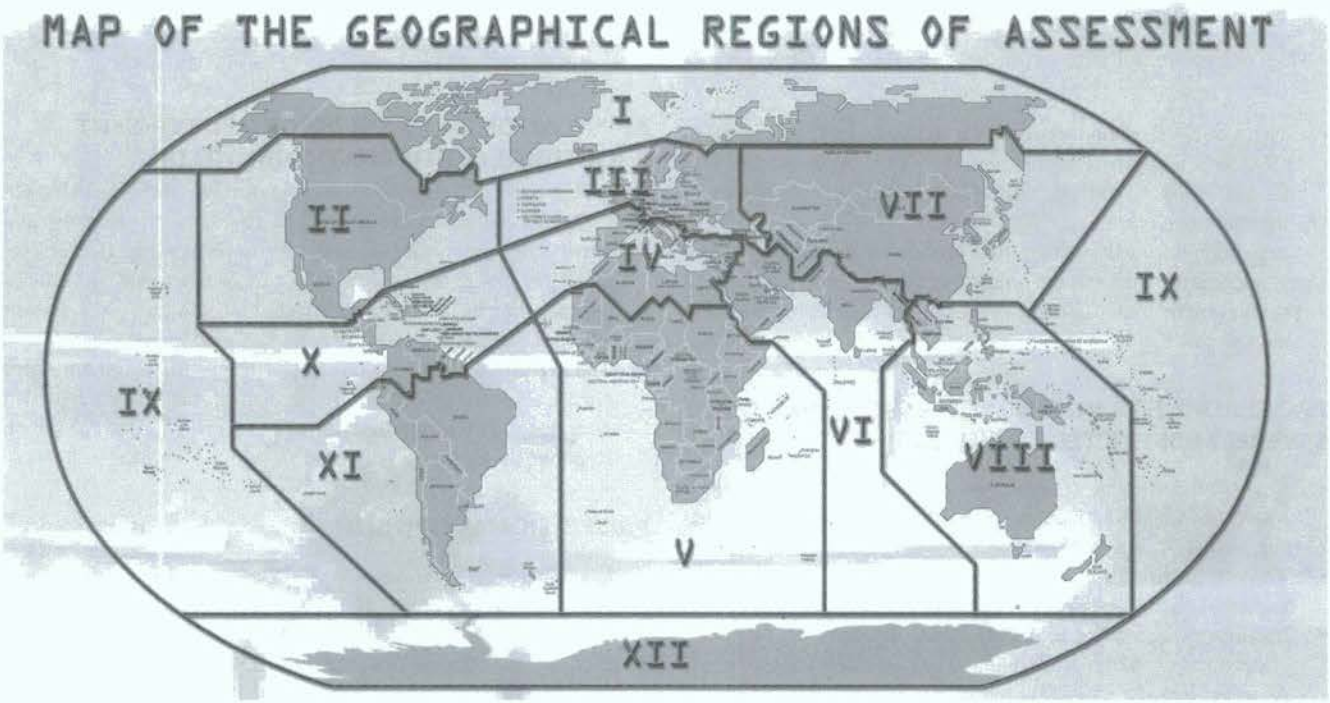
STOCKHOLM CONVENTION

Stockholm, Sweden, May 22-23, 2001



UNEP/GEF PROJECT „REGIONALLY BASED ASSESSMENT OF PERSISTENT TOXIC SUBSTANCES"



ENABLING ACTIVITIES TO FACILITATE EARLY ACTION IN THE IMPLEMENTATION OF THE STOCKHOLM CONVENTION

Basic outputs:

(1) Initial National POPs Inventory - INPOPsI
(2) Formulation of National Implementation Plan - NIP and specific action plans on POPs

NATIONAL POPS INVENTORY (NPOPSINV2003)

- 1st version – August 2002, 2nd version – August 2003
- Upgrade every year
- 12 SC Dirty dosen Aldrin, Dieldrin, Endrin, DDT, Heptachlor, Chlordane, Mirex, Toxaphene, Hexachlorobenzene (HCB), PCBs, Chlorinated dioxins and furans + Lindan and other HCHs, Polycyclic aromatic hydrocarbons
- More than 3 500 pages of background, primary information
- 2nd version – aggregated form – 775 pp.
- Public availability – http://recetox.muni.cz

PROPOSAL OF NATIONAL IMPLEMENTATION PLAN FOR IMPLEMENTATION OF THE STOCKHOLM CONVENTION IN THE CZECH REPUBLIC

January 2004, http://recetox.muni.cz

„Top" priorities

- Inventory of hot spots, inventory of old loads – in the context of potential effects of natural catastrophs
- Solution of hot spots
- Sufficient capacity for destruction
- Finnishing of PCBs and control of OCPs Inventories
- „Legalisation" in the NIP
- Much more higher attention must be given to the problems of PAHs
- Realisation of inventory – proposal of potential legal changes

INVENTORY OF HOT SPOTS, INVENTORY OF OLD LOADS – IN THE CONTEXT OF POTENTIAL EFFECTS OF NATURAL CATASTROPHS

Spolana Neratovice, a.s. – Before floods 2002

Spolana Neratovice, a.s. – After floods 2002

PCBS INVENTORY IN SLOVAKIA AND CR (2003)

Type	Ident.	No-Ident.	Total pcs.	tonns
Capacitors	17 296	13 130	30 426	(170)
Transformers	200	206	406	(82)
Other	119	310	429	(92)
TOTAL	17 615	13 646		(344)

Type	Ident.	No-Ident.	Total pcs.	tonns
Capacitors	13 291	6 529	19 820	(330.5)
Transformers	52	1 209	1 261	(1 350.8)
Other		4 247	4 247	(1 647.4)
TOTAL	13 343	11 985	25 328	(3 328.7)

11 613 t was used inside former Czechoslovakia; round 750 000 pcs of correction capacitors were produced (3-20 kg of PCBs)

PCBS INVENTORY IN SLOVAKIA AND CR (2003)

- 11 613 t was used inside former Czechoslovakia
- CR/SR Inventory – 3 673 t
- Tanabe approach – ~ 1/3 producing amounts is in the environment
- Still round 3 000 t anywhere – wastes, uncontrolled and unregistered equipments, unknown

„TOP" PRIORITIES

- Technical solution of priorities - hot spots, emissions, dumps, old technologies, land decontamination
- Emission inventories – UN ECE; inventories of releases to other compartments are missing
- Information and evaluation system for assessment of effectivness of SC implementation
- Establishment of POPs National Centre – with permanent groups of experts
- Optimalisation of monitoring system
- Targeted POPs research

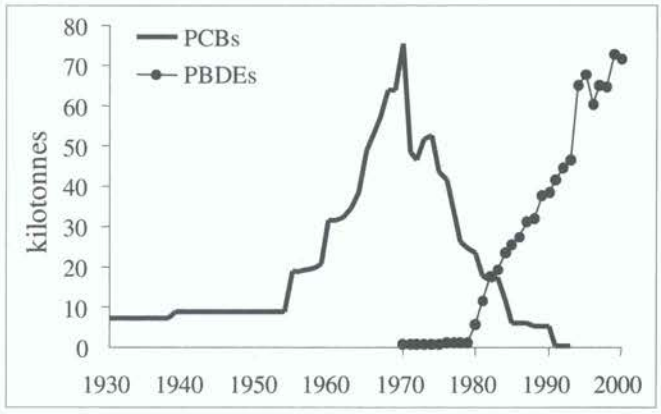
CONLUSIONS

- CR has relatively sufficient monitoring and laboratory capacities
- CR has a huge amount of information concerning to POPs environmental levels and human contamination
- CR has a emission inventory based on the real measurements of the main categories of own sourses (PAHs, PCBs, HCB, PCDDs/Fs)
- These information are not sufficiently and effectively use by decision making sphere
- There is a lack of serious interpretation and presentation
- Establishment of National POPs Centre – November 2003 and CEECs and EU POPs Expert Networks

FUTURE PRIORITIES

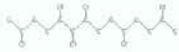
- New pollutants – PAHs, SCCPs, Br-
- New sites
- Foods
- Evaluation, risk assessment, information
- Preventive activities and policy

CHANGES IN POPS PRODUCTION TIME TRENDS



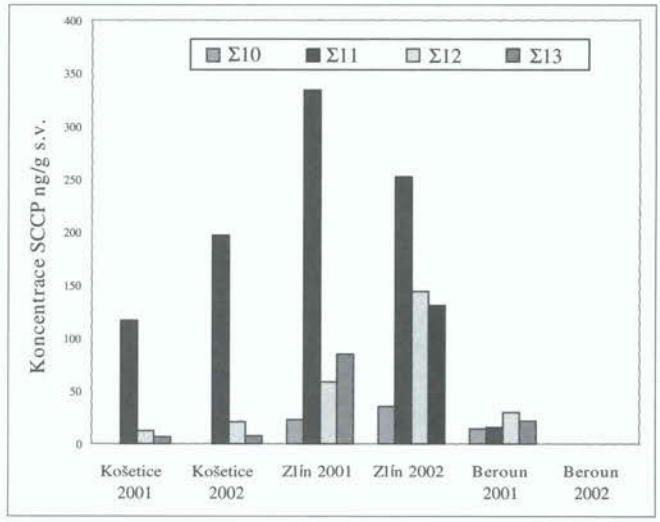
PBDEs: Anna Palm (Pers. Comm.) PCBs: Breivik et al (2002)

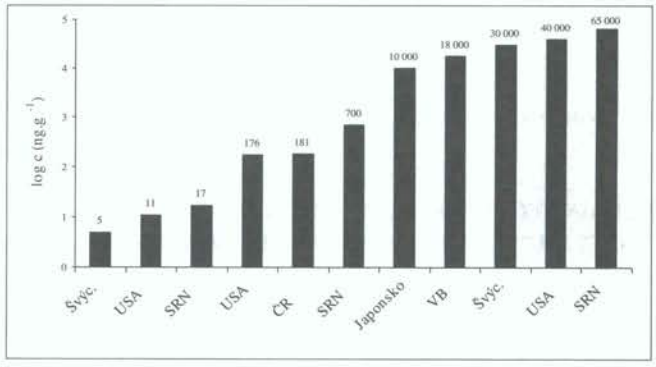
SHORT CHAINS CHLORINATED PARAFFINS (SCCPS) AND MIDDLE CHAINS CPS (MCCPS)



$C_{14}H_{24}C_{l6}$ World annual production CPs ~ 300 000 t

$C_{17}H_{29}C_{l7}$ Annual increasing – 1%, from 80's substitute of PCBs





REGIONAL BEYOND ENABLING ACTIVITIES

UNIDO Regional Workshop Brno, Czech Republic, 30-31/05/2003

A Virtual Elimination of PCB Stockpiles in the CEE Region:

- Common strategy for obsolete POPs disposal – using of existing technology unit/common investment
- Mobil unit/transport of wastes cross the boarder/development of new, own technology
- Transfer of know-how

BEYOND ENABLING ACTIVITIES OF THE CR

Czech National POPs Centre, http://recetox.muni.cz

- Transfer of know-how, using of Czech experiences from preparation of National POPs Inventory and development of NIP
- Establishment and co-ordination of POPs expert Networks
- Training of inventory teams, training of laboratory experts.
- Development of expert system for visualization and interpretation of POPs Inventories and NIP and its regional application – SLK, PL, HU, CRO, MAC, ARM + ?? - GENESIS

GENESIS – THE GLOBAL ENVIRONMENTAL ASSESSMENT AND INFORMATION SYSTEM

- Expert information system for assessment, evaluation and interpretation of POPs information connecting with the Implementation of the Stockholm Convention; expert system for evidence-based environmental monitoring and studies
- Middle phase project of UNIDO for GEF
- Application: Czech Republic, Slovakia, Hungary, Poland, Croatia, Macedonia, Romania

Ministry of Finance of the Czech Republic – General Directorate of Customs

Mr. Stanislav Švidek
Customs Control Department, Section of restriction and prohibitions, s.svidek@cs.mfcr.cz

I. WASTE – BASEL CONVENTION – NATIONAL LEGISLATION

- Last year General Directorate of Customs have prepared workshops in order to ensure effective application of the Act concerning waste. Selected employees, who deal with waste issues at border and inland Customs offices, Regional Customs Directorates, Inspection of Environment of Czech Republic, Ministry of Environment of Czech Republic, General Directorate of Customs and Regional Offices attended these workshops.
- Primary decision about declared goods, if it's or it is not waste belongs to customs by checks of import and export of goods.
- Customs authority might ask Regional Office, who is authority in misdoubts about goods is or isn't waste. The goods has character of temporary stored goods to time than Regional Office will decide, that lead to problems with space at border customs offices.

After joining Czech Republic to EU the customs authority will:

- check transport documentations (Form of these documentations will be ensured in accordance Commission Regulation 94/744/EC).
- check cross border and inland transports of waste.
- the mobile supervising units shall have authority to stop vehicles, to require laying up of vehicles, to take and analyses samples and to choose the penalties in case unlawful transport.

II. IMPORT AND EXPORT OF CHEMICAL SUBSTANCES AND CHEMICAL PREPARATIONS

At the moment, the Act 157/1998 governs authorization of the customs authority in the Czech Republic concerning the import and export of chemical substances and chemical preparations. According to this Act, the customs authority in this time:

- controls goods that are declared at the state border as a dangerous substance or preparations, for the import or export of which the consent of the Ministry of the Environment is required,
- in case of infringement of the Act or in case of doubt, withholds the goods and inform the Czech Environmental Inspection of infringement of the Act and when in doubt, we request the Czech Environmental Inspection for expert's assistance,
- keeps records of all consignments of dangerous substances and preparations allowed to cross the state border. We allow the employees of the Ministry of the Environment and the Czech Environmental Inspection to peruse such records, and to make excerpts, written copies or photocopies thereof, including digital data transmission.

On the date of joining the Czech Republic to the EU the new Act (356/2003) concerning the import and export of chemical substances and chemical preparations will enter into effect.

According to this Act the customs authority will:

- keep records of all consignments of hazardous substances and preparations classified under the act 356/2003, which cross the state border. The officials of the Ministry of the Environment and of the Czech Environmental Inspection shall be allowed to inspect these records, make excerpts, transcripts and copies of such records and documents, including digital data transmission;
- seize hazardous substances and preparations whose importation is prohibited under the act 356/2003, except substances imported for the purposes of science and research or for the needs of supervisory activities, and notify the Czech Environmental Inspection thereof without undue delay. The Czech Environmental Inspection shall decide how substances or preparations are to be handled, placed, returned or disposed of;
- monitor the importation and exportation of chemical substances in compliance with Community legislation – it means - regulation No 304/2003 of the European Parliament and of the Council, concerning the export and import of dangerous chemicals,
- inspect if packaging and labelling of imported substances and preparations comply with the requirements given by the act 356/2003,
- inspect if the Material Safety Data Sheet of imported substances and preparations complies requirements given by the act 356/2003,
- make suggestions to the Czech Environmental Inspection if the conditions given by this Act have not been met.

Implementation status in Germany

ROTTERDAM CONVENTION

Ulrike Kowalski, Federal Institute for Occupational Safety and Health,
Division 5, Notification Authority under the Chemicals Act

PIC – DEVELOPMENT AND HISTORY

- 1985 FAO Code of Conduct
- 1987 UNEP London Guidelines (LG)
- 1989 Amended LG and FAO Code: Introduction of PIC
- 1995 UNEP Mandate for PIC Convention
- 1996-1998 PIC Negotiations (INC) - Intergovernmental Negotiating Committee for an international Legally Binding Instrument for the application of the Prior Informed Consent
- 10.09.1998 Diplomatic Conference in Rotterdam - Adoption of the Convention and Interim Measures

STATUS OF RATIFICATION

- Entry into Force: 24.02.2004
  Article 26: 1. The Convention shall enter into force on the ninetieth day after the date of deposit of the fiftieth instrument of ratification, acceptance, approval or accession.
- Status: 73 Signatories and 61 Parties
- 11.01.2002 Ratification by Germany
  PIC INC-8, October 2001 Application for PIC-Secretariat by Germany

OBJECTIVES OF THE CONVENTION

- to promote shared responsibility and co-operative efforts among Parties in the international trade of certain hazardous chemicals
- 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.

SCOPE

- **Industrial Chemicals** that have been banned or severely restricted by final governmental regulatory action for health or environmental reasons
- **Severely Hazardous Pesticide Formulations** that produces severe health or environmental effects within a short time after certain exposure, under conditions of use

EXEMPTIONS

- Drugs
- Radioactive materials
- Wastes
- Chemical Weapons
- Pharmaceuticals, including Human and Veterinary Drugs
- Chemicals used as Food Additives
- Food
- Small Quantities (research, personal use)

ELEMENTS OF THE CONVENTION

- Identification of PIC chemicals
- Dissemination of import decisions
- Obligations in relation to exports
- Obligations in relation to imports
- Information to accompany exports
- Export notification

IDENTIFICATION OF PIC CHEMICALS

- Notification of Control Actions in accordance with information required in Annex 1
- One notification from each of two PIC regions regarding the same chemical
- Review of the information provided by the (interim) Chemical Review Committee (CRC)
- Recommendation of CRC for inclusion in Annex III (PIC list) in accordance with the criteria in Annex II,

IDENTIFICATION OF PIC CHEMICALS (2)

- For identified chemical, CRC shall prepare a draft decision guidance document (DGD) - Article 7
- The Conference of the Parties (COP) decides about the inclusion and approves the DGD
- Inclusion in Annex III
- The listing - as well as future import decisions - only concerns the use category the control action relates to (industrial or pesticide use)

DISSEMINATION OF IMPORT DECISIONS

- DGD for each chemical subject to the PIC procedure circulated to all Parties
- Parties shall transmit a response to the Secretariat, deciding whether to accept import, refuse import or allow import under certain conditions
- every six months the Secretariat shall inform all Parties of the responses it has received

OBLIGATIONS IN RELATION TO IMPORTS

Article 10

- Appropriate measures to ensure timely import decisions
- Transmission of final or interim import decisions within 9 months after dispatch of the DGD
- Description of any legislative or administrative basis for the import decision

- The same rules must apply for imports from other sources and domestic production for domestic use

OBLIGATIONS IN RELATION TO EXPORTS

Article 11

- Communication of import responses
- Implementing appropriate measures to ensure compliance with import decisions by exporters
- Assistance to importing Parties, upon request
- To ensure in cases of no response, prevention of exports, unless certain conditions are fulfilled (registration/previous exports/ explicit import consent)

EXPORT NOTIFICATION

Article 12

1. First export ever
2. Subsequent exports
3. Cease of the obligation

1. First Export ever

- Prior to the first export following the adoption of the corresponding final regulatory action
- Importing Party shall acknowledge receipt of the first export notification.
  If there is no such acknowledgement within thirty days a second notification is due
- Important: Only acknowledgement of receipt required, no import consent
- An updated export notification is due after major changes in the ban or severe restriction

2. Subsequent Exports

- Export notifications have to be provided before the first export in any calendar year - Art. 12 (2)
- Acknowledgement of receipt not required
- Requirement to notify before export may be waived by the importing Party

3. Cease of the Obligation

- Chemical has been listed in Annex III - Art. 12 (5) a
- Importing Party has provided a response for the chemical to the Secretariat - Art. 12 (5) b
- Secretariat has distributed response to the Parties - Art. 12 (5) c

INFORMATION TO ACCOMPANY EXPORTS

Article 13

- Shipping documents will have to bear specific Harmonised System customs codes (to be assigned by the World Customs Organisation)
- Exports of both PIC chemicals and domestically banned or severely restricted chemicals are subject to adequate labelling requirements
- For occupational purposes a safety data sheet (SDS) has to be sent to each importer
- Information should, as far as practicable, be given in at least one official local language

IMPLEMENTING PIC CONVENTION IN THE EC

- Regulation (EC) No 304/2003 of the European Parliament and of the Council concerning the export and import of dangerous chemicals (OJL, 63, 6.3.2003, p. 1)
- 19. Dec. 2002: Approval by European Community by Council Decision 2003/16/EC

PIC-PROCEDURE IN GERMANY

Chemicals that are listed only on Annex I part 1

- Each German company informs DNA about first export of each calendar year to any country
- DNA checks notification
- DNA sends notification to European Commission (ECB)
- European Commission informs receiving DNA/DNAs
- Export takes place after 30/15 days
  Substance is packaged / labelled acc. to EU legislation
- Receiving DNA sends confirmation of receipt / feedback
- Notification is repeated when EU legislation changes
- Info on country and chemical are registered at public database

Procedure for PIC chemicals (Annex I part 3) and
EU PIC candidates (Annex I part 2):
Each German company informs DNA about export
DNA checks notification:
Does PIC decision of receiving country exist?

no decision	consent without conditions	consent with conditions
country is asked for explicit consent		country is asked for explicit consent
consent	export can proceed	consent

Problems:

- addresses of DNAs change, PIC Secretariat is not informed
- no confirmation of receipt
- monitoring of regulation
  Germany – 16 provinces
  – customs
- differences use cat. / cat. of ban

use category for ban / export /
European use categories

BONN LOOKS FORWARD TO WELCOMING THE PIC SECRETARIAT!

STOCKHOLM CONVENTION

Ulrike Kowalski, Federal Institute for Occupational Safety and Health
Division 5, Notification Authority under the Chemicals Act

POP (STOCKHOLM) CONVENTION

Status of Ratification

- Germany: ratified on 25 April 2002
- other EC member states: Austria, Finland, Luxembourg, Netherlands, Sweden
- Entry into force: 17 May 2004
- European Community: pending
  Proposal for a Regulation presented by the Commission on 12 June 2003
  COM(2003) 33 final
- Approval by European Parliament on 26 February 2004
- Awaiting Council Decision

RESPONSIBLE AUTHORITIES IN GERMANY (POPs)

- Federal Environmental Ministry
  - Federal Environmental Agency (UBA) (National Focal Point)
    - Department Chemical safety
    - Department Waste management
    - Department Air Quality control and Emission Reporting
- Federal Ministry for economic Co-operation and development (BMZ)
  - Corporation for technical co-operation (gtz)
- Federal States
  - responsible for enforcement of most legal provisions

ELIMINATION OF PRODUCTION AND USE

POP Protocol	POP Convention
• Aldrin	• Aldrin
• Chlordane	• Chlordane
• Chlordecone	
• DDT	
• Dieldrin	• Dieldrin
• Endrin	• Endrin
• Heptachlor	• Heptachlor
• Hexabromobiphenyl	
• Hexachlorobenzene	• Hexachlorobenzene
• Mirex	• Mirex
• PCB	• PCB
• Toxaphene	• Toxaphene

SUBSTANCES SCHEDULED FOR ELIMINATION

Neither produced nor used in Germany:

- DDT: explicitly banned ("DDT Gesetz" 1972 in Western Germany, banned as of 1983 in Eastern Germany)
- Aldrin, Chlordane, Dieldrin, Endrin, Hexachlorobenzene and Heptachlor are banned (PflanzenschutzAnwendungsV)
- Mirex, Toxaphen, Chlordecon (authorization as plant protection products never sought in Germany)

NOTE !

Production of some of the substances is not (yet) prohibited within the EC neither in Germany. The EC is currently preparing to adapt legislation (Proposal for a Regulation of the European Parliament and the of the Council on Persistent Organic Pollutants and on amending Directives 79/117/EEC and 96/59/EC).

ANNEX I SUBSTANCES: PCBS

- Marketing of PCBs is prohibited in Germany according to "ChemVerbotsV"
- Ongoing use ... but phasing out of PCBs still in use in equipment by 2010 at the latest ("PCB/PCT Abfallverordnung") based on provisions of Directive 96/59/EEC

STATUS OF IMPLEMENTATION IN GERMANY

Specific Regulations for unintentionally produced POPs

- Ordinance on Bans and Restrictions on the Placing on the Market of Dangerous Substances, Preparations and Products pursuant to the Chemicals Act: prohibition of marketing of products with more than 1 – 5 mg/kg PCDD/F
- no production and use of 2,4,5 – Trichlorophenol, PCP (pentachlorophenole) and PCB (polychlorinated biphenyls). PCP and PCB phased out by law; 2,4,5 – Trichlorophenol not produced since the 80ies.
- the production of chloranil – dyes is performed only by a „dioxin – free" way on the hydrochinone – route.
- Federal Immission Control Act (FICA) for implementation of BAT and BEP on a permitting basis at industrial sources
- 17. Ordinance (FICA): requirement of 0,1 ng TE/m3 of PCDD/F for waste incinerators
- 27. Ordinance (FICA): requirement of 0,1 ng TE/m3 of PCDD/F for crematories
- Technical Instruction on Air Quality Control under the Federal Immission Control Act (TA – Luft) target value of 0,1 ng TE/m^3 of PCDD/F for all industrial sources

NATIONAL IMPLEMENTATION PLAN STOCKHOLM CONVENTION

- Time scale:
- submission 2 years after entering into force of the Convention
- National priorities for Germany
- New substances (Art. 8)
- Technical (Art. 12) and financial assistance (Art. 13)
- Kick-off meeting of stakeholders scheduled for first half of 2004, hosted by Federal Ministry for Environment

REPORTING: PROTOCOL AND CONVENTION

- Federal states in charge to provide data on emission and immission (monitoring)
- "spin-off" of data from programmes already developed and running (e.g. OSPAR/HELCOM)

SUMMARY OF STATUS OF IMPLEMENTATION OF POP AGREEMENTS

- No troubles expected from elimination of production and use of POPs in Germany
- Obligations to minimize emissions of unintentional POPs are fulfilled

- Some adjustments in the area of environmentally sound management of POP wastes are needed and already underway
- Efforts for providing proper data on emissions/immissions of POPs must to be enhanced substantially to fulfil obligations

ACKNOWLEDGEMENTS

- Mr. Michael Herrmann
- and the Colleagues from
  Federal Environmental Agency in Berlin, Germany for generous help

Implementation status in Hungary

National Focal Points of Rotterdam Convention

Ms Ágnes Pethő dr.
Central Service for Plant Protection and Soil Conservation, Hungary

ACTS/LAWS WHICH SUPPORT THE ROTTERDAM CONVENTION IN HUNGARY

- Government Decree 112/1990.(XII.23.) on export and import of goods, services and rights (Annex 1/c: PIC list)
- Decree 41/2000.(XII.20.)Eüm-KöM (Ministry of Health and Ministry of Environment) concerning the restriction of certain activities with dangerous substances and dangerous preparations
- Act 25 of 2000 on Chemical Safety
- Act 35 of 2000 on Plant Protection
- Ministerial Decree 6/2001.(I.16.)FVM (Ministry of Agriculture and Rural Development) on the authorization of the placing on the market and use as well as on the packaging, storage and transport of plant protection products

THE ROTTERDAM CONVENTION IN THE HUNGARIAN LEGISLATION

- Act 25 of 2000 on Chemical safety
- Government Decree 233/1996.(XII.26.) concerning the provisions on the procedure for dangerous substances and dangerous preparations
- Joint Ministerial Decree 46/2000.(XII.29.)EüM-FVM-KöM-GM on the process of notification and prior informed consent (PIC) procedure concerning the export and import of certain dangerous substances and dangerous preparations
- Government Decree 2219/1999.(VII.31.) about the signature of the Rotterdam Convention

ENFORCEMENT OF THE ROTTERDAM CONVENTION IN HUNGARY

- Signature on 10 September 1999
- Ratification on 31 October 2000
- Creating the Designated National Authorities (DNA):
  Industrial chemical (C): National Institute of Chemical Safety
  Pesticides (P): Central Service for PP and Soil Conservation
- Creating the National PIC Committee:
  Members are: minister of health, minister of agriculture and rural development, minister of environment, minister of economics, national chief medical officer (or their designated representatives) , the director general of the Authorization and Administration Office of the Ministry of Economics and
  the director of the National Institute for Chemical Safety of the National Public Health Centre "Fodor József".

ROLE OF HUNGARY

Hungary

- signed and ratified the Convention,
- Is member of Interim Chemical Rewiew Comitte (ICRC) between 1998-2003,
- is selected member of the Office of ICRC (Dr. T. Kőmíves, director of Plant Protection Inst.),
- represents the European Region,
- has national level legislation of the Convention.

HELPING THE CONVENTION

- CEUREG: is a forum of the authorities of Central and Eastern European Countries, responsible for the authorization of PPP.
  Aim: to reduce the risk imposed by the use of PPPs and as well as to umiformly handle the common movement of goods.
  One of the continuous topics of the Forum is the RC. We want to help the practical fullfilment of PIC-procedure in region.

Situation of the CEUREG countries of the Rotterdam Convention

Ceureg countries	Signature	Ratification	Comment
Albania			
Belorussia			
Bulgaria		25 July 2000	Accession
Chech Republic	22 June 1999	12 July 2000	
Estonia			
Croatia			
Poland			
Latvia			
Lithuania		23 April 2003	Assession
Hungary	10 Sept. 1999	31 October 2000	
Rumania			
Russia			
Slovakia			
Slovenia	11 Sept. 1998	17 Nov. 1999	
Ukraine		6 Dec. 2002	Assession

Chemicals subject to the prior informed consent procedure Pesticides I

PESTICIDES	Decision on import	Decision	Not. date submitted	Valid for Annex I
2,4,5-T	Final	No consent	29.9.2000	yes
Aldrin	Final	No consent	29.9.2000	yes
Binapacryl	No response			
Captafol	Final	No consent	29.9.2000	yes
Chlordane	Final	No consent		
Chlordimeform	Final	No consent		
Chlorobenzilate	Final	No consent		
DDT	Final	No consent	29.9.2000	yes
Dieldrin	Final	No consent	29.9.2000	yes
Dinoseb and salts	Final	No consent	29.9.2000	yes
EDB	Final	No consent		
Ethylene dichloride	No response			
Ethylene oxide	No response			
Fluoroacetamide	Final		No consent	

Chemicals subject to the prior informed consent procedure Pesticides II

PESTICIDES	Decision on import	Decision	Not. date submitted	Valid for Annex I
HCH	final	No consent	29/9/2000	yes
Heptachlor	final	No consent		
Heptachlorobenzene	final	No consent	29/9/2000	yes
Lindane	interim	Consent under conditions	29/9/2000	yes
Mercury compounds	final	No consent	29/9/2000	no
Parathion (all form.)	final	No consent		
Pentachlorophenol	final	No consent		
Toxaphene	No response(?)			
Methylparathion	interim	Consent under conditions	29/9/2000	no
Monocrotophos	No response(?)		29/9/2000	yes
Monocrotophos (soluble liquid)	final	No consent		
Phosphamidon	interim	No consent		

Chemicals subject to the prior informed consent procedure Industrial chemicals

INDUSTRIAL CHEMICALS	Decision on import	Decision	Not. date submitted	Valid for Annex I
Crocidolite	Final	No consent	8/1/2003	yes
Polybrominated biphenyls (PBBs)	Final	Consent under conditions	8/1/2003	yes
Polychlorinated biphenyls (PCBs)	Final	No consent	8/1/2003	yes
Polychlorinated terpenyls (PCTs)	Final	No consent	8/1/2003	yes
Tris (2,3, dibromopropyl phosphate	Final	Consent under conditions	8/1/2003	yes

Notifications received before 11 September 1998 under original PIC procedure

CHEMICALS	Date of notification	Use in Hungary	Annex I Information requirements
Nicotine	31/12/1966	Severely restricted as pesticide	not met
Chloramphenicol	1/1/1987	Severely restricted as pesticide	not met
Paraquat dichloride	30/9/1991	Severely restricted as pesticide	not met
Dinoseb acetat	30/6/1988	Banned pesticide	not met
Arsenic	1/1/1968	Banned for agricultural uses	not met

Persistent Organic Pollutants

Presentation On Activities For Ratifications And Implementation

prepared by Gábor A. KOVÁCS, councillor, Ministry of Environment and Water, BUDAPEST, HUNGARY
presented by Ágnes Pethõ dr.

INTERNATIONALLY RECOGNISED POPs

- **Stockholm Convention - 12:**
  - Aldrin, Chlordane, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Mirex, Toxaphene, DDT, PCBs, Hexachlorobenzene, Dioxins, Furans
- **UNECE Protocol - 16:**
  - all 12 Stockholm POPs, Lindane (hexachlorocyclohexane), Chlordecone, Hexabromobiphenyl and PAHs

UNECE PROTOCOL ON POPs

- Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution
- Adopted in Arhus in June 1998
- Signed by 36 CLRTAP Parties
- Ratified by 17 (entry into force in October 2003)
- Hungarian ratification process is finished nowadays
- Covers 16 POPs but additional substances are meant to be added
- Includes similar control measures as the global Stockholm Convention, but is generally less demanding (except: PCBs, release reduction)

STOCKHOLM CONVENTION

- Adopted in Stockholm in May 2001
- Signed by 150 governments and by the Community
- So far ratified by 40 countries
- Will enter into force on 90th day after deposition of 50th ratification instrument
- Hungarian ratification process is planned in early 2004
- Covers 12 POPs but additional substances are meant to be added
- Covers a wide range of control measures and general obligations

HARMONIZATION OF EU LEGISLATION

- As it was decided by the Hungarian Government, Hungary is committed to join to the European Union.
- For this action it is indispensable to adopt the EU legislation as a minimum in the requirements.
- The basic harmonization of the requirements of EU directives and other international agreements has happened between 1998 and 2002.

STRUCTURE OF THE HUNGARIAN POPs RELATED LEGISLATION

Coordinated by

- Ministry for Agriculture
  - Act on Plant Protection (2000)
- Ministry for Health
  - Act on Chemical Safety (2000)
- Ministry for Environment
  - Act on Environment Protection (1995) and its amendments
  - Act on Waste Management (2000)
- Ministry for Economic Affairs
  - Governmental Decree on export and import of goods and services (1990) and its amendments

DECREES IMPLEMENTING THE ACT ON PLANT PROTECTION

- **Ministerial Decree on permitting of marketing and use of pesticides (2001)**
  Contaning the list of banned pesticides/chemicals used in agriculture as:
  - aldrin, DDT, dicofol, dieldrin, endrin, technical HCH and lindane, heptachlore, HCB, chlordane, toxaphene.

  Other related POP pesticides were never used in Hungary.
  [Council Directives 91/414/EEC and 79/117/EEC]

DECREES IMPLEMENTING THE ACT ON CHEMICAL SAFETY

- Ministerial Decree on general rules of procedures and activities on dangerous materials (2000)
- Ministerial Decree on restrictions of use of certian dangerous materials (2000) [EU Dir. 76/769/EEC]
- Ministerial Decree on announcement of requirements of Rotterdam (PIC) Convention (2000)
- Ministerial Decree on risk assessment and risk reduction of dangerous materials (2001) – horizontal regulation
- Communication on registry from classified dangerous substances in the EU

DECREES IMPLEMENTING THE ACT ON ENVIRONMENT PROTECTION

- Governmental Decree on general rules for air quality protection(2001)
  - Ministerial Decree on emission limit values for stationary point sources and limit values for ambient air quality (2001)
  - Ministerial Decree on waste incineration (2002) [2000/76/EC]
- Governmental Decree on protection of surface water quality (2001)
  - Ministerial Decree on limit values for surface water quality protection (under preparation)
- Governmental Decree on protection of underground water quality (2000) [EU Dir. 80/68/EEC]
  - Ministerial Decree on limit values for underground water and soil quality protection
- Governmental Decree on sewage sludge utilisation in agriculture (2001)

DECREES IMPLEMENTING THE ACT ON WASTE MANAGEMENT

- Governmental Decree on announcement of Basel Convention (1996)
- Governmental Decree on hazardous waste management (2001)
- Ministerial Decree on disposal rules of waste oils (2001) [EU Dir. 87/101/EEC, 75/439/EEC and other international agreements]
- Ministerial Decree on special disposal rules for PCBs/PCTs and contaminated equipments (2001) [EU Dir. 96/59/EC and EU Decision 2001/68/EC]
- Ministerial Decree on waste registry (2001) and its amendments (2002) [EWC compatible]

REGULATION IMPLEMENTING BY THE GOVERNMENTAL DECREE ON EXPORT AND IMPORT OF GOODS AND SERVICES

This decree gives the framework for export and import of goods and services determined that any export and import of most of POP pesticides have to be permitted with the special approvals of related authorities.

NEED FOR COMMUNITY ACTION

- The Member States and the Community have repeatedly expressed their commitment to rapid ratification and effective implementation of these instruments
- 6th Environment Action Programme
- Johannesburg World Summit
- The Community should become a Party to the Stockholm Convention well before the first Conference of the Parties (to be held in 2004 or 2005)

IMPLEMENTATION MEASURES

- Analysis of the existing Community legislation
  - All the provisions of the UNECE Protocol are adequately covered
  - With regard the Stockholm Convention, several legislative gaps were identified
- Main legislative gaps:
  - no prohibitions of the production of any of the currently listed chemicals nor a framework for such bans;
  - most of the existing prohibitions on the marketing and use of specific POP chemicals are incomplete;
  - no legislation on mirex, chlordecone or hexabromobiphenyl;
  - no specific provisions on identification and management of POP stockpiles
  - except for PCBs, no restrictions in the legislation on the recovery of POPs-containing waste
  - no legal requirements to destroy or permanently transform POPs waste

IMPLEMENTATION STRATEGY BY THE COMMUNITY

- Single, horizontal instrument
  - instead of amendment of several pieces of legislation
- Transitional provisions on production, marketing and use bans
  - to be transferred later into the legislation
- Regulation
  - instead of a Directive

THE POP REGULATION

- Purpose:
  - enable the Community to ratify the two POP agreements
  - to give effect to the main provisions of the Convention and the Protocol which are not yet sufficiently covered by Community legislation
  - To advance the elimination of POPs by measures which go partially beyond the provisions of the international Conventions

MORE STRINGENT MEASURES

- Most of the measures originating from the SC and the very limited general exemptions are to be applied also for the 4 POPs listed only in the Protocol
- DDT, HCB: no exemptions allowed
- Lindane: more severely restricted than in the Protocol
- General exemptions as restrictive as in SC
- No country specific exemptions
- Notification of stockpiles
- POPs waste of high content: only destruction/transformation allowed

ARTICLE 3 – PROHIBITIONS AND RESTRICTIONS

- Total ban of production, placing on the market and use of Annex I substances
  - 10 SC POPs and 2 Protocol POPs
- Restriction of production, placing on the market and use of Annex II substances
  - at the moment only HCH (lindane)

ARTICLE 4 – EXEMPTIONS

- Laboratory-scale research or as reference standards: no conditions
- Unintentional trace contaminants in products and articles: no conditions
- Substances used as constituents of articles manufactured or already in use before the entry into force of the prohibition: notification obligation
- Closed-system site-limited intermediates: notification obligation and other conditions

ARTICLE 5 – STOCKPILES

- Stockpiles consisting of or containing totally prohibited POPS have to be disposed of as waste
- Stockpiles of POP substances subject to restrictions (Annex II POPs) have to be notified
- Reporting of stockpiles (Art 12)

ARTICLE 7 – WASTE MANAGEMENT

- Annex IV - all listed POPs except PAHs
- General rule: waste containing any of the listed POPs should be disposed of in such a way that the POP content is destroyed or irreversibly transformed
- Exception: When the POP content is below certain concentration limits given in Annex IV, other environmentally sound disposal method could be applied
  - Limit values to be adopted later

- Directive 96/59/EC on PCB/PCT to be amended accordingly
- Ban of re-use and recovery of POPs

ARTICLE 8 - IMPLEMENTATION PLANS

- Both Member States and the Commission should develop and implement National Implementation Plans covering all 16 POPs
- The share of competence should be reflected in the implementation plans
- To facilitate co-operation and information exchange within the Community, the Implementation Plans are to be submitted to the Commission and other Member States.

ARTICLE 11 - TECHNICAL ASSISTANCE

- Based on Article 12 of the Convention
- The Commission and the Member States to provide appropriate technical assistance to developing countries and countries with economies in transition
  - Research, development and introduction of alternatives to DDT should be promoted
  - Consider giving support to non-governmental organisations

ARTICLE 12 - REPORTING

- General reporting under the international agreements: not covered by the Regulation
- Every three years: Reporting within the Community on the application of the Regulation in the Member States
- Every year: Reporting on the production and placing on the market of substances listed in Annex I or II
  - Community competence; Commission to compile a joint report
- Every three years: summary reports on stockpiles and release inventories

ARTICLE 14 - AMENDMENT OF ANNEXES

- Important element of the proposed Regulation
- After the decision at the international level on the inclusion of a substance:
  - Commission to prepare a proposal on amendment of relevant Annexes
  - The decision to be taken using the regulatory committee procedure
- Review of the conditions and substance specific exemptions at regular intervals; appropriate modifications on the basis of the developments in the Community and under the international agreements
  - Review of allowed HCH uses by the end of 2007

ARTICLE 17 AND 18 - AMENDMENTS TO OTHER DIRECTIVES

- Restrictions adopted under Directive 79/117/EEC on eight POP pesticides: to be repealed
- Council Directive 96/59/EC on the disposal of PCBs/PCTs: amendment in order not to allow anymore permanent storage of PCB waste

ARTICLE 19 - ENTRY INTO FORCE

- On 20th day from the publication in the OJ
- Directly applicable in all Member States
- Probably it will entry into force till May 2004 (!)

ANNEXES

Annex I: 12 substances subject to total prohibitions
Annex II: substances subject to restrictions on production, placing on the market and use; currently only HCH (lindane)
Annex III: lists the unintentionally produced substances subject to release inventories and release reduction
Annex IV: lists the substances subject to specific waste management provisions; concentration limits for low POP content to be added later

MAIN CURRENT ACTIVITY ON POPS IN HUNGARY

Enabling activities to facilitate early action on the implementation of the stockholm convention on persistent organic pollutants (POPS)

- The aim of this Project is to perform the enabling activities in order to assist the Hungarian Government in preparation and endorsement of its National Implementation Plan on Persistent Organic Pollutants.
- Parties: GEF – UNIDO – Institute for Environmental Management
- Time period: 24 mounth
- Accepted budget: 489 000 USD
- Current activity: validation and closing of the Inventory Phase during Priority Setting

WORKPLAN AND TIME SCHEDULE (MAIN STEPS)

- 2002. May-September: preparation meetings, collection of info's, setup of stakeholder committee and expert network
- 28.-29. August 2002: inception workshop in Bp.

(80 experts)

- September 2002. - November 2003.: inventory phase (due to lack of measurement data, this period is longer than foreseen).
  - 1 day inventory training workshop held by I. Holoubek
  - 1 day inventory training workshop held by M. Murin

TASK TEAMS, CHAPTERS OF THE INVENTORY (1)

- Data of prod., use, export-import of pesticides since 1950 (ONTSZ),
- Assessment of health hazards (human exposure, foods, etc.- OÉTI)
- Assessment of the release into waters:
  - groundwater: KGI-measuring group for the analysis of POPs in 70 havaria monitor. wells (PAH, PCB, pesticides),
  - groundwater: collection of data of immission measurements to date carried out by VITUKI,
  - surface water: inventory based on the investigations of VITUKI (internal and international – e.g. Danube prgr.)
- Release into air: inventory (based on emission factors, expert estimation and few measurements, - KGI)

Task teams, chapters of the inventory (2)

- Release into soil: data on TIM (Soil Information Monitoring) network points since 1992 (MTA TAKI and ONTSZ), and

results of the Remediation Program of contaminated sites (KGI)
- Obsolete pesticides: assessment in 2 counties by Reflex
- Assessment of the PCB contamination of soil: PCB containing equipment and its leaks,
- Environmental sound disposal of PCBs, investigation of the non-combustion PCB destruction technologies,
- Monitoring of the POP pollutions (incl. regulations on air, water, soil, waste, etc.),
- Research and development capabilities (strenghtening of the measurement background, MS GC devices, etc.)

CURRENT STATUS OF THE PROJECT

- Validation of data and completing of report on Preliminary Inventory are under preparation
- Final Workshop on Inventory Phase and Priority Setting will be held in November 2003
- If interested in any details, do not hesitate to contact us:
  - Mr. Tamás Lotz, project manager
  - Mr. Gábor Kovács, POP Focal Point

Plant protection surveys before Hungary's EU-assession

Ágnes Pethő dr.
Central Service for Plant protection and Soil Conservation

SURVEYS

- Use of PPPs and POPs between 1950-2000
- The survey on wastes of PPPs and PPP-packaging materials

1. SURVEY

Table 1. POP substances and their withdrawal in Hungary

Active substance	Date of withdrawal
DDT	1968
DDT-Lindan comb.	1970
HCH	1968
DDT-HCH comb.	1970
Aldrin	1968
HCB	1980
Toxaphen (Camphechlor)	1992
Metoxychlor	1992
2,4,5,T	1999
Lindan	1992

Table 2.
Total use of PPP and POP in the last 50 years

Years	Total PPP use (t)	Total POP use (t)	Average percent (%)
1950-2000	2 376 001	446 881	18,8

Diagram 1
Changing the use of POP containing products between 1950-2000

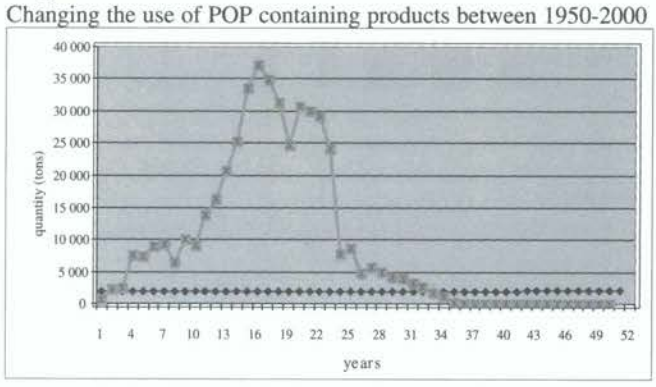


Diagram 2
% of POP containing PPPs between 1950 and 2000

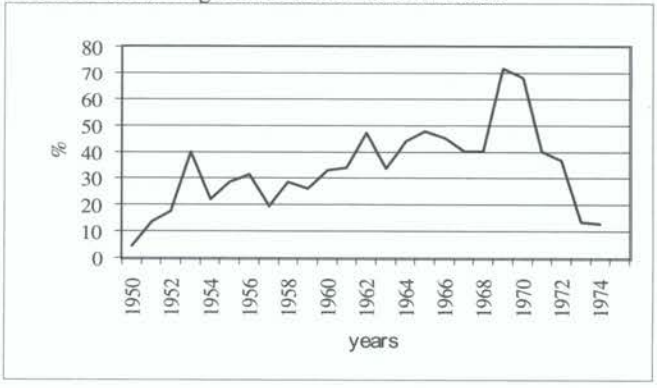


Diagram 3
Use of POP-content PPP between 1950-2000

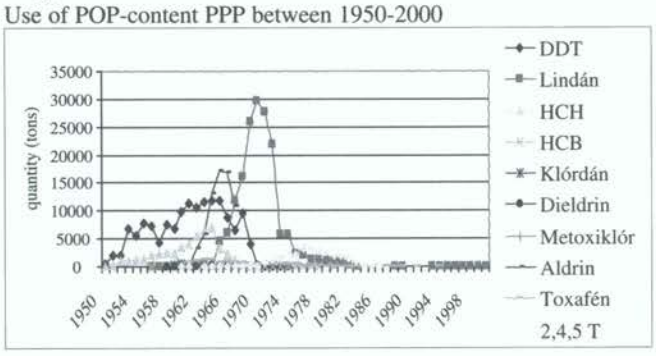


Diagram 4
Share of the total PPP usage and the use of POP containing products between 1950 and 2000

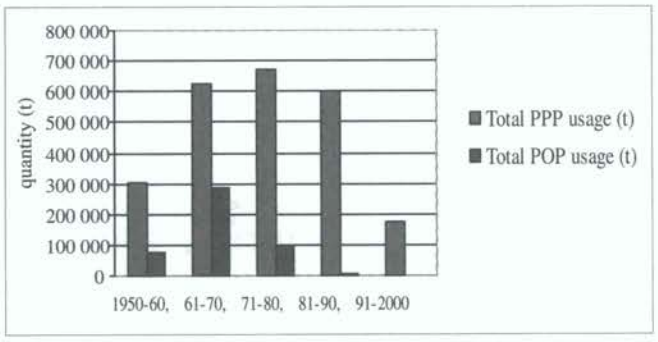


Diagram 5
Active substance contents of the used POPs between 1950 and 2000

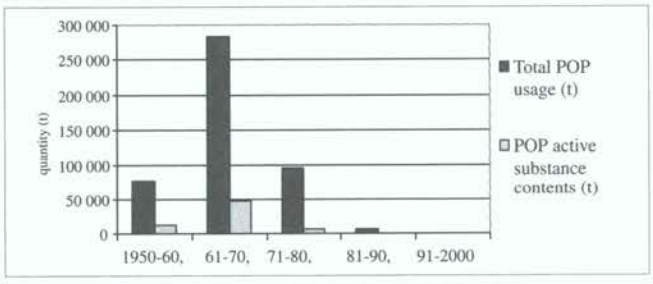


Diagram 6
POP active substance contents of the total PPP usage

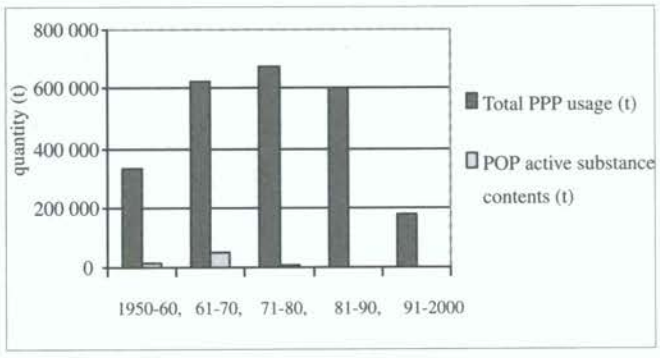


Table 3
Distribution of different persistent active substances between 1950 and 2000 (tons)

Active substance	1950 - 1960	1961 -1970	1971 -1980	1981 -1990	1991- 2000	Total 1950-2000 (tons)
DDT	10028,3	29347,6	4,4	0,0	0,0	39480,3
HCH	2555,9	4399,2	0,0	0,0	0,0	6955,1
Lindan	2,1	8787,8	4315,0	175,7	3,9	13284,5
Toxaphen	153,4	1595,7	1807,5	75,2	1,0	3632,8
Aldrin	0,7	1893,7	0,0	0,0	0,0	1894,4
Dieldrin	4,8	259,4	0,0	0,0	0,0	264,2
HCB	0,0	5,2	17,1	0,0	0,0	22,3
Chlordane	0,0	0,1	0,0	0,0	0,0	0,1
Metoxychor	0,2	9,0	0,4	0,0	0,0	9,6
2,4,5-T	0,1	255,1	601,7	68,9	0,0	925,7
Sum	12 845,4	46552,7	6746,0	319,8	4,9	66468,8

Diagram 7.
Distribution of POP-active substances (1950-2000)

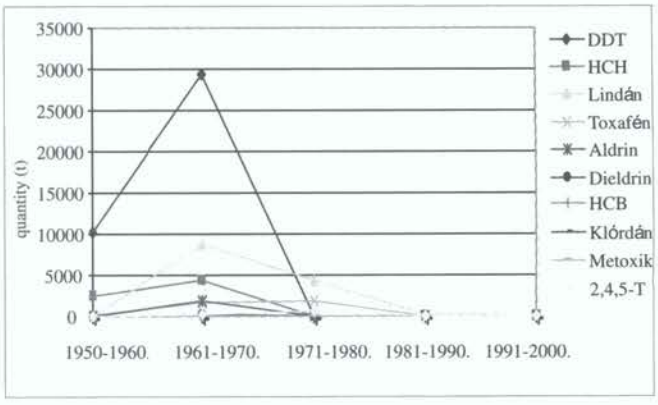


Diagram 8
TIM-measure points in Hungary
(Soil Conservation Monitoring System)

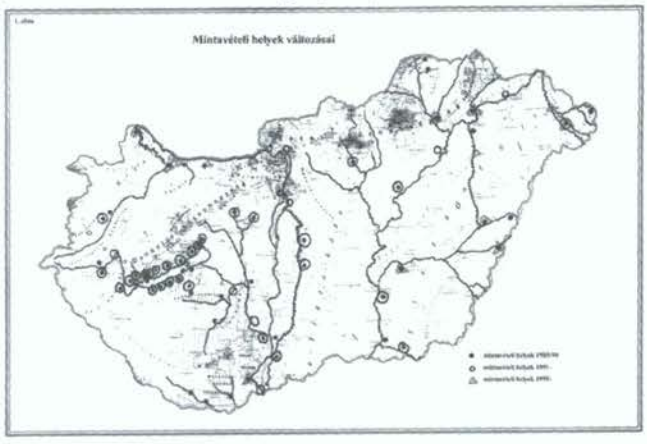


Table 4.
Distribution of chlorinated hydrocarbon residues detected in the soil samples taken in the TIM programme (Károly G., Ferenczi J., Visi É. 2003)

Levels	Lindan + isozomers			Drins			Endosulphan+izomers			DDT + izomers		
	1994	1997	2000	1994	1997	2000	1994	1997	2000	1994	1997	2000
>0,2 mg/kg												
1 .level	0	0	0	0	0	0	0	0	0	2	1	2
2. level	0	0	0	0	0	0	0	0	0	0	0	1
3. level	0	0	0	0	0	0	0	0	0	0	0	0
0,2 – 0,1 mg/kg												
1 .level	0	0	0	0	0	0	2	0	0	4	1	7
2. level	0	0	0	0	0	0	0	0	0	1	0	0
3. level	0	0	0	0	0	0	0	0	0	0	0	0
0,1 – 0,01 mg/kg												
1 .level	1	0	2	1	0	0	1	0	0	29	39	54
2. level	0	0	0	0	0	0	0	0	0	17	11	38
3. level	0	1	0	0	0	0	1	0	0	4	2	9
0,01 – 0,001 mg/kg												
1 .level	10	2	7	1	14	4	2	1	0	61	154	95
2. level	5	2	11	1	1	1	5	0	0	51	21	70
3. level	2	1	8	2	1	1	5	0	0	35	21	51
0,001 -0,0001 mg/kg												
1. szint	0	15	2	0	29	3	0	0	0	8	83	16
2. szint	0	0	1	0	1	1	0	0	0	7	4	19
3. szint	0	0	3	0	1	1	0	0	0	5	2	20
Σ	18	21	34	5	47	11	16	1	0	224	338	388

2. SURVEY

Table 5. The complement of the waste of PPP and PPP-packaging materials (2003)

PPP		PPP packaging materials	
PPP-types	**Quantity (kg)**	**Packaging-types**	**Quantity (kg)**
herbicides	108 181	plastic	399 742
fungicides	68 792	metal	142 612
insectisides	36 796	glass	4 657
other	99 912	other	38 540
total	313 681	total	585 551

DIAGRAM 9

Distribution the types of wastes of PPPs and PPP packaging materials

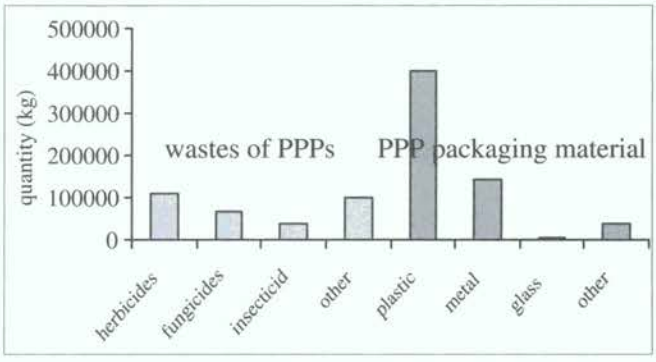


DIAGRAM 10.A

Distribution of wastes of PPP and PPP packaging materials in East of the Danube per county

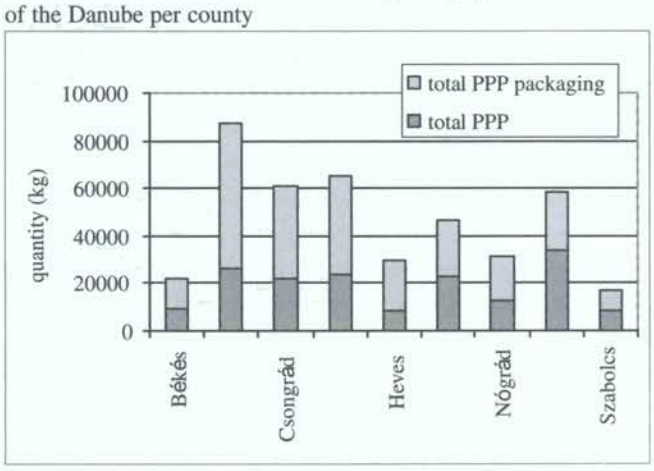
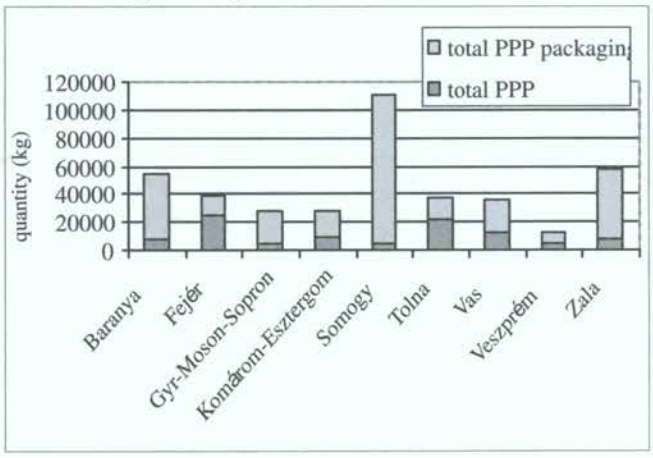


DIAGRAM 10.B

Distribution of wastes of PPP and PPP packaging materials in Transdanubia per county



HUNGARY – EUROPE - GAIA

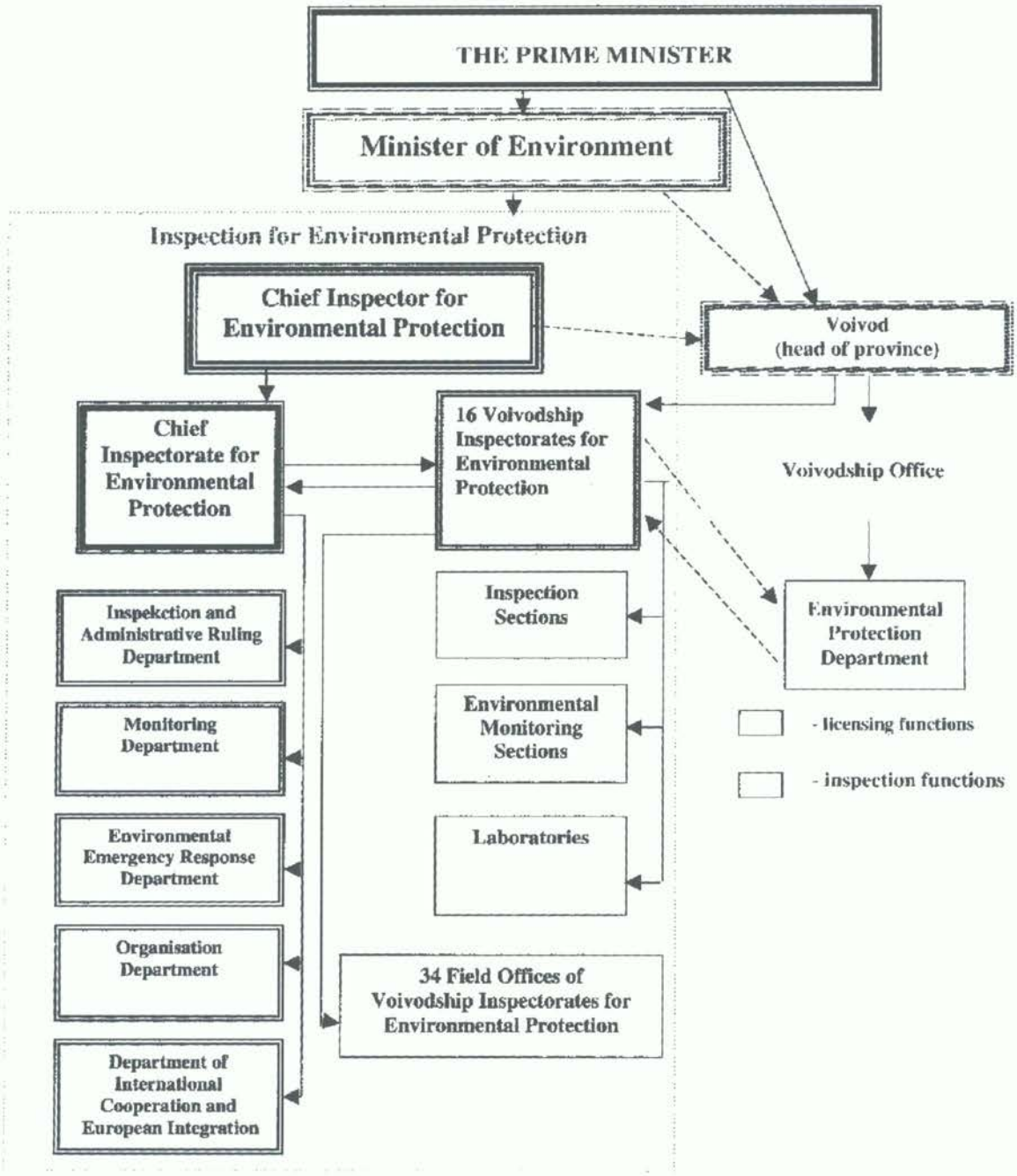
Implementation status in Poland

Practical experiences in the implementation of the Basel Convention

Krystyna Panek –Gondek
Department for International Cooperation and European Integration, Chief Inspectorate For Environmental Protection

- Tasks of Competent Body have been carried out in Poland by the Section of Transboundary Movements of Wastes (WTPO) in the Department of Inspection and Administrative Ruling of the Chief Inspectorate for Environmental Protection.
- The Tasks of Focal Point have been carried out by the Department of International Co-operation and European Integration of the Chief Inspectorate for Environmental Protection, where the National Secretariat of the Basle Convention – KSKB – was established.

ORGANISATION CHARD: INSPECTION FOR ENVIRONMENTAL PROTECTION



THE LEGAL BASIS FOR THE IMPLEMENTATION OF BC

- The issues relating to transboundary movements of wastes are regulated in Chapter 8 of the Waste Act of 27 April 2001.

THE LEGAL BASIS FOR THE IMPLEMENTATION OF BC

- Since this Act is not fully consistent with EU legislation, work is now underway on a new Act on international waste shipments, which will replace and amend Chapter 8 of the Waste Act. It is expected that this document will be adopted by the Minister of the Environment at the end of March and submitted to the Chancellory of the Prime Minister.

IMPORT

- Imports of wastes for disposal are prohibited.
- Imports of wastes mixed with objects or substances which are not wastes are prohibited.
- Imports of hazardous wastes are prohibited with the exception of 3 types of hazardous wastes as set out in the Regulation of the Minister of the Environment of 4 February 2004:
- 10 04 02 Dross and skimmings from lead thermal metallurgy
- 13 02 05 Waste oils
- 16 06 01 Lead batteries
- Imports of non-hazardous wastes are allowed on authorisation of the Chief Inspector for Environmental Protection issued by way of an administrative decision.
- The Regulation of the Minister of the Environment of 5 March 2002 lays down a list of wastes the imports of which into Poland do not require authorisation, the so-called Green List of Wastes.
- All the following conditions must be met for imports to be authorised:
  - the wastes are destined for recovery in the country or abroad, excluding operations R1 incineration and R10 soil reclamation,
  - in the country there are no wastes suitable for equivalent recovery or the wastes are present in an insufficient quantity,
  - the imported wastes or the manner of their recovery in the country will not enhance hazards to the environment, nor increase the mass of the wastes landfilled.

EXPORT

- Exports of hazardous wastes require authorisation of the Chief Inspector for Environmental Protection issued by way of an administrative decision.
- Exports of non-hazardous wastes do not require authorisation of the Chief Inspector for Environmental Protection issued by way of an administrative decision, with the exception of the wastes laid down in the Regulation of the Minister of the Environment.
- The Regulation of 6 February 2002 lays down a list of non-hazardous wastes the exports of which to specific countries require written authorisation of the Chief Inspector for Environmental Protection.
- The following conditions must be met for exports to be authorised:
  - the manner of waste management abroad is safe for the environment,
  - the competent authorities of the state of destination of hazardous wastes and the states of transit grant consent to its delivery and transit.

THE TASKS OF THE SECTION OF TRANSBOUNDARY MOVEMENTS OF WASTES (WTPO):

- The basic tasks of the Section are to co-ordinate and implement the control tasks of the Inspectorate in the scope of waste imports, exports and transit as regulated by the Waste Act and to prepare administrative decisions of the Chief Inspector for Environmental Protection concerning international waste shipments. In particular, it performs the following functions:

1. the conduct of administrative proceedings concerning transboundary movements of wastes,
2. the registration of applications and the conduct of administrative proceedings concerning the withdrawal by the Chief Inspector for Environmental Protection of the authorisations issued earlier for international waste shipments, including the preparation of draft letters, rulings and administrative decisions,
3. the preparation of draft decisions and rulings of the Chief Inspector acting as the first-instance and second-instance authority in the cases of transboundary movements of wastes which are not covered by administrative proceedings,
4. the consideration of complaints and the participation in the proceedings before the High Administrative Court in the cases concerning transboundary movements of wastes,
5. an exchange of information with the competent authorities of other States and international organisations in the scope of transboundary movements of wastes,
6. the performance of substantive tasks related to Poland's participation in the Basle Convention in the scope assigned to WTPO,
7. the preparation and analysis of the data in the scope of the matters related to transboundary movements of wastes,
8. the co-operation with the State authorities of control, prosecution and justice, including the reporting to the prosecutor's office of cases related to transboundary movements of wastes,
9. advice provided to the Voivodship Inspectors within the competence of the Inspector for Environmental Protection concerning transboundary movements of wastes,
10. the submission of suggestions regarding the necessity of amendments to legal acts within the scope of the activities of the Section and the launch of legislative initiatives in this scope,
11. the provision of opinions on draft legal acts and other documents concerning transboundary movements of wastes,
12. the conduct of, and participation in, inspections of transboundary movements of wastes.

2003	IMPORT	EXPORT	TRANSIT
Application	187	33	5
Authorisation Granted	137 Incl. 37 from 2002	27 Incl. 8 from 2002	5 Incl. 1 from 2002
Refused	8 Incl. 3 from 2002	0	0
Proceedings discontinued	10 Inc. 7 from 2002	1 Delivered in 2002	1 Delivered in 2002
Not considered	46 Incl.27 from 2002	4 Incl. 3 from 2002	1

ACTIVITY OF COMPETENT BODY

WTPO found no difficulties related to the implementation of the provisions of the Basel Convention in 2003.

COOPERATION WITH CUSTOMS AUTHORITY

- In the implementation of the tasks related to international waste shipments, the regional branches – the Voivodship Inspectorates – co-operate with the Border Guard, which e.g. prevents unauthorised shipments of wastes, dangerous chemical substances and radioactive materials across the State border, and with the authorities of the customs services.
- The Voivodship Inspectorate for Environmental Protection in Zielona Góra co-operates with the Customs Office in Rzepin and with the branches of this office located at border crossings. The aim of this co-operation is to prevent the imports of wastes for which the carrier has no valid decision of the Chief Inspector. Moreover, in doubtful cases the staff members of the Voivodship Inspectorate provide the customs officers with advice regarding the identification and qualification of the wastes transported.

INFORMATION ON THE ACTIVITIES OF THE NATIONAL FOCAL POINT

In accordance with the provisions of the Minister's Order entrusting the tasks of the Focal Point to the Chief Inspector for Environmental Protection and establishing the National Secretariat of the Basel Convention (KSKB), from 1 July to 31 December 2003, this Secretariat carried out the following tasks:

1. **Ensuring the transmission of information, in accordance with the provisions of Articles 13 and 16 of the Convention:**
   KSKB co-operated with the Secretariat of the Basel Convention in Geneva by verifying the data transmitted as well as co-ordinating the preparation and co-developing the following documents:
   - The annual "Transmission of Information",
   - Poland's Country Fact Sheet,
   - The correction of the questionnaire on Annex IX.
2. **Managing the National Secretariat of the Basel Convention**
   In order to manage KSKB, on 15 September 2003, one person was employed in the position of a specialist at the Department of International Co-operation and European Integration of the Chief Inspectorate for Environmental Protection.
3. **Drawing up long-term plans and current programmes for the implementation of the Poland's commitments under the Convention and their submission for approval to the Minister of the Environment**
   KSKB drew up a framework timetable for its activities, which was approved by the Chief Inspector. The plans for 2004 include the development of a programme of action relating to Poland's involvement in the implementation of the Strategic Plan of Implementation of the Basel Convention for 2004-2010
4. **Preparing, in co-operation with the relevant Ministers and other public administration authorities, reports on the meeting of the commitments under the Convention and the implementation of the guidelines drawn up by the Working Groups established pursuant to the Decisions of the Conference of the Parties**
   - Dissemination,
   - Translation,
   - To be used in planning inspection cycles.
5. **Providing, in co-operation with the relevant Ministers and other public administration authorities, all documents subject to the work of the Convention authorities and their submission to the Secretariat of the Convention.**
   - the Ministry of the Environment
   - the Ministry of Justice,
   - the Ministry of Economy, Labour and Social Policy,
   - the Ministry of Infrastructure,
   - the Maritime Offices in Gdynia and Szczecin,
   - the Office for Chemical Substances and Preparations,
   - the Interim Secretariat of the Stockholm Convention,
   - the Chief Inspectorate of Environmental Protection,
   - professional associations and NGOs.
6. **Drawing up and submitting for the Minister of the Environment's approval draft positions for delegations participating in the meetings of the Conference of the Parties to the Convention and the other authorities of the Convention as well as analysis and assessment of the reports on the participation in the meetings at the forum of the Convention.**
7. **Organising training courses, conferences and workshops designed to spread the practical knowledge of the principles of the implementation of the provisions of the Convention.**
   - training course on Cleaner Technology in Bratislava on 8-14 November 2003,
   - seminar on the draft of "National Programme for the Implementation of the Stockholm Convention" on 15 January 2004 in Warsaw,
   - session of the MEPC Section at the IMO Focal Point in Gdańsk on 16 January,
   - seminar on the proposal of the European Commission for a Regulation on chemical substances on 17 February in Warsaw.
8. **Initiating measures designed to disseminate the provisions of the Convention and to monitor the implementation of related provisions**
   a ensuring the transmission of information among the Parties through an exchange of experiences and opinions,
   b entering into contacts with non-governmental organisations.

Legal Status of Rotterdam Convention in Poland

- The Rotterdam Convention is not ratified till now
- Legal procedure is advanced
- No appointed Polish DNA
- Main issues are transposed into Polish legislation

REGULATION OF OCTOBER 15TH 2003 CONCERNING EXPORT RESTRICTIONS OF SOME CHEMICAL SUBSTANCES AND PREPARATIONS FROM TERRITORY OF THE REPUBLIC OF POLAND (DZ.U. NO 187 ITEM 1833)

- It will be in force till the day of accession
- Bureau for Chemical Substances and Preparations as the authority responsible for the export decision according to this regulation
- Regulation implements EU Reg. 304/2003/EC

REGULATION CONTAINS THREE ANNEXES

- Annex 1: the list of chemical substances whose export from the territory of The Republic of Poland requires the Inspector's permission
- The substances are the same ones (except binapacryl, oxirane and toxaphene) as in the Annex III for Annex A of Rotterdam Convention
- Annex 2: the list of states where export of chemicals, placed in Annex 1, requires Inspector's permission;
- Annex 3: the template of an application for permission.

MOREOVER IN THE REGULATION WERE LAID DOWN:

- the procedure of granting the permission;
- the steps to be followed by the Inspector after receiving of the application.

EXPORT PROCEDURE

- the exporter shall submit the application for permission to the Inspector no later than 30 days before the export of the chemical
- the Inspector is obliged to grant the permission or its refusal no later than 14 days since submitted the application for permission
- Dir. 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations is not implemented
- Relevant Polish regulation covered provisions of mentioned Directive is expected soon

POLISH LEGAL ACTS ARE AVAILABLE AT THE BUREAU'S WEB SITE:

WWW.CHEMIKALIA.MZ.GOV.PL

Implementation status in Slovakia

Basel Convention under the Conditions of the Slovak Republic

Katarína Lenková, Slovak Environmental Agency Bratislava, lenkova@sazp.sk

The Slovak Republic is the Basel Convention member state since 1993. Being one the successor countries of the former Czech and Slovak Federal Republic it took on all obligations ensuing from the Convention that the Czech and Slovak Federal Republic joined in 1991.

In 1995, the full text of the Basel Convention was issued in the Collection, namely, in the form of the Communication of the Ministry of Foreign Affairs of the SR No. 60/1995 Coll. and, in 2000, the Communication of the Ministry of Foreign Affairs of the SR No. 132/2000 Coll. on the amendment to Annex 1 and adoption of two new Annexes VIII and IX to Basel Convention on the control of transboundary movements of hazardous wastes and their disposal.

THE INSTITUTIONAL SUPPORT OF THE BASEL CONVENTION

In accordance with Article 5 of the Basel Convention the national contact points have been established for the Convention implementation, namely, the competent authority represented by the Ministry of Environment of the Slovak Republic - the Department of the State Administration, and the Slovak Environmental Agency - the Centre of Waste and Environmental Management, which represents a focal point.

NATIONAL LEGISLATION AND BASEL CONVENTION

Three regulations represent a legislative support of the Basel Convention:

- **Act of the National Council of the SR No. 223/2001 Coll.** on wastes and amendment to certain Acts, namely, Part 4 recognizes the BC requirements and EU regulations (EEC Directive 259/93); the Act came into effect since July 2001;
- **Decree of Ministry of Environment of the SR No. 234/2001 Coll.** on waste classification to the Green Waste List, the Amber Waste List and the Red Waste List and on document speciments required for the shipment of waste; the national Green List of this Decree has included about 30% of wastes from the OECD Green List. The remaining 70% from the OECD Green List were transferred to national Amber List; that means, the national Amber List includes more wastes than the original OECD Amber List; the aim of this measure was to make the supervision and control of transboundary movememnts of wastes more strict in the first stage of implementing the new legislation (harmonized with EU legislation); this state, however, was not final and after introduction of further regulations concerning the waste lists they were harmonized with the OECD lists;
- **Decree of Ministry of Environment of SR No. 284/2001 Coll.,** on establishing the Catalogue of Wastes; the issued permits also indicate the type of wastes classified according to the National Waste Catalogue; the present National Catalogue is harmonised with EWC.

Waste Act No. 223/2001 Coll., Part 4 regulates import, export and transit of wastes. This part contains procedures for granting permit for transboundary movements of wastes destined for recovery/disposal in connection with waste lists applied in SR. A procedure applied in case of illegal transport, determination of amount of surety, objections to transport, etc., are also described.

Import/export of wastes listed in Amber/Red list is regulated through objections, permits or determination of transport conditions by both the competent authority of Slovak Republic and all those competent authorities that are involved in the transport. The following objections could be raised to import and export:

- is not compliant with the objectives of the Waste Management Programme of the Slovak Republic,
- is not compliant with the generally binding regulations for environmental protection, public order, public security or health protection,
- a notifier or the waste consignee effected illegal waste transboundary movements in the past,

especially to import:

- the ratio of the recoverable and irrecoverable waste parts, (the estimated value of material to be finally recovered) or the ratio of recovery costs to the costs of disposal of the irrecoverable part is economically or from the perspective of the environmental protection not sound,

especially to export:

- a waste consignment is contradictory to obligations resulting from international agreements by which the Slovak Republic is bound,
- the principle of self-sufficiency may be applied on the national level,
- a waste disposal facility must dispose of waste originating in a closely territory and the competent authority of destination has informed about its preference to dispose of that waste.

EXPECTED LEGISLATIVE CHANGES AFTER ACCESSION OF THE SR TO EU IN THE FIELD OF TRANSBOUNDARY MOVEMENTS OF WASTES:

- implementation of the Council Regulation (EEC) No. 259/93 on the supervision and control of shipment of waste within, into and out of the European Community, or its amendment to full extent in the SR and substitution of Part 4 of Waste Act No. 223/2001 Coll.;
- abrogation of Decree of Ministry of Environment of the SR No. 234/2001 Coll. on waste classification to the Green Waste List, the Amber Waste List and the Red Waste List and on document speciments required for the shipment of waste, namely,

owing to duplicity of its provisions and those of the Council Regulation (EEC) No. 259/93 from 1st February 1993 on the supervision and control of shipment of waste within, into and out of the European Community, which will become directly applicable and effective from 1st May 2004 at the territory of the Slovak Republic;
- preparation of a new Act whereby the Waste Act No. 223/2001 Coll. will be changed and supplemented in connection with transboundary movements – at present the intersector comment procedures take place.

ACTIVITIES OF THE COMPETENT BODIES OF THE BASEL CONVENTION IN SLOVAKIA

Competent authority

The competent authority manages the whole process of granting permits to transboundary movements of wastes.
In this connection the competent authority ensures the following administration procedures:
- ensures contacts with relevant administration bodies in the countries involved;
- registers submitted applications and controls them on formal and content form;
- administers relevant agenda from the start to the end of the administration process;
- ensures exchange of information (providing additional information, objections, etc.);
- cooperates with inspection and customs bodies;
- expresses its opinions on proposals of legal regulations, etc.

Focal point

The role of the focal point is to provide statistics on wastes and to serve as an information contact in the area of waste management for Slovakia. The focal point covers following activities:
- provides information to the national competent authority;
- cooperates and provides information to the State administration at the national level.
- fulfills reporting duties under Articles 13, 16 of the Basel Convention to the Secretariat;
- prepares country fact sheet;
- provides information about transboundary movements of wastes to the relevant bodies of the Parties;
- cooperates with European institutions, such as EEA, Eurostat, etc.;
- provides data processing and databases on:
- transboundary movements of wastes; permits are background documents on transboundary movements of wastes issued by competent authority;
- consignee notes that the individual entities send to the competent authority after finishing the transport;
- hazardous wastes transport within the country; permits are background documents issued by relevant regional offices;

Outputs of the databases:
- annual reviews of import and export of wastes from different points of view, e.g., on types of wastes, waste flows, transport applicants, etc.; on the basis of the database it is possible to provide information at request;
- evaluation of import and export of wastes based on permits and consignee notes on executed transport;
- detailed annual report on transboundary movements of wastes which gives an analysis on permits issued in relevant calendar year, realized transport and also illegal transport of wastes. The Slovak Environmental Inspection provides data on identified illegal transport to the focal point;
- annual reviews of hazardous wastes transport realized within the country from different points of view, e.g., on types of wastes, waste flows, applicants, etc.; on the basis of the database it is possible to provide information at request;

The competent authority and the focal point cooperate in preparation of comments on working materials distributed by the Secretariat of the Basel Convention and inform each other on their activities. In connection with the activity of the Regional Training Centre at the SEA, CWEM Bratislava a mention must be also made on active cooperation of both national bodies set up for the needs of the Basel Convention with this institution.

SOME DATA ON IMPORT, EXPORT AND TRANSIT IN 2002

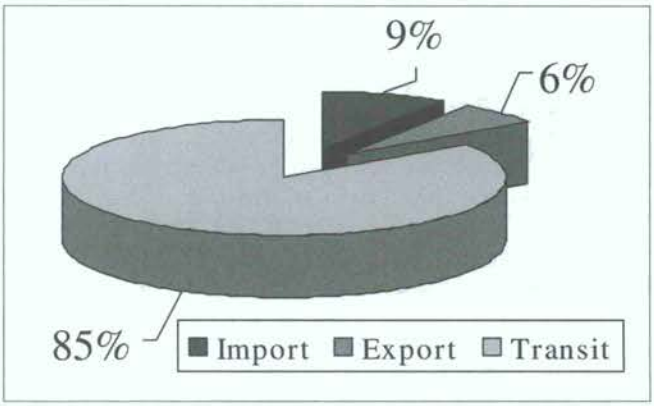
Overview of number of permits issued in the time period from January 1 to December 31, 2002 the validity of which finished in 2002 or will finish in 2003, is given in the table.

Validity	Import	Export	Transit	Total
2002	57	21	11	89
> 2002	48	28	9	85
Total	105	49	20	174

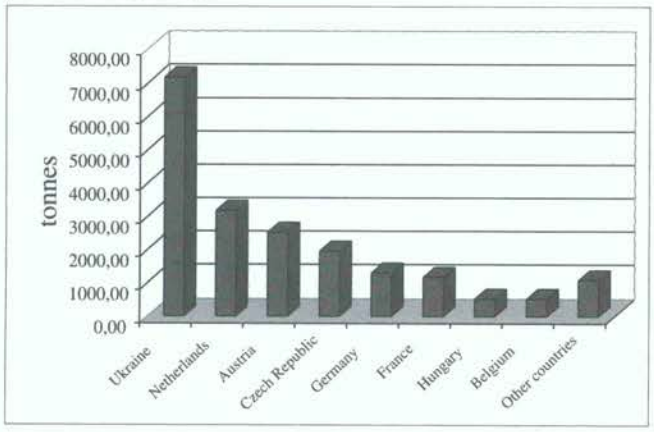
Total amount of wastes authorised to import, export and transit based on permits issued

Type of transport	Waste classification		Total
	Amber list	Red list	
	amount (tones)	amount (tones)	amount (tones)
Import	19 274,15	0	19 274,15
Export	12 695,54	40,00	12 735,54
Transit	146 289,20	0	146 289,20
Total	178 258,89	40,00	178 298,89

Total amount of wastes in % authorized to transboundary movements in 2002



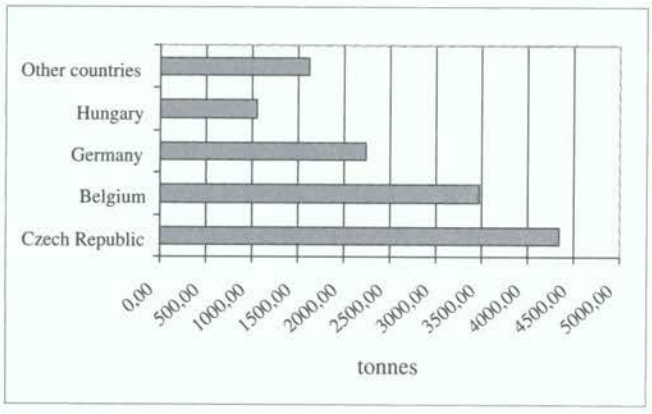
Amount of wastes authorized to import from individual countries (13 countries) in 2002



Ukraine has participated by 37% from the total amount of authorised waste. The Netherlands by 16.3%, Austria by 13.06% and the Czech Republic by 10.1% were also among the significant importers of wastes that could be treated of in Slovakia. In the group of the remaining groups there were Byelorussia, Switzerland, Sweden, Italy and Great Britain and the total amount authorised for these countries represented 5.6%.

The requirements for import in 2002 were focused on worn clothing (second-hand), used rags, plastic wastes, waste catalyzers and used tyres.

Amount of wastes authorized to export into individual countries (10 countries) in 2002



The permits issued in 2002 for waste exports enabled to export wastes into ten countries. From the total amount of wastes authorised to export, 34% were those authorised to the Czech Republic and 27% to Belgium. In the group of the other countries there were six countries wherein 1 622,74 ton of wastes could be imported which represented 13% out of the total amount of wastes authorised for export.

The permits for exports were concerned with plastic wastes, used rags, wastes from rubber, waste from reprographic and photographic chemicals, wastes containing PCB. Waste included on the red lists corresponded to wastes containing PCB and PCT in the amount of 40 t, that could be exported to France. A French company guaranteed environment-friendly disposal of the relevant wastes.

COOPERATION WITHIN THE FRAMEWORK OF MEAs

The cooperation among individual agreements, that means, the Basel Convention, Rotterdam Convention, Stockholm Convention and Montreal Protocol that are represented in Slovakia, is very weak. Recently, the Basel Convention participated only in activities of the Stockholm Convention in connection with preparation of the project "Initial assistance to the Slovak Republic to meet its obligations under the Stockholm Convention on persistent organic pollutants (POPs)". So far, a space for common activities has not been created with Montreal Protocol and Rotterdam Convention. One of the reasons of insufficient cooperation is the fact that implementation of individual conventions is isolated. Establishment of information exchange system among the conventions could contribute to improvement of mutual knowledgeability because the issue of chemicals and wastes has much in common.

Preparation of this workshop gave an impulse for meeting representatives of individual agreements and establishment of contacts. The joint workshops organized on regular basis could provide a good opportunity for exchange of information and experience, eventually, for solution of common issues. The benefit of such meetings will certainly lead to improvement of the present situation.

CONCLUSION

Concerning the Basel Convention it may be stated that owing to long-standing implementation of the Basel Convention in practice in the Slovak Republic no problems has been encountered in its application.

Implementation of the Rotterdam Convention in the Slovak Republic

Radomir Ondrus, Ministry of Economy of the Slovak Republic

OVERVIEW

1. Implementation of the Rotterdam Convention
2. Export and Import Balance of Dangerous Chemicals
3. Departmental Co-operation on Implementation of the Rotterdam Convention
4. NFPs co-operation possibilities in implementation of MEAs on national level

IMPLEMENTATION OF THE ROTTERDAM CONVENTION

1.1 Status of Slovakia's Accession to the Rotterdam Convention
1.2 Current Legislation on Export and Import of Dangerous Chemicals
1.3 Transposition of the EU chemical legislation into the Slovak legislation

STATUS OF SLOVAKIA'S ACCESSION TO THE ROTTERDAM CONVENTION

a) Participation on a Voluntary Base
b) Beginning of Accession Process
c) Time Schedule of Accession

CURRENT LEGISLATION ON EXPORT AND IMPORT OF DANGEROUS CHEMICALS

- Act No. 163/2001 on Chemical Substances and Chemical Preparations
- Order of Ministry of Economy of SR No. 401/2001
- Decree of Ministry of Economy of SR No. 7/2001

TRANSPOSITION OF THE EU LEGISLATION

- Regulation No. 2455/92/EEC Concerning the Export and Import of Dangerous Chemicals
- Regulation (EC) No. 304/2003 Amended by Regulation (EC) No. 1213/2003
- Council Decision No. 2003/106/EC

EXPORT AND IMPORT BALANCE OF DANGEROUS CHEMICALS

No export
during the accounted period
01/2002 - 03/2004

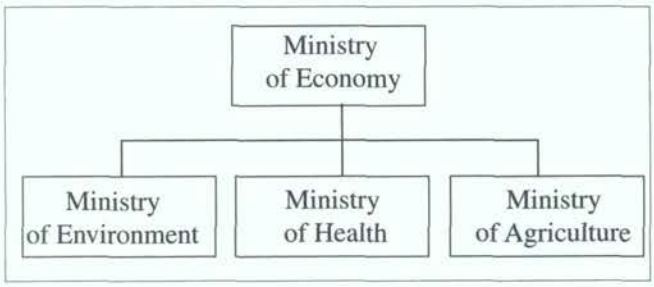
EXPORT AND IMPORT BALANCE OF DANGEROUS CHEMICALS

Import
01/2002 - 03/2004

1,2-Dichloroethane, Ethylene oxide, Mercury dichloride

2002	3 applications	1 co	EU, H, PL, RF
2003	7 applications	4 co	EU, PL, RF, Azerb.
2004	3 applications	1 co	EU, H, PL, RF, RO, Azerbaijan

CO-OPERATION AMONG DEPARTMENTS



NFPS CO-OPERATION POSSIBILITIES

NFPs

Basel	Slovak Environmental Agency
Stockholm	Ministry of Environment
Rotterdam	Ministry of Economy
Montreal	Ministry of Environment

SUMMARY

1. Implementation of the Rotterdam Convention
2. Export and Import Balance of Dangerous Chemicals
3. Departmental Co-operation on the Rotterdam Convention
4. NFPs Co-operation Possibilities

CONCLUSION

The Slovak Republic is committed to implementing the Rotterdam Convention.

Slovak Inspectorate of the Environment

Karloveská 2, 842 22 Bratislava, Slovak Republic
Department of Waste Management Inspection, Headquarters, JD

Slovak Inspectorate of the Environment (hereinafter „SIE") is professional control body of the Ministry of the Environment of the Slovak Republic

It performs its activity in the fields as follows:

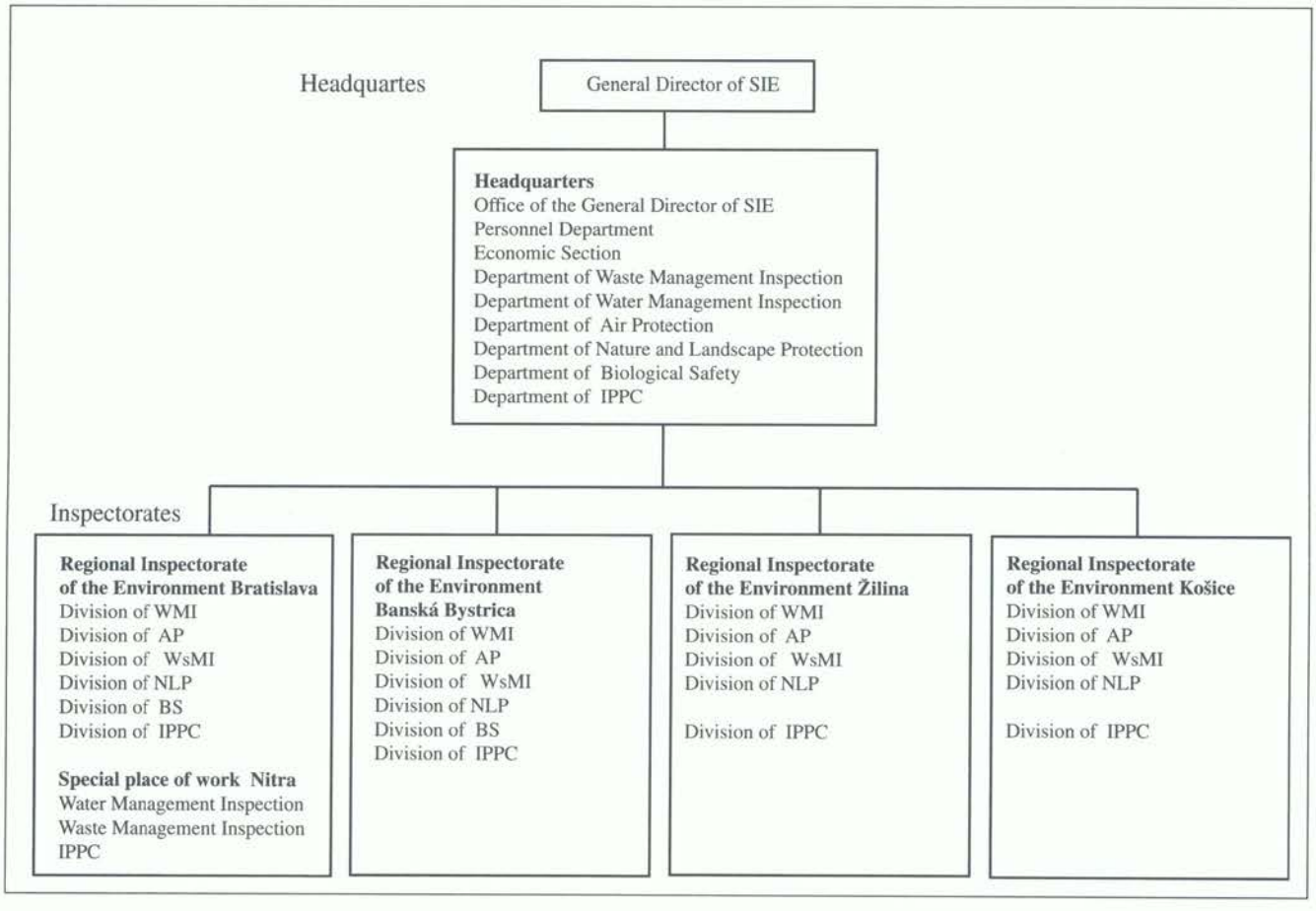
- waste management
- water management
- air protection
- nature and landscape protection
- integrated pollution prevention and control
- biological safety

SIE consists of

Headquarters – located in the capital of Slovakia „Bratislava"
Regional Inspectorates of the Environment – located in:

- Bratislava
- Žilina
- Banská Bystrica
- Košice
- special place of work in Nitra

SLOVAK INSPECTORATE OF THE ENVIRONMENT



PLACE OF WORK OF REGIONAL INSPECTORATE OF THE ENVIRONMENT

Department of Waste Management Inspection (hereinafter "DWMI") was established in 1992, based on the first Waste Act in Slovakia No. 238/1991.Coll.
Staff resource - 28 employees working at DWMI:

4 – Headquarters
24 – Regional Inspectorates of the Environment
- 5 – Bratislava
- 5 – Nitra
- 5 – Žilina
- 5 – Banská Bystrica
- 4 – Košice

DWMI - HEADQUARTERS :

- is second level body – it issues the decisions based on the appeals against first level decision
- it issues methodology for inspection activity in the field of waste management
- it issues professional statements in the matter of waste management
- it performs inspections in the field
- it is first level body – it issues first level decision on fines (based on the inspection´ s findings) and corrective measures
- it decides in disputed cases whether the goods in question – in case of trans – boundary shipment – is waste

INSPECTORS ARE AUTHORIZED:

- to enter operative area of inspected subject,
- to inspect its operating records and documents,
- to carry out necessary investigations, including sample collections, preparation of photo-and video-documentation,
- to request necessary data and explanations.

WASTE LEGISLATION IN THE SLOVAK REPUBLIC

Act on Wastes No. 223/2001 Coll. - in force since 1 July 2001

- Regulation of the Ministry of the Environment of the Slovak Republic
  No. 283/2001 on implementing certain provisions of the Act on Wastes
- Regulation of the Ministry of the Environment of the Slovak Republic
  No. 284/2001 on establishing the Catalogue of Wastes,
- Regulation of the Ministry of the Environment of the Slovak Republic
  No. 273/2001 on authorisation, on the issue of the expert opinions in the matters of waste, on designation of persons authorised to issue expert opinions and on examination of professional qualification of such persons,
- Regulation of the Ministry of the Environment of the Slovak Republic
  No. 234/2001 on waste classification to the Green List of Waste,
- the Amber List of Waste and the Red List of Waste and on document specimens required for the shipment of the waste,
- Regulation of the Ministry of the Environment of the Slovak Republic No. 516/2001 on rates for the calculation of the fees to the Recycling Fund,
- Decree of the Ministry of the Environment of the Slovak Republic
  No. 1/2002 setting the uniform methods of analytical control of wastes.

WASTE LEGISLATION IN THE SLOVAK REPUBLIC

EU Directives fully transposed into the Slovak Waste Legislation

- Council Directive 75/442/EC, 15 July 1975
- Council Directive 75/439/EC, 16 June 1975, on the disposal of waste oils

- Council Directive 78/176/EC, 20 February 1978
- Council Directive 91/689/EEC, 12 December 1991
- Council Regulation (EEC) No. 259/93 on the the supervision and control of shipments within, into and out of the European Community
- Council Directive 99/31/EC, 26 April 1999
- Council Directive 96/59/EC, 16 September 1996
- Council Directive 99/31/EC, 26 April 1999
- Council Directive 2000/53/EC, 18 September 2000

Act No. 529/2002 Coll. on the Packaging

- Regulation of the Ministry of the Environment of the Slovak Republic No. 732/2002 Coll. on list of charged reusable packaging and the rate for them and not reusable packaging and the rate for them
- Regulation of the Ministry of the Environment of the Slovak Republic No. 5/2003 Coll. on implementing certain provisions of the Act on Packaging
- Order of the Government of the Slovak Republic No. 22/2003 Coll. on binding limits for extent of packa ging waste recovery and extent for packaging waste recycling
- Council Directive 94/62/EEC on packaging and packaging waste

Act on Landfilling Charges No. 17/2004 Coll.

PLANNING

- Annual Plan of Main Tasks of SIE
  - drawn up by SIE
  - consists of the Annual Plans of relevant departments
  - setting out the priorities for particular year
  - submitted to the Minister of the Environment
  - approved by the Minister of the Environment
- Quarterly Plans of the Inspection Activities
  - prepared by relevant DWMI at Regional Inspectorates
  - of the Environment
  - planned controls
  - planned verbal hearings
  - allocation of time for inspections
  - allocation of time for verbal hearings
  - approved by the relevant Head Inspector
- Not planned activities – inspections
  - based on complaints

INSPECTION ACTIVITY EVALUATION

- Annual Evaluation of the Plan of Main Tasks of SIE
  - prepared by SIE
  - consists of the Annual Evaluations of relevant departments
  - declares that the Annual Plans of Main Tasks of SIE was fulfilled
  - submitted to the Minister of the Environment
  - approved by the Minister of the Environment
- Half a Year Evaluation of the Plan of Main Tasks of SIE
  - prepared by SIE
  - consists of the Annual Evaluations of relevant departments
  - declares that the Annual Plans of Main Tasks of SIE was fulfilled
  - submitted to the Minister of the Environment
  - approved by the Minister of the Environment
- Quarterly Evaluation of the Plan of Inspection Activities
  - prepared by relevant DWMI at Regional Inspectorates of the Environment
  - submitted to the relevant Head Inspector

INSPECTION PRIORITIES

The inspection monitors predominately obligations of:

- waste producers during handling of the waste, with emphasis on management of the hazardous waste
- operators of installation for disposal and recovery of the waste
- enterprises carrying out waste collection
- waste dispatching and waste destination person in domestic traffic of the hazardous waste
- enterprises providing for trans-boundary waste shipment
- producers and importers of certain products
- municipalities and their management of the municipal waste and small-size construction waste
- the payment contribution to the Recycling Fund in a fixed amount
- the prevention in packaging and packaging waste
- following the requirements imposed on the packaging composition and properties
- the payment of charges for landfilling on a landfill and the payment of charges for landfilling on a sludge bed

INSPECTION REPORTS

- special Act on report's procedure
- prepared from each inspection in the field
- submitted to the operator
- two types of inspection reports
  protocol – infringement was found out during inspection
  report – on infringement was found out during inspection

DECISION – MAKING PROCEDURE

- in case of non-complying with the laws and related regulations
- a decision on fine or corrective measure issued within 30 days – first level decision – from verbal hearing
- operator has the right to appeal against the first level decision – it is send to

the DWMI – Headquarters

- DWMI – Headquarters second level body (appeal body)
  - re-evaluates first level decision and all related documents
  - issues second level decision

INSPECTION ACTIVITY IN 2003

Subjects of inspection		BA	BB	KE	NR	ZA	Total
Waste producers		25	95	50	99	99	368
Municipality		1	4	0	4	3	12
Territory sanation (waste producers)		0	2	0	0	0	2
Waste Disposal Installations	Landfill	2	6	10	3	5	26
	Landf. charges	0	1	0	2	0	3
	Sludge bed charges	0	0	6	0	0	6
	Waste incinerator	1	1	3	0	0	5
	other	0	0	2	0	1	3
Waste recovery installations		4	10	8	1	2	25
Installations for waste collection		1	12	10	8	8	39
Trans-boundary shipment of waste		0	0	2	2	5	9
Fees to the Recycling Fund		2	4	1	1	8	16
Manufacturers and Importers of Vehicles		4	0	0	0	2	6
Complaints	packaging	2	0	0	0	2	4
	Recycling Fund	1	0	0	0	2	3
	Trans-boundary shipment of waste	2	0	1	0	1	4
	Waste collection	0	0	3	0	0	3
	Waste handling	10	6	11	9	15	51
Total		55	141	107	129	153	585

585 inspections
non-compliance with the laws 54 % (316 inspections)
compliance with the laws 46 % (269 inspections)

Decisions	BA	BB	KE	NR	ZA	Total
Decisions on fines	12	49	53	62	30	206
Abate the decision making process	2	3	3	0	0	8
Anew the decision making process	0	0	0	0	0	0
Corrective measures decisions	3	1	1	0	0	5
Total	17	53	57	62	30	219

DWMI – RIE	Total sum (, -Sk)
Bratislava	350 000,-
Banská Bystrica	748 800,-
Košice	1 252 500,-
Nitra	1 378 000,-
Žilina	845 000,-
Total sum	4 574 300,-

1 EUR = 41,- Sk

INSPECTION ACTIVITY FOCUSED ON TRANSBOUNDARY WASTE SHIPMENT

- DWMI co-operates with customs offices
  - information on trans-boundary shipment of waste which may indicate suspicion of illegal trans boundary shipment waste
  - the information source for inspections
- inspections performed on the territory of the Slovak Republic
  - place of import
  - place of export
- 13 inspections carried out in 2003
  - 9 imports
  - 4 exports

INSPECTION ACTIVITY FOCUSED ON TRANSBOUNDARY WASTE SHIPMENT

Regional Inspectorate of the Environment -DWMI	Import	Export	Total
Bratislava	1	1	2
Nitra	2	0	2
Banská Bystrica	0	0	0
Žilina	4	2	6
Košice	2	1	3
Total	9	4	13

- results of the inspections

	Import (9)	Export (4)	Total (13)
Compliance	3	2	5
Non-compliance	6	2	8

INSPECTION ACTIVITY FOCUSED ON TRANS-BOUNDARY WASTE SHIPMENT

Non-compliance with the law

- surety to cover costs related to the return of waste to the state of its origin and its disposal in case where the consignee would accept the waste was not fu
- confirmation of the waste receipt was not submitted to the Ministry of the Environment in the deadline 30 days after the shipment
- trans-boundary shipment was carried out without the permit of the Ministry of the Environment
- trans-boundary shipment was carried out contradictory to the requirements stated in the notification form
- in the deadline three workdays before commencing the trans-boundary waste
- shipment – a copy of a filled in notification form was not delivered to the Ministry of the Environment
- Within three workdays from the receipt of waste for recovery the copies of the filled in notification form was not delivered to the Ministry of the Environment
- in the period of 180 days from the receipt of waste a copy of the notification form of the waste recovery was not delivered to the Ministry of the Environment and to the competent authorities concerned

Implementation status in Slovenia

Practical Experience With Transboundary Movements of Hazardous Wastes

Marija Urankar, Inspector I for Environment Inspectorate of RS for Environment, Spatial Planning and Energy
Vojko Otovič, Senior Inspector Customs Administration of the Republic of Slovenia

SLOVENIAN LEGISLATION IN FORCE

Important for Implementation of Basel Convention

- **Ratification of the Basel Convention Act** (Official Gazette of the Republic of Slovenia - International Agreements, no. 15/1993)
- **Environmental Protection Act** (Official Gazette of the Republic of Slovenia, no. 32/93, 1/96)
- **Decree on the Export, Import and Transit of Wastes** (Official Gazette of the Republic of Slovenia, no. 39/96, 45/96, 1/97, 59/98, 1/00, 94/00)
- The supervision of the implementation of the provisions of the Decree is carried out by customs authorities and environmental protection inspectors (art. 31).

OTHER SLOVENIAN LEGISLATION

Important for the Implementation of Basel Convention

- **Customs Act** (Official Gazette of the Republic of Slovenia, no. 1/95, 28/95, 32/99, 40/99, 59/02)
- **Customs Tariff Act** (Official Gazette of the Republic of Slovenia, no. 74/95, 66/00)
- **Customs Service Act** (Official Gazette of the Republic of Slovenia, no. 56/99)
- **Rules on Waste Management** (Official Gazette of the Republic of Slovenia, no. 84/98, 45/00, 20/01,13/03)

COMPETENT AUTHORITIES

- **Ministry of Environment, Spatial Planning and Energy**
  - Environmental Agency of the Republic of Slovenia (focal point and competent authority for Basel Convention)
  - Inspectorate of the Republic of Slovenia for Environment, Spatial Planning and Energy (supervision of all environmental legislation)
- **Ministry of Finance**
  - Customs Administration of the Republic of Slovenia (implementation of custom's legislation and Basel Convention)
- **Ministry of Interior**
  - Police Administration (competent for ADR controls and controls of dangerous goods)

INSPECTORATE OF THE RS FOR ENVIRONMENT, SPATIAL PLANNING AND ENERGY - ARRANGEMENT, GOALS, TASKS

- Inspectorate of the RS for Environment, Spatial Planning and Energy consists of four different inspection services on the national level, one of them is Environmental Inspection Service.
- Environmental inspection undertakes inspection and enforcement activities on the basis of state legislation.
- The main role of the environmental inspection is to insure that emissions into the
  - Water
  - Air and
  - Soil

  are in compliance with the requirements of national legislation.
- Besides these the environmental inspectors have also the responsibility for enforcement with regard to the
  - noise emission
  - management with waste residues and landfills
  - border controls regarding the transboundary movements of hazardous waste
  - emission of non-ionised radiation into environment
  - control of public services for ensuring the environmental protection, nature protection and the conservation
  - co-operation with other institutions relevant in the cases of environmental pollution caused by the accidents

THE CUSTOMS ADMINISTRATION OF THE REPUBLIC OF SLOVENIA

- In the year 2003 the government of the Republic of Slovenia adopted a document on the reorganisation of the Customs Administration with a view to the accession of the Republic of Slovenia to EU.
- On the future external EU border six BIPs, international and interstate border crossing for frontier traffic will be established.
- One of the main functions of the Customs Service in Slovenia is to control entry, exit and transit of the goods under special provisions. This goods can not be released into free circulation unless the importer submits the required permission of the competent authority.
- Hazardous wastes and other wastes can be imported, exported or transited only through the defined border crossings.
- Controls may include the inspection of documents, physical control of the waste and taking of the samples for analysis at customs laboratory.
- Customs may check in the case when a waste is not accompanied by documents.
- And also in the case when a waste display certain characteristics of serious doubt or risk to health or environment.

BORDER CONTROLS

Co-operation within different bodies and competent authorities

- In the field of the waste control the competences are split between different ministries and organisations, so The Ministry of the RS for Environment co-ordinates the waste control activities with other ministries, authorities and organisations.

Due to the wide range of the tasks, intensive co-operation and co-ordination with other controlling bodies is necessary.

- Environmental inspectors started with inspections on the Slovenian - Austrian border together with other Slovenian competent authorities in the year 1997. In that year the Austrian Ministry of Environment (waste control division) undertook the initiative for common control. That was the beginning of close and good co-operation between the authorities of both countries.
- Since then every year Slovenian competent authorities for the implementation of the Basel Convention have been successfully performing the waste controls together with the Austrian competent authority on the border-stations Spielfeld/Šentilj, Karawanken Tunnel/Karavanke and also Radkersburg/Gornja Radgona.
- We also started with similar checks on the border-stations Dolga vas (Hungary), Gruškovje (Croatia) and Obrežje (Croatia).

The Results of the Border Controls

- During all these checking on the border we found only a few infringements at the beginning - the documents were not in compliance in some cases. But last two years during the checking we did not find any irregularity.

CONTROLS INSIDE THE COUNTRY (GENERATORS, EXPORTERS, COLLECTORS)

- To avoid and prevent precautions on the field of the export of waste environmental inspectors also performed site visits of 60 installations (generators of hazardous waste) which intended to export certain hazardous waste into the EU- member states. They also controlled 10 exporters and collectors (authorised) of wastes.

Found Problems

- The main problems the environmental inspectors found out were:
  - The in-correct classification of hazardous waste
  - The mixing of hazardous wastes from different technology (different origin)

CONCLUSION - ADVANTAGE OF WASTE CONTROL

- Waste controls are very useful not only from the point of view of prevention of illegal shipments but also because of the benefit regarding the exchanging of the experiences and better collaboration between the competent authorities.

AND PLANS FOR FUTURE?

- We shall prepare the handbook for the environmental inspectors and customs officers how to control the hazardous waste and their movement and which actions should be taken in the cases of violation of legislation. And we shall also prepare some training programmes for them.

Implementation of Rotterdam and Stockholm Convention

Vesna Ternifi, Ministry of Health, National Chemicals Bureau

OVERVIEW

- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
- Stockholm Convention on Persistent Organic Pollutants

I. RATIFICATION OF PIC CONVENTION IN SLOVENIA

Activities prior to the ratification

- negotiations (INC3, INC4, INC5) 1997-1998
  - designation of DNA (Governmental Decision- 1998) - Ministry of Health – National Chemicals Bureau (NCB)
- submission of:
  - notifications of control action to ban or severely restrict a chemical;
  - importing country response (1998)

SIGNING OF THE CONVENTION

- translation of the text of the Convention,
- estimation of financial and other implications,
- approval by other relevant Ministries (agriculture, environment, economy, foreign affairs) and Chamber of Commerce)
- Governmental Decision for signing
- signed (Conference of Plenipotenitiaries, 11.9.1998 Rotterdam)

PROCESS OF RATIFICATION

- Verification of the translation by the Interministerial Committee, designated by the Government (January - March 1999):
- composition of the committee:
  - Ministry of Foreign Affairs,
  - Ministry of Environment,
  - Ministry of Agriculture,
  - Ministry of Economy,
  - Ministry of Health,
  - translator (Government),
  - lector (Government).
- ratification in Slovenia: 22.10.1999
- Estimation of financial and other implications:
  - budget for implementation;
  - men power at DNA (3/4 of senior adviser?!) (prepared by the Ministry of Health, confirmed by the Ministry of Finance).
- Draft Law on the Ratification (March 1999)

  - prepared by Ministry of Foreign Affairs and Ministry of Health;
  - confirmed by all relevant ministries, Chamber of Commerce and Parliamentary Body for Foreign Affairs.
- Government confirms Draft Law on the Ratification and sends it to the Parliament (May 1999)
- Parliament approves the Law on the Ratification (October 1999) and publish it in Official Journal (O.J.86/99 - M.P. 26/99)
- Law enters into force on 23.10.1999

LAW ON THE RATIFICATION

- Article 1: with this law PIC convention is ratified
- Article 2: text of the convention (SI+ENG)
- Article 3: For implementation is responsible Ministry of Health in cooperation with Ministry of Agriculture and Ministry of Environment
- Article 4: Law will enter into force day after the publication in O.J.

DEPOSITION

- 17.11.1999 - deposition of instrument of the ratification at UN (second state)
  - process of deposition made through Ministry of Foreign Affairs and Permanent Representation at UN.

IMPLEMENTATION OF THE CONVENTION IN THE RS

- Order on implementation of PIC procedure (O.J. 50/01-June 2001)
  Issued on the basis of:
  - Law on ratification of the Convention,
  - Law on chemicals.

  Enables implementation during the interim PIC procedures.
  Industry is obliges to make appropriate steps for the implementation (information exchange, submission of certain data to NCB, export licences, packaging, SDS for professional usage.....)

INTERIM PIC PROCEDURE

- Carried out for chemicals, which are:
  - subject to the Convention
  - baned and restricted in Slovenia
  - Subject of volunter PIC procedure and not subject to the Convention (confirmed by the INC)
- Export takes place after 60 days.
- DNA: NCB with cooperation of Ministry of Environment and Ministry of Agriculture

BENEFITS OF THE CONVENTION

- Ability to control unwanted imports of chemicals subject to the Convention
- Notifications of exports of chemicals banned or severely restricted in the exporting Parties
- Information summaries of control actions to ban or severely restrict chemicals, in other Parties
- Information on incidents involving severely hazardous pesticide formulation, in other Parties
- A network of DNAs in the region
- Access to DNAs in other regions with similar conditions

EU & NATIONAL IMPLEMENTATION

- European Union + Member States are parties to the convention
- EU regulation 304/2003 on import/export
- After 1.5.04 changes of national legislation:
  - assignment of penalties,
  - no export permits,....
  - coordination on EU level,
  - common EU possition.

II. RATIFICATION OF POPS CONVENTION

Activities prior to the ratification

- negotiations (INC1-INC5) 1997-2000
- designation of CA - Ministry of Health – National Chemicals Bureau (NCB)

SIGNING OF THE CONVENTION

- translation of the text of the Convention,
- estimation of financial and other implications,
- approval by other relevant Ministries (agriculture, environment, economy, foreign affairs)
- Governmental Decision for signing
- signed (Conference of Plenipotenitiaries, May 2001 Stockholm)

PROCESS OF RATIFICATION

- Verification of the translation by the Committee, (January - June 2002):
- composition of the committee:
  - Ministry of Foreign Affairs,
  - Ministry of Health,
  - translator (Government),
  - lector (Government).
- ratification in Slovenia: Act on ratification approved by the Parliament by March 5, 2004
- Estimation of financial and other implications:
  - budget for implementation;
  - men power at DNA (3/4 of senior adviser?!)
    (prepared by the NCB - Ministry of Health, confirmed by the Ministry of Finance, Ministry of Industry and Ministry of Environment).
- Draft Law on the Ratification (2003)
  - prepared by Ministry of Foreign Affairs and NCB - Ministry of Health;
  - confirmed by all relevant ministries and Parliamentary Body for Foreign Affairs.
- Government confirms Draft Law on the Ratification and sends it to the Parliament (January 2004)
- Parliament approves the Law on the Ratification (March 2004)

LAW ON THE RATIFICATION

- Article 1: with this law POPs convention is ratified
- Article 2: text of the convention (SI+ENG)
- Article 3: For implementation is responsible Ministry of Health NCB in cooperation with Ministry of Agriculture and Ministry of Environment

- Article 4: Law will enter into force day after the publication in O.J.

STATUS OF IMPLEMENTATION OF POPS MEA

- Substances scheduled for elimination have been neither produced nor used after 1982 in Slovenia (some of them had never been authorized as PPP)
- Factory of PCBs transformers and capacitors stoped its production in January 1985
- Government of Slovenia adopted in 2003 from ME prepared project on phasing out with PCB contaminated electrical equipment until 2006 (export)

IMPLEMENTATION OF THE CONVENTION IN SLOVENIA

- Preparation of POPs NIP (started by the beginning of 2003 through the UNEP/GEF, prolonged until May 2005)
  - Designation of NCC (12 experts) and national coordinator
- Problems:
  - preoccupation of certain experts
  - lack of some proper data, data sharing, confidentiality of data…

EU & NATIONAL IMPLEMENTATION

- Awaiting EU regulation on Persistent Organic Pollutants
- Responsible Authorities: NCB and ME (in close cooperation)
- After 1.5.04 adoption of legislation on POPs:
  - Designation of CA (NCB and ME)
  - assignment of penalties
  - coordination on EU level
  - common EU possition
  - …

Arnika, participating organization of International POPs Elimination Network (IPEN): Overview on current activities related to the enforcement of the three chemical conventions

Global NGOs community and chemical conventions with a special focus on the Stockholm Convention

Jindřich Petrlík, Arnika Association (e-mail: toxic@arnika.org, Chlumova 17, CZ-130 00 Prague 3, Czech Republic)

Let me to introduce first my NGO and International POPs Elimination Network briefly. Arnika Association is a Czech NGO focused on three main topics: toxics and waste, nature conservation and public participation. You can learn more about our activities from our English website http://english.arnika.org. We are participating organization of IPEN (International POPs Elimination Network) and we host an IPEN - Dioxin, PCBs and Waste Working Group Secretariat in Prague as well.

International POPs Elimination Network associates about 350 NGOs from 65 countries and five continents. This network of NGOs was established in 1998 when negotiations on Stockholm Convention have started. Current activities of this network are focused on getting as much ratifications under all three chemical conventions (Rotterdam, Basel and Stockholm) as possible. NGOs around the world push for full implementation of these conventions at the same time, they took part in expert groups discussions as well as in preparation of National Implementation Plans for Stockholm Convention.

There is another NGOs network focused on Basel Convention especially, which is called Basel Action Network (http://www.ban.org). NGOs participating in this network are very active in mercury issue raised last years, in which Arnika became involved this year as well through our activity focused on Czech chlor-alkali plant Spolana Neratovice.

Because I am most familiar with the IPEN, let me to focus on two topics of Stockholm Convetion and related problems under Basel Convention mainly. These topics will be:

1) discussion about BAT and BEP definitions under Stockholm Convention
2) criteria for destruction of POPs waste.

BAT/BEP DISCUSSION

IPEN Dioxin, PCB and Waste Working Group has adopted jointly with GAIA (Global Alliance for Incineration Alternatives) a following text focused on Best Available Techniques and Best Environmental Practices before last INC7 of Stockholm Convention held in Geneva last year:

The Convention provides that Parties will use Best Available Techniques and Best Environmental Practices to make decisions about techniques and practices that might produce Unintentional POPs (U-POPs) in order to minimize their releases, with the aim of eliminating U-POPs releases to air, water and land. Best Available Techniques is defined in Article 5 (f) as "activities and their methods of operation."

We believe that the Convention's use of the term Best Available Techniques (rather than "best available technologies") emphasizes a holistic approach to preventing and eliminating unintentional POPs. The Convention's use of the term "techniques" suggests that consideration be given to approaches that do not require capital-intensive pollution control technologies and complex regulatory approaches, but may be based on lower-cost practical approaches and techniques which avoid formation and release of unintentional POPs. For example, the Stockholm Convention states:

"When considering proposals to construct new waste disposal facilities, consideration should be given to alternatives such as activities to minimize the generation of municipal and medical waste, including resource recovery, reuse, recycling, waste separation, and promoting products that generate less waste." (Annex C, Part V (A)(f))

The substitution of such techniques for waste incineration not only prevents formation and release of dioxins and other unintentional POPs, but these techniques are substantially less costly than waste incinerators with state of the art pollution control devises and monitoring. In the European Union and the United States, such incineration technologies have required very large investments of both public and private funds, as well as extensive regulatory, control and enforcement regimes. Capital and operating costs of non-incineration approaches such as source separation, recycling and composting are far less expensive than incinerators, and provide opportunities for local development, entrepreneurship, and employment.

The Convention text prioritizes substitution processes, techniques and practices which avoid the formation and release of unintentional POPs and have similar usefulness to facilities or processes that do release U-POPs. It states:

"When considering proposals to construct new facilities or significantly modify existing facilities using processes that release chemicals listed in this Annex [i.e. dioxins, furans, PCBs and HCB], priority consideration should be given to alternative processes, techniques or practices that have similar usefulness but which avoid the formation and release of such chemicals." (Annex C, Part V (B)(b))

Article 5 (c) of the Convention obliges Parties to promote the development – and where the Party deems it appropriate, enables the Party to require – the use of substitute or modified materials, products and processes to prevent the formation and release of unintentional POPs, taking into account the guidance provided in Annex C. When Parties implement this provision, they should take into account, among other considerations, the important provisions of Annex C cited above.

Article 5 (d) & (e) obliges Parties to promote Best Available Techniques – and for significant new sources, obliges Parties to require Best Available Techniques – taking into account guidance provided in Annex C, as well as further guidance to be developed by the Conference of the Parties (COP). Again, in the implementation of paragraphs (d) & (e), Parties individually as well as the COP should consider Annex C to be the point of departure.

Finally, it is important to recall that the Stockholm Convention aims to reduce and eliminate releases of POPs to air, water, land and product. This is in contrast to many existing pollution control devices and national monitoring regimens that tend to focus mainly or exclusively on air releases, and that tend to ignore or downplay dioxin releases to water, land, product and/or other media.

For these reasons, the IPEN Dioxin, PCB & Waste Working Group and GAIA support the prioritization of prevention and substitution in order to avoid the creation of new unintentional POPs sources and the expansion of existing sources. This common sense approach can be applied not only to reducing and eliminating dioxins and other U-POPs, but to also to waste management around the world.

CRITERIA FOR DESTRUCTION OF POPs WASTE

My presentation as well as global other participating organizations in IPEN is based on criteria set by Darryl Luscombe and Pat Costner in their reports available on Greenpeace International website (http://www.greenpeace.org).

Parties are to take measures according to the Stockholm Convention so that POPs wastes are:

- Disposed of in such a way that the persistent organic pollutant content is destroyed or irreversibly transformed so that they do not exhibit the characteristics of persistent organic pollutants...
- ...not permitted to be subject to disposal operations that may lead to recovery, recycling, reclamation, direct reuse or alternative uses for POPs.

Criteria from Stockholm Convention:

A suitable destruction process/technology therefore should:

- Prevent the formation of dioxins, furans and other by-product POPs.
- Prevent the release of dioxins/furans and other by-product POPs.
- Not generate any wastes with POPs characteristics.
- Not utilise any POPs disposal methods which are non-destructive, such as landfilling or recycling in any form.

NGOs (IPEN Dioxin, PCBs and Waste WG) criteria for destruction of (historical) POPs waste:

- An effective destruction efficiency of 100% - taking into account all inputs and releases;
- Complete containment of all process streams to enable testing and reprocessing if necessary to ensure (1);
- No uncontrolled releases from the process.

Further Considerations when evaluating technologies:

- Eliminate inappropriate technologies (based on guidance/ criteria)
  - E.g. formation of POPs/releases of POPs/POPs wastes/ landfill etc
- Destruction Efficiency (based on inputs vs. all outputs)
- Ability to contain all process streams
- Ability to reprocess materials, residues, gases, liquids if required
- Availability of complete process information (analytical data)
- Track record/commercial availability
- Safety/OH&S
- Hazardous materials use
- Community acceptability

We prefer to use a concept of Destruction Efficiency rather than Destruction and Removal Efficiency commonly used during the evaluation of technologies for POPs destruction. Difference between these two concepts is quite clear from paper prepared by D. Luscombe as Greenpeace factsheet. You can find it attached to my presentation (Non-Incineration Technology Fact Sheet #2).

According to the criteria there are about three non-combustion technologies, which follow them and which are commercially used. It is clear that landfilling, incineration, plasma arc and pyrolysis processes for example don't follow these criteria according to our evalution. This is a common position of many NGOs.

*This policy brief is based on the International POPs Elimination Network 2002 briefing paper, "By-Products – the Challenge," which was produced by the IPEN Dioxin, PCB and Waste Working Group. For a more in-depth look at these issues see "By-Products – the Challenge" at http://ipen.ecn.cz/index.php?l=en&k=groups&r=viewtxt&id=5&id_wg=1

Destruction Efficiencies of POPs Disposal Technologies

In the earliest days of high temperature incinerators, the assumption was made that these combustors were destroying carbon-based chemicals, such as the currently listed POPs, with destruction efficiencies of 100 percent. However, with the development of relatively reliable methods for collecting and analyzing stack emissions, it was discovered that varying portions of the chemicals fed into the incinerators escaped destruction and were released in stack gases.

Some national regulatory agencies began evaluating incinerator performance by comparing the rate at which a selected chemical is fed into an incinerator with its rate of release from the incinerator stack. Even though this comparison has no relationship to an incinerator's ability to destroy a particular chemical, it was termed the "destruction and removal efficiency" (DRE).

In other words, an incinerator with a highly effective stack gas cleaning system could demonstrate a high DRE even if the actual levels of destruction are low. Ample data clearly show that undestroyed chemicals are released not only in incinerator stack gases but also in solid and liquid residues (eg. fly ash, scrubber solids and water, bottom ash, etc). Nonetheless, the performance of incinerators and other combustion systems continues to be evaluated on the basis of DREs rather than true destruction efficiencies.

Because POPs are toxic, resist natural decomposition, and accumulate in living creatures and the environment, any release of POPs into the environment is potentially harmful and therefore unacceptable.

Greenpeace believes that any technology employed for destroying POPs stockpiles must effectively destroy 100% of the POPs feed into it. That is, no detectable levels of POPs must be present in any emissions or residues from the process employed.

Destruction Efficiency (DE) is determined as a ratio (%) of the mass of the POP entering a system to that in all possible process emissions and residues (eg. stack gases, fly ash, scrubber water, sludges, bottom ash, etc). Available data shows that combustion based disposal technologies (eg. incinerators) actually produce dioxins, PCBs and other POPs in the process, so assessment should evaluate the levels of all POPs in all waste streams in the determination of destruction efficiency.

It is also important to note that the terms "DRE" and "DE" are sometimes used inappropriately. For example, in a recent paper describing the performance of a Dutch hazardous waste incinerator with lindane, hexachlorocyclohexane and PCBs, the authors compared inputs of known quantities of these chemicals with their emission rates in stack gases. The results were termed "destruction efficiencies," although the values presented were actually DREs.[1]

Destruction efficiencies and DREs were determined for three chemicals during the trial burn of one hazardous waste incinerator in the U.S. During this series of tests, destruction efficiencies were also measured for another four chemicals. As shown in Table 1 below, the incinerator's destruction efficiencies (97.48 to 99.93 percent) were far lower than its DREs (99.99978 to 99.999995 percent)[2].

Table 1: Destruction Efficiencies (DEs) and Destruction and Removal Efficiencies (DREs) Achieved During Incinerator Trial Burn at McGuire and Baird Superfund Site, Holbrook, Massachusetts, USA [2]

	Chloro-benzene	Naphthalene	1,2,4,5-Tetrachloro-benzene	4,4'-DDDa
Run 1				
DE, %	99.82	97.90	98.17	98.76
DRE, %	>99.99977	99.999972	99.9999950	na
Run 2				
DE, %	99.93	99.51	99.48	99.57
DRE, %	99.99978	99.999929	99.999989	na
Run 3				
DE, %	99.88	99.48	99.48	99.83
DRE, %	>99.99981	99.999953	99.999989	na

1 4,4'-DDD is one of degradation products of DDT. na – not available.

Due to the interest in evaluating non-incineration destruction technologies around the world, it can be argued that the destruction efficiencies of non-incineration technologies are generally far better characterized than those of incinerators[3]. For example, table 2 shows results from a regulatory trial in Japan for dioxin treatment by a gas-phase chemical reduction process. All potential waste streams were analyzed which enabled the evaluation of the destruction efficiency to be at least 99.9999%.

Table 2. Destruction efficiencies for dioxins/furans using gas-phase chemical reduction process.[4]

Matrix		**Solid Material**	**Liquid and granular solid mixture**
Dioxin/furan TEQ levels in waste feed (ng/g)		6500	8.5
Dioxin/furan TEQ levels in Outputs	Treated material (ng/g)	0.087	0.00086
	Scrubber water (ng/L)	0.013	0.0000021
	Stack Gas (ng/m^3) 0.0031 < 0.016		
Destruction efficiency (%)		99.99993	99.99999

Conclusion: Any technology intended to dispose of POPs stockpiles or remediate contaminated sites must be capable of effectively destroying 100% of the POPs feed into it. The appropriate measure of the effectiveness of any given POPs destruction technology is the true destruction efficiency of the system, as determined by analysis of all potential waste streams and emissions.

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3 Costner, P., Luscombe, D., and Simpson, M., Technical Criteria for the destruction of POPs Stockpiles, Greenpeace International, 1998. Available at http://www.who.int/ifcs/isg3/d98-17b.htm

4 Kümmling, E. Gas-Phase Chemical Reduction For The Treatment Of Pesticides And Other Persistent Organic Pollutants, National Pesticide Stewardship Alliance Conference, Florida, USA, October 2000.

Part III

Background Papers for the Panel Discussions

Situation regarding technical capacity, available technology and guidelines for POPs destruction

Prof. Dr. Ivan Holoubek, RECETOX, Masaryk University, Brno, Czech Republic

With using of paper: Remediation Technologies for POPs. An overview, which was prepared as a background document for Training Workshop for Initial National Pops Inventory of GEF/ UNIDO Project „Enabling activities to facilitate early action in the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs Convention) in Czech Republic" (UNIDO Project No.: GF/CEH/01/003), Hotel Santon, Brno, CR, 15-16/05 by Andrea Lodolo, Eduardo Gonzalez-Valencia and Stanislav Miertus (International Centre for Science and High Technology, United Nations Industrial Development Organization (ICS-UNIDO), Pure and Applied Chemistry, Padriciano 99, 34012 Trieste, Italy)

and

The conclusions, results and background documents of STAP/ GEF Technical Workshop on Emerging Innovative Technologies for the Destruction and Decontamination of Obsolete POPs, 1-3 October 2003, Washington D.C.

INTRODUCTION

POPs (Persistent Organic Pollutants) are highly stable organic compounds used as pesticides, herbicides, fungicides, or in chemical industry. They are also generated as byproducts of combustion and industrial processes. They persist in the environment, accumulate in the fatty tissues of living organisms and are toxic to humans and wildlife. POPs are typically semi-volatile, enabling them to move long distances and condense over colder regions of the planet. They are classified through its lipophilicity, persistence (resistance to photolytic, chemical and biological degradation) and toxicity.

Growing concern about the threats posed to human health and the global environment by the release of synthesized chemicals into the environment has triggered worldwide action for the destruction and elimination of at least one category of these substances, Persistent Organic Pollutants (POPs). At present, the Stockholm Convention on Persistent Organic Pollutants has 51 Parties and 151 Signatories, including European Community.

The Stockholm Convention and Basel Convention signal an international commitment to the identification and management of POPs wastes. The Global Environment Facility (GEF) was designated on an interim basis as the financial mechanism of the Stockholm Convention. In response, the GEF prepared Draft Elements of an Operational Programme for *"Reducing and Eliminating Releases of POPs into the Environment"* as a framework for its interventions. At the Second Global Environment Facility (GEF) Assembly, held in Beijing in October 2002, the GEF formally approved POPs as a new focal area, greatly increasing the potential for GEF activities[1].

The GEF is seeking to destroy obsolete stockpiles of POPs. Contaminated soils around stocks are also a challenge in many countries. Stockpiles are especially severe in Africa, in Central and Eastern Europe, and in the Newly Independent States, with 47,000 t obsolete pesticide stockpiles identified in Africa alone. (Baseline study on the problem of obsolete pesticides stockpiles, (FAO).)

One of GEF's strategic priorities is the demonstration and replication of innovative and cost-effective technologies and practices, and the identification of potential opportunities for technology transfer, including non-combustion technologies. The GEF has already developed an African Stockpile Programme (ASP). The GEF is also supporting a "Global Programme to Demonstrate the Viability and Removal of Barriers that Impede the Successful Implementation of Available, Non-Combustion Technologies for Destroying Peristent Organic Pollutants (POPs)", which has been developed by UNDP/UNIDO.

The GEF has requested its Scientific and Technical Advisory Panel (STAP) to provide strategic advice on emerging, innovative technologies for the destruction and decontamination of POPs. STAP was therefore convening a technical workshop from 1-3 October, 2003, in Washington D.C. The workshop have brought together a group of experts from developed and developing countries, academia, research, international and government agencies, and will be attended by representatives of the GEF Secretariat, the Implementing Agencies of the GEF (UNDP, UNEP and the World Bank), UNIDO, FAO, the interim Secretariat of Stockholm Convention, and the Basel Convention Secretariat.

TECHNOLOGIES FOR THE DESTRUCTION AND DECONTAMINATION OF OBSOLETE POPs

Environmental and health concerns about emissions of POPs by-products from combustion have encouraged the development of alternative destruction technologies. Emerging technologies could

1 STAP/GEF Technical Workshop on Emerging Innovative Technologies for the Destruction and Decontamination of Obsolete POPs, 1-3 October 2003, Washington D.C.

play an important role in the final treatment and/or destruction of large numbers of obsolete POPs stockpiles, provided further development and deployment is encouraged and supported.

In the case of developing countries, appropriate and adequate destruction facilities are lacking, and the costs associated with providing them are very high. As a result, the majority of obsolete pesticides disposed of by developing countries has been shipped to developed countries for destruction, mostly by high temperature incineration.

However, national implementation plans (NIPs) will need to include plans to identify and destroy POPs pesticide stockpiles, within a framework of a sustainable toxic waste management strategy. The POPs Convention requires disposal techniques to be environmentally sound and not produce other POPs by-products. The workshop is an opportunity to assess experience so far, and to identify promising technologies that could be supported.

THERMAL TECHNOLOGIES

COMBUSTION SYSTEMS

High temperature incineration

This has been one of the most applied remediation technologies for the treatment of a variety of contaminant sources including pesticides, PCBs and explosives. It is a high temperature (870 °C to 1 200 °C), destructive ex situ treatment of polluted soil; the waste and/or contaminated soil are fed into the incinerator, under controlled conditions, where the high temperatures in the presence of oxygen volatilize and combust the contaminants into innocuous substances. Though varieties of designs are available, most incinerator designs are fitted with rotary kilns, combustion chambers equipped with an afterburner, a quench tower and an air pollution control system. Removal efficiencies of more than 99.99% are feasible. For PCBs and dioxins the high temperature incinerators can achieve destruction and removal efficiencies up to 99.9999% (OHMRS, 1995).

Modern incinerators are generally considered as one of the best options for destroying pesticides, PCBs and similar chemicals with high efficiency. However, recent tests suggest that incinerators achieve destruction efficiencies that are lower than those achieved by certain non-combustion technologies. In addition, some incinerators burning POPs (pesticides and PCBs) and other waste are associated with the potential spread of undestroyed and newly formed POPs (dioxins and furans) into the surrounding environment (Costner, 1998).

The USEPA has approved high efficiency incinerators to destroy PCBs with concentrations above 50 ppm. Incinerators destroying PCB liquids must meet technical requirements like 2-sec. residence time at 1 200 °C and 3% of excess oxygen or, alternatively, 1.5-sec residence time at 1 600 °C and 2% of excess oxygen in the stack gases. The destruction and removal efficiency (DRE) for non-liquid PCBs must be equivalent to 99.9999% (less than 1 ppm).

Main limitations of established thermal technologies

Combustion Systems	Thermal Desorption	Pyrolysis
Technical / Economic		
Require cleaning systems for heavy metals. Need strict control to prevent dioxins formation. Older types of cement kilns are not suitable.	Require dewatering to achieve proper soil moisture levels. It must be linked to a post treatment.	Does not attack inorganic compounds. Performance depends on the soil moisture content, which has correlation with overall cost.
Social		
In many cases may attract public opposition.	If it is linked to combustion systems may present public opposition.	Usually does not attract public opposition.
Environmental / Risk		
Emission of combustion products. Potential release of toxic compounds (dioxins, furans, chlorinated compounds).	Potential of fugitive emissions. Emission of combustion gases and potential formation of dioxins (when linked to combustion systems).	Require controls and systems to prevent dioxins formation. Needs control of combustion gases.

Cement kilns

The main processes employed in making cement clinker can be classified as either "wet" or "dry", depending on the method used to prepare the kiln feed. In the wet process the feed material is slurried and fed directly into the kiln. In the dry process the kiln exhaust gases are used to dry raw material while it is being milled.

At the very high temperature of the cement kiln, and with the long residence times available, very high destruction efficiency is possible for hazardous waste. The highly alkaline conditions in a cement kiln are ideal for decomposing chlorinated organic waste. Chlorinated liquids, chlorine and sulphur are neutralized in the form of chlorides and sulphates. The quantities of inorganic and mineral elements added in treating chlorinated waste are limited (usually is a small fraction of the large feed requirements of a commercial kiln). No liquid or solid residues requiring disposal are generated since all residues are bound within the product.

The most appropriate waste to be treated in cement kilns are those which provide additional energy value as a substitute fuel, or material value as a substitute for portions of the raw material feed (eg. calcium, silica, sulphur, alumina or iron). Liquid waste or low ash waste can be relatively easy to burn in cement kilns. The material is fed in dry or in slurry form (especially for the 'wet'

process), or as a fuel supplement into the burning zone of the kiln. In this zone, the temperature of 1 450 °C is able to perform high destruction efficiency as the gas passes though the kiln.

For the typical counter current process configuration, polluted-soils and solid waste cannot be fed into the firing end of the kiln, since they would discharge in the clinker without adequate treatment; besides, they cannot be fed into the cool end of the kiln, as the waste would volatilize and would not be adequately destroyed. There are two suitable options for feeding the waste. The first one consists on feeding solid material at the middle of the kiln through a specially designed hopper; the kiln temperature at feeding point is approximately 1 100 °C and increases as the materials pass further down the kiln. This involves a major modification to the rotary kiln. Monitoring and verification that complete destruction of stable chlorinated compounds such as PCBs occurs with the desired efficiency is required (Hansen, 1992).

The second option includes a pretreatment of the solid waste (e.g. thermal desorption). After such treatment the material can be utilized as a raw material substitute, and the condensate can be incorporated in the liquid feed stream.

When operated properly, destruction efficiency of chlorinated compounds in cement kilns can be higher than 99.0000%, with no adverse effect on the quality of the exhaust gas (Benestad, 1989). The contribution of waste materials to the exhaust gases are relatively minor given that the waste are only used as a minor supplement to the main energy or raw material stream.

THERMAL DESORPTION

Thermal desorption is an ex-situ process to remove volatile and semi-volatile contaminants that are sorbed on the waste, by heating to temperatures (between 170 to 550 °C) high enough to volatilize the organic contaminants. Thermal desorption is not a stand-alone technology and it must be followed by a subsequent process to treat the off-gas (which is normally captured by a carrier gas or vacuum system) in order to remove particulates and contaminants. Wet scrubbers or fabric filters are one of the best units to remove particulates, while contaminants can be removed through condensation followed by carbon adsorption, or a secondary combustion chamber or a catalytic oxidizer such as an afterburner. Thermal desorption may use either direct/indirect heat exchange or air/inert gas to transfer vaporized contaminants from the contaminated medium.

Thermal desorption has been widely applied to treat tar contaminated soils, refinery waste, wood-treating waste, creosote contaminated soils, hydrocarbon contaminated soils, nonhalogenated VOCs, SVOCs, PAHs, PCBs, pesticides, mixed (radioactive and hazardous) waste, synthetic rubber processing waste, and paint waste. The bed temperatures (from 170 to 550 °C) and residence times used by thermal desorption systems will volatilize selected contaminants and drive off water, but typically will not oxidize or degrade organic compounds. There are different thermal desorption units available, including Direct Fired (e.g. natural gas) rotary units, Indirect Fired, Hot oil Rotary Screw units, Molten Metal (e.g. tin) bath units and Infra Red heated batch units. Although thermal desorption units are commonly available, some systems may not be appropriate for treating chlorinated waste streams (CMPS&F, 1997).

PYROLYSIS

Pyrolysis is an established ex-situ remediation technology. The process involved is a chemical decomposition where the hazardous organic compounds are transformed, under pressure and heat, into gaseous components such as methane, carbon monoxide, hydrogen and a residue of ash and carbon contents. The technology is suitable for the treatment of pesticides contained in oily sludge, sediments and soils. This technology is usually linked to a pre treatment technology such as thermal desorption or soil vapour extraction.

EMERGING AND INNOVATIVE TECHNOLOGIES PHYSICO-CHEMICAL TECHNOLOGIES

Main limitations of emerging/innovative physico-chemical technologies

Base catalyzed dechlorination (BCD)	Electrochemical oxidation	Solvent extraction Chemical dehalogenation Radiolytic degradation
Technical / Economic		
Not economical to treat large volumes of aqueous waste. The waste may require pre-dilution to achieve required destruction efficiencies. Overall efficiency is limited by thermal desorption efficiency. Energy costs to treat pesticides waste may be higher, due to the solvents distilled from the mixture.	Highly dependent on soil moisture content. Requires neutralizati-on of treated soil.	Less effective when treating weight organic and hydrophilic compounds. Requires secondary treatment (including extracted metals). Soil types and moisture may impact efficiency.
Social		
Generally not regarded adversely by community.	No public opposition.	No public opposition.
Environmental / Risk		
Potential to form dioxins and furans is low, since the system operates under an inert atmosphere and the process should dechlorinate dioxins. Exclusion of air is required to prevent auto ignition of hot oil. Alkaline pretreatment and solvent extraction imply fire and explosion risks.	Acids' handling implies spill risk.	Solvent extraction implies fire and explosion risks. Must be assured the proper handling, recycling and disposal of used solvents.

BASE CATALYZED DECHLORINATION (BCD)

The Base Catalyzed Dechlorination (BCD) system was developed to treat halogenated organic compounds. It is claimed that BCD is applicable for treatment of waste containing up to 100,000 mg/kg of halogenated aliphatic or aromatic organic compounds such as PCBs. The formation of salt within the treated mixture may limit the concentration of halogenated material able to be treated. Rogers (1991) reports a reduction of chlorinated organics to less than 2 mg/kg. The BCD process can involve direct dehalogenation or can be linked to a pretreatment method such as thermal desorption that yields a relatively small quantity of a condensed volatile phase for a separate treatment by BCD process.

BCD technology involves the addition of an alkali or alkaline earth metal to the polluted material that contains one or more halogenated or non-halogenated organic contaminants. The BCD patent states that the alkaline chemical can be added to the contaminated medium in an aqueous solution, or in a high boiling point solvent. When the solid chemical is added as a suspension in water, the water helps to homogeneously distribute the metal compound in the contaminated medium.

A compound able to donor hydrogen is added to the mixture in order to provide hydrogen ions to react with contaminants when hydrogen ions are not already present in the contaminated material. The hydrogen donor compound may include the high boiling point solvent, in which the alkali or alkaline earth metal compound is added, or it may include aliphatic alcohols or hydrocarbons, amines or other like compounds. A source of carbon (like sucrose) must be added to activate these compounds in order to produce hydrogen ions.

The mixture is heated for enough time to totally dehydrate the medium. After the water is removed from the medium during the dehydration step, the alkali is concentrated to a reactive state. The medium is further heated at temperatures from 200 to 400 °C for enough time (from 0.5 to 2 hours) to produce a reductive decomposition of the pollutants.

The mixture is neutralized by the addition of an acid. Depending on the nature of the feed material, the added substances and the site use, the treated material can be returned to the site, although it may exist a land use limitation if the material is oily and/or has a high salt content. BCD process can reduce PCB content from 10,000 mg/kg to below detectable limits in approximately 2 hours (Rogers, 1991).

BCD process mainly involves chlorine stripping and when treating chlorinated aromatic hydrocarbons the removal of chlorine atoms causes an increased concentration of lower chlorinated species and for components such as dioxins the lower congeners (e.g. TCDD) can be more toxic than the highly chlorinated congeners (e.g. OCDD); the process must therefore be monitored to ensure that the reaction continues to completion.

BCD system is not appropriate for treating large volumes of aqueous media (including wet sludge) because of the cost to evaporate water. The technology is applicable for low as well as high volatility organic liquids.

Electrochemical Oxidation

Electrochemical Oxidation was initially developed for the high-efficiency conversion of several radioactive organic wastes into environmentally acceptable waste streams. In some pilot tests with chemical warfare agents, this process, also called Mediated Electrochemical Oxidation (MEO), was successfully applied to destroy in few hours an organophosphorous nerve agent and an organochlorine agent (mustard) to non-detectable levels (CMPS&F, 1997).

The system set-up includes an electrochemical cell used to generate oxidizing compounds at the anode in an acid solution (typically nitric acid). The oxidizers and the acid attack organic compounds and convert most of them to carbon dioxide, water and inorganic ions at low temperature (< 80 °C) and atmospheric pressure. The organic content of the feed, which may be soluble or insoluble organic liquids or solids, and the water content can vary over a wide range without affecting the efficiency process. The process can be applied to destroy aliphatic and aromatic hydrocarbons, phenols, organophosphorous and organosulphur compounds, chlorinated aliphatic and aromatic compounds.

Solvent Extraction – Chemical Dehalogenation – Radiolytic Degradation

This ex-situ physico-chemical technique reduces the volume of the pollutant that needs to be destroyed. The technology uses an extracting chemical to move target contaminants from soils to a solution where the pollutants are treated with recovery of the solvent used. This process produces relatively clean soil or sediment that can be returned to the original site or disposed on landfill. In some practices, prior to the solvent extraction process, a physical separation stage may be used to screen the soils into coarse and fine fractions in order to enhance the kinetics of the extraction process. Solvent extraction technology can be applied to soils contaminated by volatile and semi-volatile organic compounds and other higher boiling point complex organics, such as polynuclear aromatic hydrocarbons (PAHs), petroleum hydrocarbons, pesticide/insecticide, polychlorinated biphenyls (PCBs), dioxins, and pentachlorophenol (PCP). Recent USEPA regulatory guidelines allow solvent extraction with non-harmful solvents for removal of PCBs (USEPA, 1998).

Solvent Extraction techniques are cost-effective methods to treat PCBs and other chlorinated compounds, but their main limitation is that the contaminants transferred to the extraction phase must be destroyed through a secondary treatment stage. Different approaches have been developed to combine solvent extraction with other techniques like chemical dehalogenation with immobilized reagents (CDP) and gamma-ray irradiation. Recent studies show that the PCB concentration in transformer oil was reduced from 700 ppm to non-detectable levels in less than 5 minutes using chemical dehalogenation. Results of pilot tests on radiolytic degradation processes show that PCBs concentrations in solvent saturated soil can be reduced from 300 ppm down to 1ppm with γ-ray dose of about 60 mega rads (Nam et al, 1999).

SOLVATED ELECTRON

Solvated electron solutions are rapidly formed when alkaline or alkaline earth metals are dissolved in ammonia or in some amines, forming solutions containing the metal cation and free electrons. The technology, which has been successfully applied to halogenated compounds, generally uses alkaline metals dissolved in liquid anhydrous ammonia to produce solvated electrons which act as dehalogenating agents. Halogens can be separate from organic halides to yield a fully substituted parent hydrocarbon and a metal halide.

The treatment is performed with low to medium temperatures and the conversion of the waste occurs in few seconds. It has been stated that there is no need for pretreatment, although some dewatering of sludge and/or sediments might be required.

The technique can be applied to treat halogenated hydrocarbons, pesticides, dioxins, PCBs, herbicides, CFCs, and chemical warfare

agents. It is also stated that different wastes have been successfully treated in bulk pure material, soils, sludge, sediments, porous and non-porous surfaces, oils, contaminated vessels, hardware, and contaminated clothing.

The process design employs a reactor, generally a cement mixer, in which contaminated material and liquid ammonia are mixed. Liquid ammonia completely disperses the soil and removes the contaminants. After brief mixing, the reactive metal charge is added (commonly calcium). The electrons released from calcium rapidly dehalogenate the contaminants. Ammonia is recovered for further use, and the soil is deodorized. The decontaminated soil is generally suitable for riutilization in agricultural practice since is enriched in nitrogen from trace amounts of residual ammonia. The method is able to treat soils with up to 25% water content.

Main limitations of emerging/innovative physico-chemical technologies

Solvated electron	Supercritical water oxidation	Solar detoxification - Photochemical degradation
Technical / Economic		
May require a pretreatment for dewatering of sludge and/or sediments.	The end products (ash and brine) require proper disposal. Limited to treat liquid waste with solids sizing less than 200 μm. Applicable to waste with organic content less than 20%.	The photolysis rates for pesticides are highly dependent on latitude, season and other meteorological conditions.
Social		
No public opposition known at this stage.	Not known public opposition at this stage.	No known public opposition.
Environmental / Risk		
Ammonia is a volatile liquid; toxic and fire risks. Calcium metal combined with hydrogen may form explosive mixtures.	Due to the high temperatures and pressures used in this technology, requires specialized control equipment, reactor materials and safety practices.	Low environmental impact due to limited use of chemicals and low off-gas generation rates.

SUPERCRITICAL WATER OXIDATION

Supercritical water oxidation (SCWO) is an ex-situ, high temperature and pressure technology that uses the properties of supercritical water to destroy organic compounds and toxic waste. Under supercritical conditions, carbon is converted to carbon dioxide and hydrogen to water; chlorine atoms derived from chlorinated organic compounds to chloride ions; nitro-compounds to nitrates; sulphur to sulphates; and phosphorus to phosphate.

The properties of super critical water are for the process. Gases like oxygen and organic substances are completely soluble in super critical water, whereas inorganic salts present reduced solubility under supercritical conditions. Organic substances dissolve in the super critical water, oxygen and the organic substances are brought into intimate single phase contact at temperatures and molecular densities that allow the conventional oxidation reactions to carry out rapidly to completion.

Process residues are produced if the waste contains inorganic salts or organics with halogens, sulphur or phosphorous. Effluent gases contain no nitrogen oxides or acid gases such as hydrogen chloride or sulphur oxide. The process does not generate particulates and less than 10 ppm carbon monoxide has been measured.

It has been stressed that this system must be constructed of materials capable to resist corrosion caused by halogen ions. The precipitation of salts may cause plugging problems in the system (Thomason, 1990). Removal efficiencies greater than 99% have been reported for the treatment of numerous hazardous organic compounds. SCWO can be applied to aqueous waste streams, sludge and contaminated soils. It is also applicable to treat acrylonitrile, cyanide and pesticide wastewaters, PCBs, halogenated aliphatics and aromatics, and organic nitrogen compounds.

SOLAR DETOXIFICATION –PHOTOCHEMICAL DEGRADATION

Short wavelengths (295 – 400 nm) of solar radiation can generate direct and indirect photolytic processes and degrade pesticides and PCBs polluting soil and surface waters. Since the radiation at the mentioned wavelengths are attenuated more strongly than longer visible wavelengths in the atmosphere, the rate of photolysis of pesticides is highly dependent on latitude, season and other meteorological conditions; thus, in tropical regions, photochemical processes are a key factor to assess pesticides fate and degradation (Plimmer, 1998).

Solar energy can be used to degrade hazardous organic chemicals by direct thermal decomposition or by photochemical reaction. Some advantages include savings in fuel use, improved thermal destruction of contaminants, and the reduction of exhaust gas volumes, including PICs (products of incomplete combustion). These processes can use either thermal energy or a range of photochemical reactions.

In order to achieve high efficiency to decompose contaminants, the concentration of the radiation is required: solar radiation is reflected by mirrors (heliostats) and absorbed by a receiver where temperatures

of up to 2 300°K are reached. No auxiliary fuel is required and an improvement by a factor of 100 or more against conventional thermal technologies in the destruction and removal efficiency (DRE) of organics, including pesticides, has been demonstrated. High destruction efficiencies can be achieved at 750°C, which is a temperature lower than the temperature required for thermal incineration.

In solar detoxification, the main photochemical processes that aid thermal treatment include photocatalytic oxidation using titanium dioxide (TiO2) as a catalyst. In photocatalytic reactions ultraviolet radiation is used to promote an oxidation reaction using TiO2 as catalyst in the presence of oxygen. The reactivity of singlet oxygen, irradiated with visible light in the presence of dissolved oxygen, is used in the dye-sensitizer processes. The reactive species produced can then react with contaminant molecules in the waste.

Oxidative degradation of pesticides, including Lindane in contaminated water has been tested with direct sunlight in a solar furnace. Singlet oxygen was effective against some pesticides but reacted slowly or not at all with others. All pesticides were degraded by OH radical generating agents (such as methylene blue). Each system has different capabilities which need to be taken into consideration when making comparisons (Funken, 1997).

GAS PHASE CHEMICAL REDUCTION

Gas Phase Chemical Reduction (also known as Eco Logic Process) has been developed as an alternative to incineration technologies. The technology is based on gas-phase thermo-chemical reaction of hydrogen with organic compounds. Hydrogen combines with organic compounds at 850 °C or higher temperature, in a reductive reaction to form lighter hydrocarbons (mainly methane). For chlorinated organic compounds, such as PCBs, the products are methane and hydrogen chloride. The reaction is carried out with water that acts as reducing and generating hydrogen agent. The process is not selective as it is based on the complete hydrogenation of any incompletely hydrogenated organic molecule. It can quantitatively convert PCBs, PAHs, chlorophenols, dioxins, chlorobenzenes, pesticides and herbicides, to methane. The yield is determined by the concentration of organics in the waste. Approximately 40% of produced methane can be further converted to hydrogen through the water shift reaction and non-reacted methane is converted to hydrogen in the catalytic steam reformer. The process can therefore operate with the hydrogen produced itself.

The gas phase reduction process is likely to be preceded by a thermal desorption unit when treating solid waste. If the thermal desorption unit operates under reducing hydrogen atmosphere, the total removal efficiency of the process is improved as the destruction of contaminants occurs in both units. Water is used in the process and therefore waste with relatively high water content can be treated. This aspect represents an advantage over other thermally based processes when the treatment of waste with high water content is required.

Main limitations of emerging/innovative physico-chemical technologies

Gas phase chemical reduction	Catalytic hydrogenation
Technical / Economic	
Pollutants such as sulphur and arsenic may inhibit treatment. Sulphur in combination with iron may produce slimes that require additional centrifuge separation. The existence of irregular solids may also limit waste treatment due to materials handling. May need to be linked to special waste handling facilities in order to improve waste material handling.	Potential poisoning of catalysts may decrease or nullify process efficiency.
Social	
Generally not regarded adversely by community.	No public opposition.
Environmental / Risk	
Potential fugitive emissions of PCBs, pesticides or dioxins. The handle, use and storage of hydrogen within the process represent fire and explosion risks. The facilities must be subjected to an internal hazardous operations reviews and specialized process control to prevent release of waste materials during a process upset.	Gaseous products may generate safety and toxicity hazards. Combustion products may require scrubbing that would generate aqueous waste.

CATALYTIC HYDROGENATION

The destruction of halogenated waste by hydrogenation in presence of noble metal catalysts has been studied for many years. Although, noble metal catalysts are particularly susceptible to poisoning by several substances which can be contained in waste, thus limiting the applicability of the technology. A process for the regeneration of PCB contaminated transformer fluids using hydrogenation catalysts based on metal sulphides - which are extremely robust and tolerant to most catalyst poisons - has been developed (Musoke, 1982). The process is also claimed to destroy a wide range of chlorinated hydrocarbons, forming hydrogen chloride and light hydrocarbons as by-products. Most off-gases are recycled through the reactor, although purge gases are discharged through a catalytic combustion chamber.

In different trials, relatively high concentrations of pure POPs compounds were treated in a hydrocarbon solvent and were all removed to concentration levels below the detection limit of analysis, presenting destruction efficiencies from 99.9996% (for hexachlorobenzene) to 99.99999% (for 1,2,3,4-TCDD). It is claimed that the variations in destruction efficiencies reflect the differences in the instrumental detection limits rather than real differences in the extent of destruction (Duffy et al, 1997).

Different surveys have shown that successful dechlorination of polychlorinated aromatic compounds by using Ni catalysts, requires severe reaction conditions, high temperature and high hydrogen pressure. Pd, Ru catalysts that permit successful dechlorination of polychlorinated aromatic compounds under mild conditions has not

been developed for large-scale applications because of their high cost (Hagh 1990).

Recent surveys have shown the preparation of a selective catalyst to convert some POPs into useful products, using nickel or copper associated with palladium bimetallic catalysts supported on a high-surface area carbon and allowing to perform liquid phase hydrodechlorination under mild conditions. The results show that such bimetallic systems permit to carry out liquid phase hydrodechlorination of hexachlorobenzene under mild conditions (PH_2 1 atm; T = 50° C), and that the method of catalysts preparation has a strong effect on their selectivity (Simagina et al, 1999).

THERMAL TECHNOLOGIES

THERMAL DESORPTION INTEGRATED TECHNOLOGIES

In this point technologies involving thermal desorption as a pretreatment-separation technique integrated with a post treatment-destruction technology are presented.

Main limitations of emerging/innovative thermal technologies

Thermal desorption integrated technologies	Plasma Arc Systems	Vitrification
Technical / Economic		
Overall efficiencies of methods are limited by thermal desorption efficiency, that depends on soil type and conditions.	The removal of volatile metals and particulates formed from inorganic components may require treatment; these additional steps may increase the cost. This process usually has a relatively high capital and operating cost. Some systems are limited to treat liquids and gases. Solids can only be treated after extraction or by forming slurry mixtures.	Vitrification is a destructive process and the soil can no longer be used for agricultural purposes. The vitrified matrix may hinder future use of the site if done in-situ.
Social		
In some cases may attract public opposition.	Generally not regarded adversely by community.	No known public opposition.
Environmental / Risk		
Combustion of off-gases requires control and emissions treatment. Process conditions must be selected and controlled in order to minimize the risk of dioxin and furan formation, and require pollution control equipment to treat these in the event that small quantities are formed.	The absence of combustion gases results on a gas emission smaller than for incineration systems. A surge tank is provided to contain any uncontrolled release of gases from the treatment chamber. The use of mechanical seals and operation of the unit at slight negative pressures should prevent any fugitive emissions.	Cautions must be taken to prevent fugitive emissions of vaporized organics. The vitrified nature of the formed matrix greatly reduces any potential leaching of metals or other residual pollutants.

Thermal Desorption – Catalyzed Dehalogenation

This technique combines the thermal desorption process and the Base Catalyzed Dechlorination (BCD) process. The system uses an indirectly heated thermal desorber to split organic compounds from contaminated media (Sheih, 1994). The unit is designed to achieve feed material temperatures of up to 510 °C and allows an effective treatment of soils and sludge polluted with a wide range of low and high boiling point compounds. The system is applicable for hydrocarbons, pesticides, herbicides, PCBs, coal by-products, wood treating compounds, dioxins and furans. The gases produced during the process are treated by a vapour recovery system which includes an oil venturi, an oil scrubber, a water scrubber, a condensing unit and a vapour phase carbon adsorption unit.

Contaminants and moisture volatilized from the polluted material are entrained in the off-gas and are condensed and recovered by the scrubbers/condensers. The condensed mixture is separated and the organic contaminant is collected for recycling via solvent recovery, fuel substitution or treatment using the BCD process. Separated water can be treated by liquid phase carbon adsorption and sand filtration. Most of the treated water can be recycled back to the process for its use in the scrubbers and cooling conveyor.

Thermal Desorption – Pyrolysis

The PCS (Product Control Soméus) Technology is based on thermal desorption combined with flash pyrolysis technique and followed by combustion. The main units of the system include indirectly heated rotary reactor, indirectly cooled solid material cooler, multi venturi scrubber, pyrolysis gas combustion chamber, water treatment, auxiliary equipment and automatic operation with continuous monitoring.

The rotary reactor is the main component of the system. Waste is partially vaporized in a reductive environment under low vacuum conditions (0 to 50 Pa). The reactor is cylindrical in shape, arranged horizontally and rotates around its axis. The operating temperature in the reactor ranges from 450 to 800

°C. The waste may be introduced directly, or after drying in a desorber. If needed, the waste is ground in a mill in order to homogenize it to a size less than 5 mm. The waste is separated into solid and vapour phases which include heavy metals in water insoluble form, high boiling point organics in the solid phase, and volatile organic compounds, volatile heavy metals and halogens in the vapour phase.

After the pyrolysis, the vapour phase is combusted and rapidly cooled; the gas stream is cleaned in a wet gas scrubber prior to emit. Although dioxin and furan gases are not generally formed in a reductive environment, their production became possible after the combustion step. For this reason, after combustion the resulting gases must be treated by scrubbing. The scrubber process water is cleaned, neutralized and recirculated.

The process applications include the conversion to energy of waste such as solid hazardous waste, PCB contaminated soil, mercury contaminated soil, hospital waste, municipal solid waste, sewage sludge and coal. Besides, the technology can treat a full range of chlorinated hydrocarbons, organochlorine pesticides, all organic and/or inorganic materials with combined contamination of organics, halogens and heavy metals. Although, this technology is not applicable for treatment of liquids (water, flammable liquids and solvents), explosives and/or materials with highly oxidizing nature under heat treatment and of materials that cannot be decomposed by thermal treatment at 600 °C.

Thermal desorption – Retort System

This technology is adapted to treat contaminated soils containing volatile organic compounds (VOCs) or some semi-VOCs. The process has been configured for the treatment of pesticide contaminated soils, especially for dip sites.

The system involves an indirectly fired retort that is used to remove the volatile materials through an off gas-vent, leaving the treated soil to return to its original site. The retort operates on a continuous basis under negative pressure and under neutral conditions (i.e. neither oxidizing, nor reducing). The treated soil leaves the retort via an overflow washer from where it is transferred to a stockpile. The retort contents are indirectly heated. A combustion chamber surrounds the retort and the components are initially brought up to operating temperature by heating a batch charge of inert material. When this mass is at opening temperature, feed is started. Bed temperatures are monitored to ensure that conditions are maintained by varying either the feed rate or the firing rate; temperatures are set in the range of 400 – 700 °C depending on the residence time required, type of contaminant and soil properties. Typically, in treating organochloride pesticide contaminated soils, the retort operates with a bed temperature of 450 to 500 °C (CMPS&F, 1997).

Within the retort the pollutants are volatilized and/or decomposed and separate as part of the off-gas. The off-gases are then drawn by a fan through a hot gas filtration system that removes particulate matter, allowing the cleaned gases to go to an afterburner for the residual organics destruction. The afterburner is designed to operate at 1,100oC with a two-second-residence time. From the afterburner, the gases are quenched to minimize dioxin and/or furan formation.

Retort process is only able to treat solids and sludge, although liquids (e.g. pesticides formulations) could be treated by first producing a slurry. At the current development status of the technology the treatment of low volatility compounds such as PCBs is not proposed.

PLASMA ARC SYSTEMS

This technology uses high temperatures (around 10 000 °C) for pyrolysis, which result from the discharge of a large electric current in an inert gas, to convert hazardous chemicals such as PCBs, pesticides, CFCs, halon gases into innocuous and safe-emitted end products. The destructive process is made possible by the conversion of the hazardous compound by the superheated cloud of gas or plasma into atomic elements and a subsequent treatment converts the atomic forms into innocuous substances.

A thermal plasma field is created by directing an electric current through a low-pressure gas stream. Plasma arc temperatures range from 5 000 °C to 15 000 °C. Different variations of plasma arc processes, like PACT (Plasma Arc Centrifugal Treatment) (USEPA, 1992), PLASCON (In-Flight Plasma Arc System) and STARTECH (Plasma-electric waste converter) (CMPS&F, 1997), are available.

VITRIFICATION

With this technique, which can either be carried out in-situ or ex-situ, the contaminated soil is first treated at high temperature and melted and then cooled to form a vitrified matrix. The system consists on inserting graphite electrodes into the contaminated encased area and energizing with a high electrical resistance heating (more than 1 700 °C), to melt soil into a molten block. It is applicable for the treatment of organics (including pesticides and PCBs), inorganics and radionuclides. The organic contaminants are normally destroyed while the inorganics are trapped into the vitrified matrix. The above mentioned Plasma Arc Centrifugal Treatment (PACT) is a combination of Plasma Arc and Vitrification techniques (CMPS&F, 1997).

Conclusions

Several remediation technologies are nowadays available for the treatment of POPs contaminated media and the choice among different remedial options is often a very difficult task as for the selection of the most proper technology, several ratable and non-ratable criteria must be carefully analyzed and evaluated. Generally, applicability of the method (in accordance with the target contaminants), overall cost, minimum achievable concentration, clean-up time required, reliability, maintenance, post treatment cost and expected use of the soil after treatment are ratable criteria. Among "non-ratable", or relative criteria, some social parameters like public acceptability must also be taken into account during the technology selection process; the more criteria involved, the better performance obtained.

Conclusion from STAP Washington review

Over the past ten years, much of the research focus on hazardous waste technologies has been on the treatment of contaminated soils and wastewaters. Few new technologies have been developed which would be applicable for the destruction of stockpiles of POPs although it is feasible that some of the new technologies that have been developed could be applied to such stockpiles.

The following technology summaries provide the available information on non-combustion technologies. Only a few have been proven in the field and, of these, two companies have gone bankrupt. There are, however, a number of emerging technologies which have potential for treatment of POPs stockpiles. In addition, there are also variants of the technologies that have been included here and some are also known under different names.

Commercially demonstrated technologies include gasification, steam reforming and plasma arc which are undertaken in a starved oxygen atmosphere. It must be noted that some of the technologies require a combustion process following the main treatment process to either ensure removal of formated POPs or to allow for heat recovery.

This summary classifies the technologies into five categories:

A. Commercialised technologies with considerable experience

Technologies with operating plants which are licensed to destroy high strength POPs stockpiles.

These include:

- Gas Phase Chemical Reduction (GPCR)
- Base Catalysed Decomposition
- Sodium Reduction
- Super-critical water oxidation (SCWO)
- Plasma Arc
- Pyrolysis/gasifiers

B. Technologies near or at the start of commercialization

Technologies which have operating pilot plants, are starting to build operating plants and are claimed to be suitable for treating high strength POP wastes. The latter treatments would require proof of concept (99.9999% destruction and no formation of toxic daughter products) before being considered fully suitable.

These include:

- Molten salt oxidation
- Solvated electron technology
- Ball milling
- GeoMeltTM Process

C. Promising technologies

Technologies which require minimum research to prove capability to destroy high strength POPs stockpiles or which are operating successful pilot plants. Processes which have demonstrated in the laboratory the ability to treat moderate to high strength POPs with a high efficacy and no formation of toxic daughter products are included.

These include:

- Mediated electrochemical oxidation (CerOx)
- Mediated electrochemical oxidation (AEA Silver II Process)
- Catalytic hydrogenation

D. Technologies which require significant research

Emerging technologies, which require significant research to determine their potential to destroy POPs. These include technologies which have been proven to treat low levels of POPs but have not been developed to treat high strength wastes or technologies for which there is limited data. No technologies were found which were suitable for this category although preliminary research had been undertaken on some technologies. These are placed in Annexure 1.

E. Technologies which are unlikely to be applicable for destruction of POPs stockpiles

Technologies which have inherent flaws which will make them unlikely to be successful in treating high strength POPs. It must be recognised, however, that it is likely that some information on these and other technologies has not been published and therefore some data may not be available which could show that these technologies may be feasible.

These include:

- MnO_x/TiO_2–$Al2O_3$ Catalyst Degradation
- TiO_2-based V_2O_5/WO_3 Catalysis
- Fe(III) Photocatalyst Degradation
- Ozonation/Electrical Discharge Destruction
- Molten Metal
- Molten Slag Process

All bio- and phytoremediation including:

- Photochemically enhanced microbial degradation
- Biodegradation/Fenton's reaction
- White rot fungi biodegradation
- Enzyme Degradation
- In situ bioremediation of soils
- DARAMEND bioremediation
- Phytoremediation

Not Classifiable

Self-Propagating High Temperature Dehalogenation (SPHTG)

Annexure 1 – Research Initiatives

A number of research initiatives were identified in the literature search which had examined some aspects of POPs destruction but were insufficiently advanced to be included in this study. They have been included in Annexure 2 and include:

- Microemulsion Electrolysis
- Ultrasonic Irradiation
- Photocatalytic Degradation using TiO2
- Electron Beam Injection

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Transboundary movement of relevant waste streams and the prevention, detection and monitoring of illegal waste streams

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THE FOUR "CHEMICAL" TREATIES

In **1985** the Vienna Convention on Ozone Depleting Substances was concluded and in 1987 the Montreal Protocol on the phase out of ozone depleting substances was signed.

In **1989** the Basel Convention on the Control of Transboundary Movements followed, containing also the goal to reduce the amount of hazardous wastes produced.

In **1998** the Rotterdam Convention on the Control of Banned and Restricted Chemicals followed.

In **2001** the Stockholm Convention on Persistent Organic Pollutants completed the "four leave shamrock" of environment conventions.

COMMON PRINCIPLES

All four "Chemical Conventions" contain specific provisions on the control of transboundary movements of substances dangerous to the environment and/or the human health. Further more the underlying principle of all four MEAs is to reduce the amount of hazardous substances produced and/or their released to the environment.

Especially the Basel Conventions and the Rotterdam Convention are in some respect "complementary". While the Rotterdam Convention excludes wastes from its scope the same substances are regulated under the Basel Convention from the moment on the holder intends to dispose them off.

The Montreal Protocol and the Stockholm Convention fit in this picture by regulating very specific streams of substances (ozone depleting substances and persistent organic pollutants). The technical details of the implementation of these two treaties are somewhat complicated since they allow a phase out of some substances while others are banned immediately. Nevertheless since they request the owner to discard products containing or contaminated with regulated substances they trigger the Basel Convention in cases of transboundary movements as well.

On the other hand since the use of some substances is still allowed for essential purposes in specific countries while in general the production and/or use is banned they trigger the PIC procedure when these substances are shipped to a country still using the generally banned chemicals.

Regarding the amount of substances controlled and shipments notified the Basel Convention is of cause the most prominent of the four MEAs.

IMPLEMENTATION OF THE TREATIES

Despite all four treaties have the control of transboundary movements in common and therefore synergies in the implementation might be evident in many countries these synergies are not used yet.

The main reason (at least in EU member states) is that chemical legislation is older than waste legislation and competences in both fields are splitted therefore. The successful implementation needs a regulatory infrastructure. Countries in transition in many cases suffer a lack of personal resources to fully implement this infrastructure. On the other hand this might bring the chance to use the possible synergies from the beginning since the same person is likely to be responsible for the implementation of all four treaties.

The implementation of the "chemical" conventions in Austria is part of the presentation of my colleagues.

MONITORING OF ILLEGAL TRAFFIC

Stepwise approach to monitor Illegal Traffic

For a successful combating of illegal traffic a multi-step approach seems to be necessary.

1) Produce an inventory of regulated substances.
   Where they are produced and used and where are the (possible) stockpiles?
   For producing this inventory technical knowledge as well as use of all relevant information (e.g. statistical data on commodities) should be taken into account. The knowledge where the substances arise gives a hint for the second and third step.
2) Raise public awareness. In many cases illegal shipments are not the result of a criminal attempt but of pure ignorance.
3) Controls "on the spot" where the regulated substances are produced/used/stored.
4) Training of customs officers and other personal involved in controls (e.g. control of the transport of dangerous goods on road).
5) Use information from "environmental watch-dogs" (NGOs).
6) Cooperate with the police forces prosecute the real "hard" cases of illegal activities (organized crime).

Keeping in mind the different broadness of the scopes of the four conventions the Basel Convention might have a leading role in the successful implementation of an infrastructure preventing illegal shipments, uses and disposal operations. Although only transboundary shipments are subject to the Basel Convention any control system is workable only if it includes the domestic waste management too.

THE IMPLEMENTATION OF THIS APPROACH IN AUSTRIA

The situation in Austria might be an example for the implementation of such a program in reality. There exists a system of "chemical inspections" on the use of hazardous chemicals which are generally restricted for the use by private persons.

The trade and use of such substances (e.g. very toxic chemicals) is subject to a licence system. Persons who want to use these chemicals have to register.

A similar system was introduced in the 1980-is for the generation and disposal of hazardous wastes. The generator of hazardous wastes has to register and the collection and disposal

of wastes (hazardous and non hazardous) is subject to a licensing system.

Further more in the case of hazardous wastes there is a "way bill system" which allows tracking a waste from generation to disposal ("cradle to grave").

To make this system working a cross check of the authorities responsible for licensing economic activities is necessary. If specific waste streams or the use of specific chemicals are linked to an economic activity (e.g. the generation of galvanic sludge to the production of furniture -> in house production of metal fittings) the licensing authority should check whether the company has registered as a generator or not.

The tracking system for hazardous wastes then allows to check the amount of wastes generated. The amount of waste per employee produced by a company then gives a hint whether all wastes are disposed off in a legal way.

In this way authorities may be able to spot illegal disposal as well as non - environmentally sound production (e.g. if the emission to waste water might exceed legal standards and by this way reduce the amount of wastes produced).

While this approach is workable for economic activities the situation is very different in the case of goods used by the general public (e.g. CFC-containing equipment, controlled under Montreal Protocol as well as under the Basel Convention).

In this field raising public awareness and social control is essentially. To produce easy understandable information material for the general public and specific information material for schools and teachers is one good option to raise public awareness.

TRAINING OF CONTROL PERSONAL

In order to enhance controls the Federal Ministry of Environment organises workshops with customs officers and police officers on a regular basis.

The main parts of these workshops are the legal framework (Waste Management Act, Chemical legislation) and technical details on regulated substances/wastes. Especially for the technical details audio-visual teaching material (showing the physical appearance of typical waste streams) is very helpful.

These workshops are followed by combined controls by customs officers and experts from the Federal Ministry in a second step.

Third part of the system is the implementation of an "informal" network of experts between the custom authority, local authorities, the Federal Ministry of Environment and Federal Agencies (e.g. Federal Environment Agency/UBA, Federal Agency on Testing Motor-Vehicles(BPA-KFZ).

Restriction in Controls by EU-Legislation/Performance in Austria

One of the main advantages of the European Union is the removal of borders in Europe.

Unfortunately this means fewer possibilities for the control of transboundary movements of goods as well as wastes. Since controls may not be used in a discriminating manner controls directly at the border are no longer accepted by the Brussels Authorities.

The custom authorities in the western part of Austria therefore were reorganized after the accession to form specialized "control groups" (mobile control units, MÜG). These control groups perform "on the road" controls of trucks 20 to 30 km from the border. These controls are not specific on waste transport but also include search for illegal drugs, traffic safety (transport of dangerous goods) and smuggle in general (alcohol, cigarettes, etc.).

Since it is sometimes difficult to prove that a transport was destined to cross the border the national waste regulations are controlled too (if there is hazardous waste on the truck there have to be either the national "tracking papers" or the EU notification papers).

Since transport companies use modern communication to avoid controls it is necessary that the control activities are "broad" enough (that means controls not only on class one roads but at the same time on all small roads which may be used to avoid the check point and long enough e.g. three days so that the transports can not stop until the control period is over).

At the moment this control program is to be adapted for the eastern part of Austria too in order to follow the new situation after May 2004.

EFFORTS ON EU LEVEL

On EU level there exists a network of Implementation Authorities (IMPEL) for cooperation and information sharing. Part of this network is a specialised program the TFS-Program on waste shipments control. Within this program exchange of experiences as well as cooperation between control authorities is promoted.

Additionally to these efforts there is a pilot project on electronic data exchange (EUDIN) between the Competent Authorities for waste shipments in the EU which is intended to become effective within the next year.

To give an example of the amount of paperwork at the moment the data from Austria:

There are between 200 and 300 notifications for waste exports per year with about 35.000 single shipments. Additionally there are more than 800 transit notifications with about 400.000 single shipments.

In accordance with EU-Legislation transboundary waste shipments have to be notified three day in advance (this means not the notification procedure in accordance with the Basel Convention to get the approval for a shipment from all involved authorities but the notification of a single transport when an export/import/transit license was granted). The shipment then has to be accompanied by a copy of this notification.

The goal of the project is to give the control authorities on line access to an up to date data base of all notifications so they can check on the spot whether the notification was made (in time) or not.

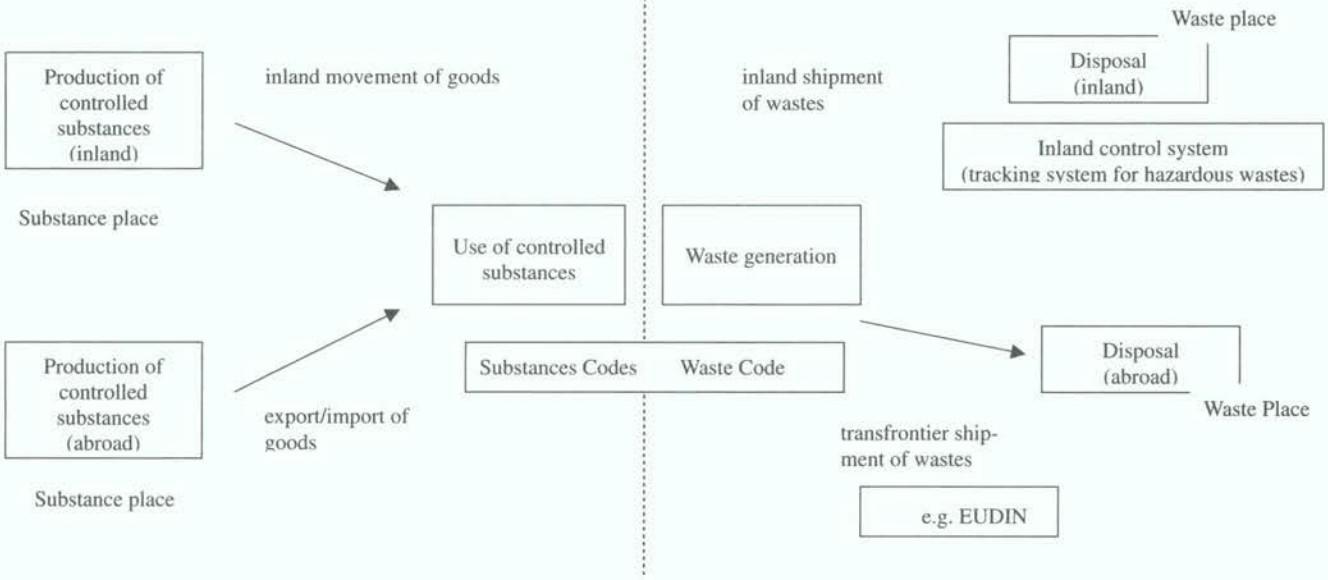
Additionally this electronic system will improve the situation regarding the certificates of disposal too. In line with the provisions of the shipment regulation the actual transport has to be notified. The a second notification on the acceptance of the waste at the disposal facility is made on arrival and at least 180 days afterwards there should be a certificate of disposal delivered by the disposer. There is a general lack of control of these provisions in the EU at the moment since the Competent Authorities in many cases have not the personal resources to keep these notifications up to date in a data base. The electronic data exchange will reduce the workload on the Authorities dramatically and set additional resources free for the control of all provisions of the shipment regulation.

Wastes covered by Stockholm Convention
Wastes generated from Rotterdam Substances
Wastes generated from Montreal Substances

Subject to Basel Convention

Substance flow

Waste flow



Recommendations/Questions:
1) identify the steps which should be controlled (and be included into an information system)
2) what should be involved into the system (substance codes/waste codes) (possible use of combined movement control systems)

RELEVANT PIC AND POPS WASTE STREAMS SUBJECT TO BC

Pesticides (including medicines)

a) Stockpiles	BC: always
b) Treated Wood	BC: ?
c) Treated Textiles	BC: ?

PCB, PCT

a) Electrical Equipment	BC: always ?
b) Oil	BC: always
c) Building & Demolition Wastes	BC: ?
d) Cured Sealing and Paints, Plastics	BC: ?

Asbestos

a) Stockpiles	BC: always
b) Equipment (e.g. heating devices	BC: always
c) Building & Demolition Wastes	BC: ?
d) Carpets & Flooring (with PVC)	BC: ?

PBB

a) Electrical Equipment	BC: always ?
b) Plastics (e.g. from electronic scrap)	BC: ?

PCDD, PCDF

a) Fly Ash from Waste Incineration	BC: always
b) Filter Dusts from Metallurgical Processes	BC: always

Need of:
1) Inventories/Sources
2) Analytical Tools
3) Treatment Facilities/Treatment Methods

Environmental Sound Management of relevant wastes

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1. INTRODUCTION

Persistent Organic Pollutants (POPs) are highly stable organic compounds used as pesticides, herbicides, fungicides, or in the chemical industry. Most POPs are synthesized substances, including by-products. They are also generated unintentionally as byproducts of industrial processes and combustion. Some of the produced POPs can also occur naturally. However, human activity accounts for the greatest proportion of formation and release of POPs.

The characteristics of POPs (toxicity, persistence and bioaccumulation, the potential for their long-range transport, and their ubiquitous presence throughout the world in ecosystems and in humans) were the impetus for the Stockholm Convention. POPs are also listed as wastes in the annexes of Basel Convention.

Improper disposal of a POPs waste can lead to releases of POPs and, in certain cases, to the generation and release of newly formed unintentional by-product POPs into the environment with subsequent potential for exposure.

2. REGULATORY BASIS

For the management of stockpiles and wastes containing POPs special rules exist based on the Stockholm Convention on Persistent Organic Pollutants, Basel Convention and European Regulations are already in place or in development.

2.1 Stockholm Convention

The objective of the Stockholm Convention is to protect human health and the environment from persistent organic pollutants. It differentiates between three categories of POPs:

- Intentionally produced POPs that are slated for elimination;
- Intentionally produced POPs are to be reduced and ultimately eliminated, except where there is a specified "acceptable purpose," such as disease vector control, or exempted usage, in which case the production and/or use of the substance is restricted; and
- POPs that are unintentionally produced as the result of human activity and which are slated for continued minimization and, where feasible, ultimate elimination of total releases derived from anthropogenic sources.

Intentionally produced POPs are listed in annexes A and B and unintentionally produced substances are listed in Annex C of the Convention. Annex A lists aldrin, dieldrin, chlordane, endrin, heptachlor, HCB, mirex, toxaphene and PCBs. Annex B, which currently lists only DDT, applies to intentionally produced substances that may be subject to restrictions. Annex C lists PCDDs, PCDFs, PCBs and HCB.

2.2.1 Waste related provisions

Waste related provisions of the Stockholm Convention are found in Article 6 of this Convention: "Measures to reduce or eliminate releases from stockpiles and wastes" which is the central article pertaining to wastes. The article describes and applies to three categories of POPs wastes:

- POPs wastes per se or POPs-containing mixtures/formulations. Examples include POPs that were intentionally manufactured, such as PCBs or a POPs pesticide, but which are now prohibited, deregistered, or, if covered by a use exemption in the Stockholm Convention, have expired or been taken out of use;
- Waste products and articles consisting of, containing or contaminated with a chemical listed in Annex A, B or C; and
- Stockpiles consisting of or containing chemicals listed in Annex A or Annex B once they are deemed to be waste.

Substances listed in Annexes A and B are deemed wastes "after they are no longer allowed to be used according to any specific exemption specified in Annex A or any specific exemption or acceptable purpose specified in Annex B." The provision encompasses stockpiles of Annex A and B wastes after they are no longer allowed to be used according to any specific exemption.

Exemptions for manufacture may be granted for chlordane, DDT, HCB, and mirex. Use exemptions may be granted for aldrin, chlordane, dieldrin, DDT, heptachlor, HCB, mirex and PCBs.

Products and articles in which quantities of an Annex A or B chemical occur as unintentional "trace" contaminants shall not be considered as listed POPs according to a note inboth of these annexes.

The provisions for waste handling and disposal stipulates that each Party shall:

Take appropriate measures such that wastes, including products and articles upon becoming wastes, are:

- Handled, collected, transported and stored in an environmentally sound manner;
- Disposed of in such a way that the persistent organic pollutant content is destroyed or irreversibly transformed so that they do not exhibit the characteristics of persistent organic pollutants or otherwise disposed of in an environmentally sound manner when destruction or irreversible transformation does not represent the environmentally preferable option or the persistent organic pollutant content is low, taking into account international rules, standards, and guidelines, including those that may be developed pursuant to paragraph 2, and relevant global and regional regimes governing the management of hazardous wastes;

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2 Head of Section „General Affairs of Waste Management, Focal Point Basel Convention", Deputy Head of Devision „Waste and Water Management"; Federal Environmental Agency, Postbox 33 00 22, 14191 Berlin, Germany, ++49 30 8903 3459, ++49 30 8903 3103; e-mail: joachim.wuttke@uba.de

- Not permitted to be subjected to disposal operations that may lead to recovery, recycling, reclamation, direct reuse or alternative uses of persistent organic pollutants.
- Not transported across international boundaries without taking into account relevant international rules, standards and guidelines;

The Conference of the Parties of Stockholm Convention shall cooperate closely with the

appropriate bodies of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal to, inter alia:

- Establish levels of destruction and irreversible transformation necessary to ensure that the characteristics of persistent organic pollutants are not exhibited;
- Determine methods that constitute environmentally sound disposal for stockpiles and for other POPs wastes;
- Work to establish, as appropriate, the concentration levels of the chemicals listed in Annexes A, B and C in order to define the low persistent organic pollutant content.

Furthermore the Stockholm Convention requires that each Party promotes or requires Best Available Techniques (BAT), together with Best Environmental Practices (BEP), to reduce the formation and release of unintentional by-products from industrial and other human activities. General prevention measures for reduction or elimination of releases of POPs relating to BAT, and to Best Environmental Practices (BEP), include waste management activities, such as waste avoidance of feedstocks that contain or are linked to generation of POPs; minimization of Annex C chemicals as contaminants in products (i.e., products that will eventually become wastes); process modifications to improve combustion (resulting in less residuals that will subsequently require destruction or disposal); and treatment of residuals, wastewater, wastes and sewage sludge by, for example, thermal treatment or rendering them inert or chemical processes that detoxify them.

Another measure calling for improved methods for flue-gas cleaning that is aimed at preventing or reducing releases could result in waste residue with increased concentrations of POPs, with implications for the nature of treatment (destruction/irreversible transformation or environmentally sound disposal.

The provisions of Stockholm Convention call on each Party to apply BAT to sources that have high potential for formation of Annex C unintentional POPs, where the Party has identified the source(s) as warranting such action in its obligatory action plan for unintentional POPs. The requirement to use BAT for these sources shall be phased in as soon as practicable, but no later than four years after the entry into force of the Convention for that Party.

A Stockholm Expert Group is developing BAT/BEP guidelines for some sources of unintentionally produced POPs, such as waste incinerators and cement kilns, that are used or have been proposed for use for the destruction of POPs wastes.

2.2 Basel Convention

The Basel Convention stipulates that any transboundary movement of wastes (export/import/transit) is permitted only when the movement itself and the disposal of the concerned hazardous wastes are environmentally sound. Trade with non Parties is not permitted.

Environmentally sound management of hazardous wastes or other wastes is defined 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."

For all transboundary movement of hazardous wastes and other wastes the procedure for prior informed consent with respect to import and export of wastes has to be followed.

Furthermore it is stated that "Parties exercising their right to prohibit the import of hazardous or other wastes for disposal shall inform the other Parties of their decision. According to Article of 4.1 subparagraph (b) "Parties shall prohibit or shall not permit the export of hazardous or other wastes to the Parties which have prohibited the import of such waste when notified pursuant to subparagraph (a)."

This "Basel Ban" on hazardous wastes exports for final disposal was amended with COP Decision III/1 with the aim to change it to a so called „Total Ban", also prohibiting exports of hazardous wastes for recycling from Annex VII countries (Basel Convention Parties that are members of the EU, OECD, Liechtenstein) to non-Annex VII countries (all other countries). The Ban Amendment requires ratification by three-fourths (62) of the Parties to enter into force. The ban amendment has not yet entered into force on a global level, but has been implemented by the EU (Art. 16 EU-WSR).

The key provisions of the Convention pertaining to environmentally sound management, waste minimization, and waste disposal practices that protect or minimize adverse effects on human health and the environment are that each Party shall take appropriate measures to:

- Ensure that the generation of hazardous wastes and other wastes within it's borders is reduced to a minimum, taking into account social, technological and economic aspects;
- Ensure the availability of adequate domestic disposal facilities, for the environmentally sound management of hazardous wastes and other wastes;
- Ensure that persons involved in the management of hazardous wastes or other wastes within it's borders take such steps as are necessary to prevent pollution due to improper management of hazardous wastes and other wastes and, if such pollution occurs, to minimize the consequences thereof for human health and the environment;
- Ensure that the transboundary movement of hazardous wastes and other wastes is reduced to the minimum consistent with the environmentally sound and efficient management of such wastes, and is conducted in a manner which will protect human health and the environment against the adverse effects which may result from such movement;
- Not allow the export of hazardous wastes or other wastes to a State or group of States belonging to an economic and/or political integration organization that are Parties, particularly developing countries, which have prohibited by their legislation all imports, or if it has reason to believe that the wastes in question will not be managed in an environmentally sound manner, according to criteria to be decided on by the Parties at their first meeting;

These general provisions are supportive of and consistent with the ESM of POPs wastes as required by the Stockholm Convention. However, the Basel Convention does not include provisions for a phase-out or bans on persistent organic pollutants, but rather addresses a broad range of hazardous wastes under the un-stated assumption that they will continue to be produced. Within this context, "disposal" as defined in Basel Convention ("any operation specified in Annex IV to the Convention) and as further qualified by Annex IV, Section A ("Operations which do not lead to the possibility of resource recovery, recycling, reclamation, direct re-use or alternative uses") includes a range of options.

The concept of "disposal" in the Basel Convention further extends, via Section B of Annex IV to "Operations which may lead to resource recovery, recycling, reclamation, direct re-use or alternative uses" of the Convention's listed waste categories and specific waste streams. However, provisions within the Stockholm Convention effectively supersede the recycling, reclamation, direct re-use or alternative uses options for purposes of destruction/ irreversible transformation of the 12 Stockholm listed POPs for countries that ratify the Stockholm Convention. Some of the operations listed may, however, be appropriate for pre-treatment of POPs wastes, prior to their destruction in accordance with provisions of the Stockholm Convention. These include the following:

R2 Solvent reclamation/regeneration
R3 Recycling/reclamation of organic substances which are not used as solvents
R4 Recycling/reclamation of metals and metal compounds
R5 Recycling/reclamation of other inorganic materials
R6 Regeneration of acids or bases
R8 Recovery of components from catalysts
R9 Used oil re-refining or other reuses of previously used oil[
R12 Exchange of wastes for submission to any of the operations numbered R1-R11

The Basel Convention sets no priorities with regard to selection of one or another of the Annex IV operations as they may be appropriate to a specific waste category or waste stream, or concentrations of a particular waste, although the choice of operation will necessarily be qualified by the Convention's provisions pertaining to ESM, which require that disposal occur in a manner that will protect human health and the environment from adverse effects of these wastes.

2.2.1. Provisions with regard to POPs wastes

The Basel Convention defines wastes as "substances or objects which are intended to be disposed of or are required to be disposed of by the provisions of national law." A stockpile of a material would therefore be considered a waste if it is intended for disposal or disposal is required by national law.

The 12 POPs listed in the Stockholm Convention are according to the Basel Convention classified. These POPs meet the Basel Convention Annex III hazard criteria as specified in code

- H11: Toxic (Delayed or Chronic);
- H12 Ecotoxic; and depending on concentration and the particular POP and route of exposure
- H6.1 Poisonous (Acute).

Annex I lists the following wastes streams that pertain to POPs, including those that could be contaminated by POPs:

Y2 Wastes form the production and preparation of pharmaceutical products
Y4 Wastes from the production, formulation and use of biocides and phytopharmaceuticals
Y5 Wastes from the manufacture, formulation and use of wood preserving chemicals
Y6 Wastes from the production, formulation and use of organic solvents
Y10 Waste substances and articles containing or contaminated with polychlorinated biphenyl's (PCBs) and/or polychlorinated terphenyls (PCTs) and/or Polybrominated biphenyls (PBBs)
Y12 Wastes from production, formulation and use of inks, dyes, pigments, paints, lacquers, varnish
Y13 Wastes from production, formulation and use of resins, latex, plasticizers, glues/adhesives
Y18 Residues arising from industrial waste disposal operations
Y41 Halogenated organic solvents
Y43 Any congener of polychlorinated dibenzo-furan
Y44 Any congener of polychlorinated dibenzo-p-dioxin
Y45 Organohalogen compounds other than substances referred to in this Annex (e.g., other than Y39((phenols and phenolic compounds)), Y41, Y42 ((organic solvents excluding halogenated solvents)), Y43, Y44)

For categories Y2, Y4, Y5, Y12 and Y13, POPs could be contaminants in some products in these categories. For example, pharmaceutical wastes could include products contaminated with PCDDs and PCDFs as a result of unintentional synthesis (notwithstanding the contaminants could be at trace concentrations). Several of the pesticide POPs have been/are used as biocides. PCDDs and PCDFs can be formed inadvertently during the manufacture of chlorophenols, which have been used in preservation of wood, paints and glues. PCBs have been widely used in the past in paint additives, adhesives and plastics, while PCTs, to a lesser extent, were also used in plasticizers, etc., as a PCB substitute. HCB has been used as an intermediate and/or additive in various manufacturing processes, including the production of synthetic rubber, PVC, pyrotechnics and ammunition, dyes, and pentachlorophenol.

Annex VIII of Basel Convention lists wastes that are characterized as hazardous under Article 1(a) of the Convention. The POPs are listed in this section by name, class or by a category, of which they may constitute one component, as per below:

PCBs, PCTs and PBBs:

A1180: Waste electrical and electronic assemblies or scrap2 containing components such as accumulators and other batteries included on list A, mercury-switches, glass from cathode--ray tubes and other activated glass and PCB-capacitors, or contaminated with Annex I constituents (e.g., cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they possess any of the characteristics contained in Annex III (note the related entry on list B B1110)

A3180: wastes, substances and articles containing, consisting of or contaminated with polychlorinated biphenyl (PCB), polychlorinated terphenyl (PCT), polychlorinated naphthalene (PCN) or polybrominated biphenyl (PBB), or any other polybrominated analogues of these compounds, at a concentration level of 50 mg/kg or more.

Pesticide POPs (aldrin, chlordane, DDT, dieldrin, endrin, HCB, heptachlor, mirex and toxaphene)

A4030: wastes from the production, formulation and use of biocides and phytopharmaceuticals, including waste pesticides and herbicides which are off-specification, outdated (unused within the period recommended by the manufacturer), or unfit for their originally intended use.

PCDDs and PCDFs

A4110: wastes that contain, consist of or are contaminated with any of the following:
- Any congener of polychlorinated dibenzo-furan
- Any congener of polychlorinated dibenzo-dioxin.

The waste listings of Basel Convention also include a number of waste categories that have the potential to include one or more of the 12 POPs, such as

- ashes from incineration of insulated copper wire;
- dusts and residues from gas cleaning systems of copper smelters;
- waste gypsum arising from chemical industry processes;
- coal-fired power plant fly ash containing Annex I substances in concentrations sufficient to exhibit Annex III characteristics;

- wastes from industrial pollution control devices for cleaning of industrial offgases, excluding such wastes specified on list B;
- spent activated carbon not included on list B;
- spent sorbents;
- wastes from production, formulation and use of resins, latex, plasticizers, glue/adhesives; waste mineral oils unfit for their originally intended use;
- waste thermal (heat transfer) fluids;
- fluff–light fraction from shredding;
- waste phenols;
- waste halogenated or unhalogenated non aqueous distillation residues arising form organic solvent recovery operations;
- wastes from the manufacture formulation and use of wood preserving chemicals (not including the wood itself);
- waste packages and containers containing Annex I substances in concentrations sufficient to exhibit Annex III hazard characteristics.

2.3 Other Conventions

In addition to the Stockholm and Basel Conventions, there are other international instruments that contain provisions that pertain to POPs wastes. For example, the 1998 Protocol on POPs to the 1979 Convention on Long-Range Transboundary Air Pollution of Persistent Organic Pollutants, in Article 3, calls on each Party to ensure that when Annex 1 substances are destroyed or disposed of, such destruction or disposal is undertaken in an environmentally sound manner, taking into account relevant sub regional, regional and global regimes governing the management of hazardous wastes and their disposal, in particular the Basel Convention. The protocol calls for domestic disposal of listed Annex 1 substances, taking into account pertinent environmental considerations.

The Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention) has as its purpose the facilitation of information exchanges on chemicals from developing to developed countries and is intended to empower countries to determine what chemicals will enter their countries. The Annex III list of pesticides and industrial chemicals subject to the Rotterdam Convention include 11 POPs (aldrin, dieldrin, chlordane, DDT, dieldrin, heptachlor, HCB, PCBs, PBBs, PCTs, and toxaphene).

The 2003 Protocol on Pollutant Release and Transfer Register (PRTR) to the 1998 UNECE Aarhus Convention on Access to Information, Public Participation in Decisionmaking and Access to Justice in Environment Matters seeks enhancement of public access to information through the establishment of integrated, nationwide PRTRs so as to facilitate public participation in environmental decision making and contribute to the prevention and reduction of pollution of the environment. Reporting provisions include off-site transfers beyond the boundaries of a facility of either pollutants or waste destined for disposal or recovery and pollutants in waste water destined for waste-water treatment.

3. DISPOSAL OF POPS - THE EXAMPLE OF PCB WASTES

One well investigated POP is the group of the Polychlorinated Biphenyls (PCBs). PCBs are a substance group, in which one or more hydrogen atoms of the biphenyl molecule are substituted by chlorine atoms. There are 209 so-called congeners from the three monochlorobiphenyls to the complete chlorinated decachlorobiphenyl.

Technical PCBs are not pure substances but always mixtures containing, depending on the desired properties, several differently chlorinated congeners and, as impurities due to their production, polychlorinated furans and naphthalene's. For modifying their technical properties they may contain also other substances such as trichlorobenzene.

The PCBs exhibit several interesting properties for technical applications. They are good electric isolators, are flame-proof and non-explosive. They are also durable plasticizers for coatings, sealants and plastics. Therefore they have been used for many years as hydraulic oils especially in the mining, as transformer fluids, as dielectricum of capacitors, as heat-transmission liquids, as plasticizers. We find them as wastes in these devices and materials, but also as contaminants in buildings and soils.

In the environment the PCBs are very persistent, i.e. they are almost indecomposable by biological processes. PCBs are practically unsoluble in water, but they are very lipophylic. Therefore they are concentrated in non-aqueous media, e.g. sediments of waters and adipose tissues of organisms, and show bio magnification in the food chain. In addition, they show a long range air transport.

Due to the bio magnification and the so-called global distillation they are found in cooler regions of the earth where they have never been used, e.g. in the mountain chains and in the polar regions. They are enriched in the adipose tissue of predators such as polar bears and in the breast milk of Inuit women. After incorporation, the PCBs may cause several chronic diseases.

Tab. 1: EWL-Codes of PCB containing wastes depending on their origin

Code	Waste description
08	**Wastes from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks**
08 01	wastes from MFSU and removal of paint and varnish
08 01 17*	wastes from paint or varnish removal containing organic solvents or other dangerous substances
12	**Wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01	wastes from shaping and physical and mechanical surface treatment of metals and plastics
12 01 16*	waste blasting material containing dangerous substances
13	**Oil wastes and wastes of liquid fuels (except edible oils, and those in chapters 05, 12 and 19)**
13 01	waste hydraulic oils
13 01 01*	hydraulic oils, containing PCBs
13 03	waste insulating and heat transmission oils
13 03 01*	insulating or heat transmission oils containing PCBs
16	**Wastes not otherwise specified in the list**
16 01	end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)
16 01 09*	components containing PCBs
16 02	wastes from electrical and electronic equipment
16 02 09*	transformers and capacitors containing PCBs

16 02 10*	discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 04	metals (including their alloys)
17 04 10*	cables containing oil, coal tar and other dangerous substances
17 05	soil (including excavated soil from contaminated sites), stones and dredging spoil
17 05 03*	soil and stones containing dangerous substances
17 09	other construction and demolition wastes
17 09 02*	construction and demolition wastes containing PCB (for example PCB-containing sealants, PCBcontaining resin-based floorings, PCB-containing sealed glazing units, PCB-containing capacitors)
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	separately collected fractions (except 15 01)
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components)

The PCBs are ubiquitously found in the environment. One reason for this is that they are long years in usage, connected with damages and accidents. For example, from Slovakia a serious contamination of asphalt and soil due to an untight PCB-containing heatexchanger has been reported. But the main cause for the distribution of the PCBs in the environment is the improper management of PCB-containing wastes.

3.1 Disposal of PCB waste

Wastes and stockpiles have to be disposed of in such a way that the persistent organic pollutant content is destroyed or irreversibly transformed so that they do not exhibit the characteristics of persistent organic pollutants or otherwise disposed of in an environmentally sound manner when destruction or irreversible transformation does not represent the environmentally preferable option.For the member states of the European Union the Council Directive 96/59/EG allows only four disposal operations for PCB-containing wastes:

- biological treatment
- physico-chemical treatment
- incineration on land
- permanent storage (only in safe, deep, underground storage in dry rock formations and only for equipment containing PCBs and used PCBs which cannot be decontaminated)

The choice of the disposal method depends on the nature of the given waste.

In the order of the European List of Wastes (see details in tab. 1), the most important PCB-containing wastes originate from

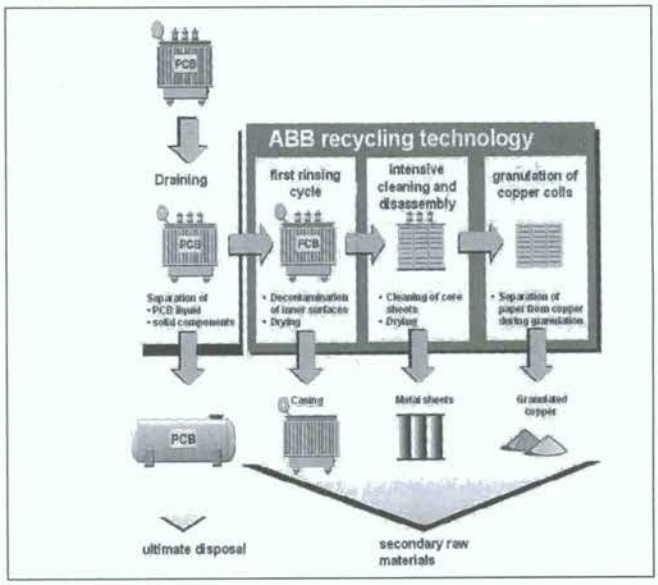
- coatings and sealants
- abrasive materials from the removal of such coatings
- liquids from transformers, large capacitors and heat exchangers
- and hydraulic devices
- contaminated transformers and capacitors
- cables and other demolition wastes

Figure 1: Motor capacitors

Examples for PCBs in paintings and sealants are reported from Switzerland and from Norway. In Switzerland steel bridges were protected against corrosion by PCB-containing chlorinated rubber, in Norway isolated glass windows were tightened by PCB-containing sealants. PCB may also be contained in durably elastic caulking compounds for concrete structures.

A large group of potentially PCB-containing devices are the small capacitors (see Fig. 1 and Tab. 3 in the Annex). They are used either in single-phase motors or in ensembles of fluorescent lamps. Single-phase motors are commonly applied in household-devices such as washing-machines, refrigerators and vacuum-cleaners. In 1988, in Berlin-West a study on the occurrence of PCB-containing capacitors in electrical household-devices was performed. From the results it could be estimated that more than 300 tons of PCBs were contained in the capacitors of these devices from which about one half was still in use.

Figure 2: Cleaning procedure for waste disposal, material recovery and recycling of PCB containing transformers



Source: ABB Service GmbH Deutschland Instandhaltungen, Environmental Services Division

The small capacitors are a problematic group because they are a diffuse source of PCBs if they are not removed from the devices before their disposal. Furthermore, PCBcontaining capacitors cause the formation of polychlorinated dioxins and furans if they are mixed with ordinary municipal waste and incinerated together with it.

PCB-containing and PCB-suspicious small capacitors have to be removed from the equipment and to be deposited of in an underground landfill.

Large transformers may have an overall-mass of several tons from which the mass of the fluid may be more than one ton. If the metals of the transformer – iron from the core-plates and copper from the coils – shall be recycled, the transformers must be emptied and the metals have to be cleaned from PCBs. Only PCB-free

metallic parts may be recycled in thermal metallurgical processes without emissions of polychlorinated dioxins and furans. There are available systems of solvent-washing of equipment which has been removed from service (see figure 2).

Because of the internal structure of transformers its complete cleaning is not an easy process. It may be cheaper not to recycle the metals but to dispose them of in an environmental sound manner. In these cases the transformers are emptied, rinsed and filled up with a binder, are geometrically conditioned and, like small capacitors, deposited in an underground landfill. This procedure fulfils the demand of the European Directive mentioned above in the sense of a "permanent storage" far from the biosphere.

3.1.1 Incineration

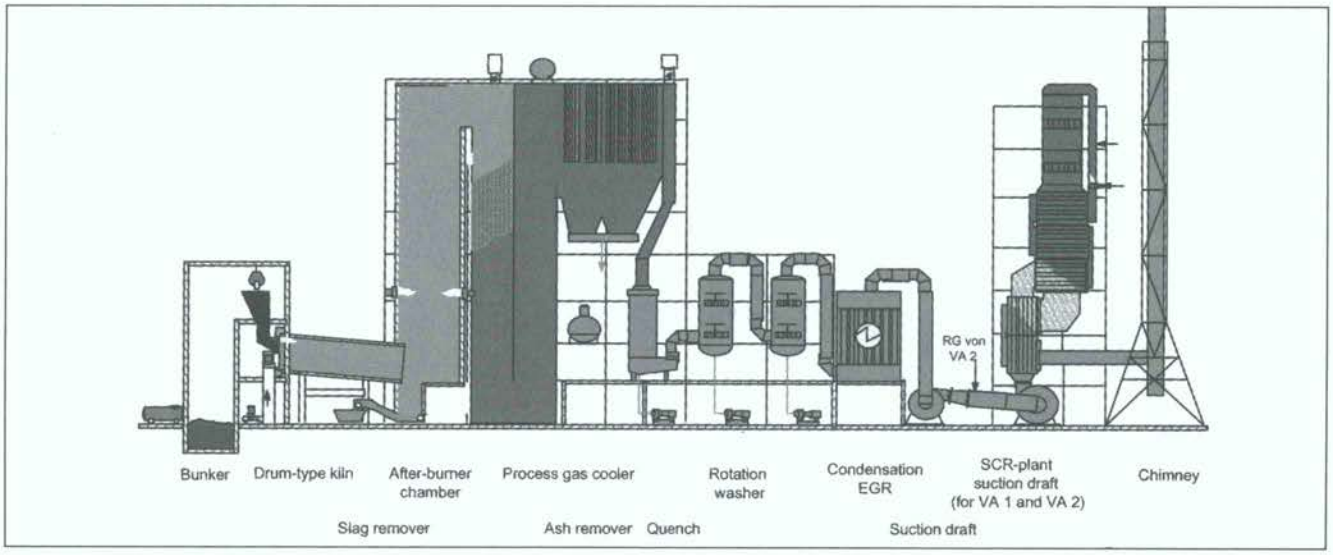
The incineration of waste is a method available on an industrial scale, and for which comprehensive knowledge and data are available, by which the harmfulness of a large number of substances can be greatly reduced.

The following goals are being pursued by means of incineration:

- the disposal of solid, liquid, and semi fluid wastes which cannot be landfilled or treated chemically or physically without harm to the environment, because of their composition and content of decomposable substances,
- minimisation of the hazard potential and content of harmful substances of the wastes, especially by breaking down organic compounds,
- substantial reductions in volume and weight,
- utilisation of the energy released.

In Germany liquids such as PCB-containing oils are mainly incinerated in hazardous-waste incineration plants. These plants have originally been developed for the disposal of hazardous wastes from the chemical industry and must fulfil several technical parameters in order to avoid the formation and the emission of polychlorinated dibenzodioxins and furans. The temperature must be at least 1100 °C with a retention time of no less than 2 seconds and a minimal oxygen content of 2 %. The dioxin content of the off-gas must not be lower than 0,1 ng TE/m3. During the incineration HCl-gas is formed which have to be removed from the flue-gas.

Figure 3: Example of a drum-type kiln plant for hazardous waste incineration



The present German hazardous waste incineration capacities amount to approx. 1.2 million t/a in 31 hazardous waste incinerators.
The emission standards for waste incinerators in the European Union and Germany are shown in Table 2.

Table 2: Emission standards for waste incinerators (in mg/m³ at 11 % O_2 dry) in the European Union

Pollutant	EC Directive Incineration of Waste (2000/76/EC)		
	daily average limit	A - half hour average limit 100 % [2])	B - half hour average limit 97 % [2])
HCl	10	60	10
HF	1	4	2
SO_x (EC SO_2)	50	200	50
NO_x	200 (>6t/h) 400 (<6t/h)	400	200
CO	50	100	50
organic subst.	10	20	10
Dust	10	30	10
Heavy metals	average emission limit over respective sampling time [1 - 8 h]		
Σ Cd and Tl	total 0,05	total 0,1[2])	
Hg	0,05[4])	0,1[2])	
Σ As, Sb, Cr, V, Sn, Pb, Co, Ni, Cu, Mn	total 0,5	total 0,1[2])	
	[6 - 8 h]		
Dioxins and furans (as toxic equivalent values)	0,1 x 10-6 TE[3])		

1) either none of the half-hourly average values exceeds any of the emission limit values set out in column A or, where relevant. 97 % of the half-hourly average values over the year do not exceed any of the emission limit values set out in column B
2) until 1 January 2007 average values for existing plants for which the permit to operate has been granted before 31 December 1996 and which incinerate hazardous waste only

3) = 0,1 ng TE/m³
4) in Germany Hg is measured continuously and the following limits apply: 0,03 mg/m³ daily average limit and 0,05 mg/m³ half hour average limit
[ ] respective sampling period

State of the art technology for the incineration of hazardous wastes

From these hazardous waste incineration plants in Germany, usually operated with drum-type kiln and secondary incineration chamber, data from 8 plants have been selected to line out the BAT standard for the incineration of hazardous wastes in Germany. The capacity of the plants selected is between 15,000 and 13,000 t/a, (160,000 t/a in the case of BASF).

All hazardous waste incineration plants are operated in such a way that with the incineration degree attained in slag and grate ash, a content of organically bound total carbon (TOC) of less than 3% or a loss on ignition of less than 5% of the dry weight of the material combusted is observed.

Deviating from the prescribed incineration conditions in the incineration chamber for an optimum combustion of the incineration gases, plants with temperatures or sojourn times lower than the minimum temperature of 1,100°C or the residence time of 2 s, respectively, are also operated, provided that it has been proved that their emissions are not higher than with the regular requirements. The following Table 3 gives a survey on the ranges of emission values attainable in clean gas.

Table 3: BAT standard for emissions into the air (operating values)

Parameter	Measure	Half-hour average value	Daily average value	Annual average value
Continuous measurement				
Total dust	mg/m³	- < 30	<1- <6,1	< 1 -
HCl	mg/m³	- <60	<3 - <3	< 1 -
SOx	mg/m³	- <200	<1 - <12	<1 - < 3
HF mg/m³		- < 4	< 1	< 0,01
NOx	mg/m³	<68 - <400	< 100 - < 200	75 - 118
Σ C	mg/m³	- <20	<1 - <2,2	< 1 -
CO	mg/m³	- < 100	<4 - <50	<9 - 15
Periodical measurement (average value over sample taking period)				
NH_3	mg/m³	<2		
Cd, Tl	mg/m³	0,0002 - <0,012	< 0,0004	
Hg[1])	mg/m³	- <0,05	0,00045 - <0,012	0,0017 - 0,0025
Σ Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Sn	mg/m³	0,015 - <0,3	0,009 - 0,01	
PCDD/PCDF, ITE	ng/m³		0,0022 - <0,1	0,00017 – 0,005
Benzo(a)pyren	mg/m³			<0,0001
Σ PCB ng/m³				
Σ PAH ng/m³				
N2O mg/m³				

1) in Germany also continuous measurement

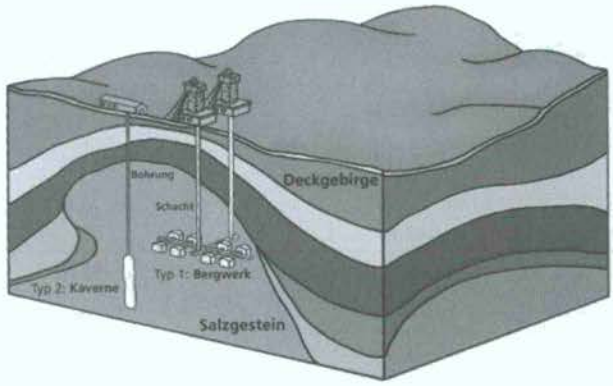
An alternative to hazardous-waste incineration plants are cement kilns which operate also at higher temperatures and at oxygen excess and in which PCB-containing oils may be used as secondary fuels. In contrast to waste incineration plants no HCl-gas is emitted but the chlorine is chemically incorporated into the product, the alkaline cement clinker. However, chlorine reduces the passivity of the reinforcement steel in concrete. Therefore the chlorine content of cement must be limited and the portion of PCBcontaining (and other chlorine-containing) wastes of the fuel is restricted and needs authorisation.

In addition to plants especially designed to treat hazardous waste thermally, industrial high-temperature processes (wet bottom furnaces of power stations, cement rotary kilns, industrial furnaces, blast furnaces, etc.) in which certain types of waste are used as substitute fuels can be employed for thermal treatments.

There may be instances in which the risk associated with destruction of a POPs waste is greater than the risk associated with its containment or disposal in an environmentally sound manner. For example, the nature of the waste (other substances with which it is mixed, lack of uniformity, etc.) may preclude use of a particular technology. By way of illustration, solid construction and demolition wastes, such as PCB in a concrete matrix, while they can be destroyed by thermal treatment would result in high energy consumption, while less energy intensive treatment methods (e.g., "washing" or solvent extraction, see example above) entail risks of high volatile organic compound (VOC) emissions and fire. In such instances, irrespective of a 50 ppm concentration level, a particular ESM option (e.g., underground landfill) would be preferable to destruction/irreversible transformation.

As well, destruction or irreversible transformation may not constitute the environmentally preferable option for POPs waste residues from thermal processes, where the POPs wastes (taking into account applicability of pre-treatment options) are not combustible, and, in exceptional cases, for solid wastes from waste management facilities, off-site wastewater treatment plans and resulting from the preparation of water intended for human consumption and water for industrial use.

Pic. 3: Underground Landfill

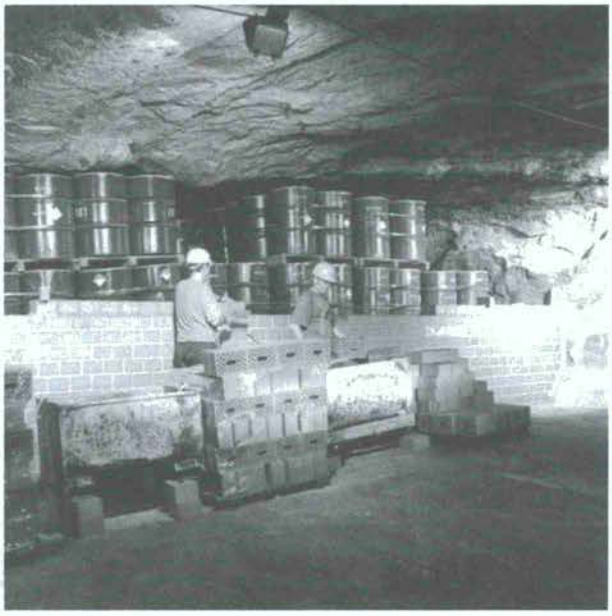


Source: TU Braunschweig3.1.2 Underground Landfill

Underground landfills in Germany are former salt mines or separated parts of still existing mines. They are situated several 100 m under the earth's surface and isolated from ground water and the biosphere by natural sealants, e.g. clay layers. They are organized like warehouses with separated areas for, e.g., mercury containing wastes, arsenic containing wastes and PCB-containing wastes. Within a limited period of time the wastes deposited in an underground landfill may be moved back if necessary. After

a longer time (several hundred years) the salt flows around the wastes, wrapping them – for eternity.

Pic. 4: Permanent storage in underground landfill



Source: K + S Aktiengesellschaft

3.1.2.1 State of the Art of non-destructive methods of disposal of wastes containing POP in Germany

Underground landfilling/underground waste stowing as a non-destructive method of treating wastes containing POPs is now a highly recognized form of treatment, especially for wastes which are not thermally treated due to economical and ecological reasons, for example filter dust from waste incineration plants. This method of disposal as lain out in the Stockholm Convention should therefore be allowed use in the future.

The amounts disposed of in Germany are from domestic as well as foreign origin. Dioxincontaminated filter dust, especially from waste incineration but also from metallurgic processing, make up the greater part of the wastes. Whilst the PCDD/F concentrations in filter dust from waste incineration amount to less than 10.000 ng/kg, filter dust from metallurgic processing in some cases significantly exceed this amount (rising up to 100.000 ng/kg).

Table: 3 Filter dust, -ashes and -slags containing PCDD/F

	1999 Amount (t)	2000 Amount (t)	2001 Amount (t)	2002 Amount (t)
imported	140.673	155.979	158.152	158.164
domestic	152.603	255.374	220.129	162.022
sum	293.276	411.353	378.281	320.186

Where transformers or capacitors containing PCB are landfilled underground it is usually the case of wastes which contain PCB in very high range of concentrations from less than to more than 50 mg/kg. However, no exact scale of quantity is available. Before being landfilled underground gadgets with insulating fluids containing PCB are completely emptied and if necessary, sticking rests are stabilized through further treatments. Small capacitors also undergo direct underground landfilling.

As expected, much less information is available on other wastes containing POP, besides the two waste-flow (filter dust and PCB) listed in the European Waste List. Therefore only isolated reports on the underground waste stowing of wastes containing DDT (amount < 13,4 mg/kg) or wastes containing HCH (amount < 698 mg/kg) are known.

Table: 4 Transformers and capacitors containing PCB

	1999 Amount (t)	2000 Amount (t)	2001 Amount (t)	2002 Amount (t)
imported	384	229	191	2.857
domestic	4.895	3.796	3.557	1.978
sum	5.279	4.025	3.748	4.835

A survey within the regional authorities of Germany showed tendencies to additional problem zones, which are however not exactly measurable. To be especially mentioned in this case is the landfilling of contaminated construction wastes in domestic waste landfills(!!!). An examples is the renovation of US barracks, which were contaminated with DDT(!!!) (40 respectively 80 mg/kg). It could be that this represents only the tip of an iceberg as this waste type was not specifically queried in the survey.

3.1.3 Other disposal methods

Pyrolytic processes or direct combustion (thermal oxidation) can in principle also be used to treat hazardous waste thermally. Relatively high temperatures of 900°C and more are normally used in the thermal conversion of hazardous waste in an oxidising atmosphere. But the only pyrolytic plant for hazardous waste in Germany (in Salzgitter) was shut down end of 1999.

Liquid PCB-containing wastes may also be dechlorinated by chemical processes. The most common dechlorination processes use gaseous hydrogen, alkaline substances or metallic sodium. Some of such methods have also been developed in Germany, but because of economical reasons they are scarcely used.

Furthermore, the use of special high-temperature processes such as plasma-burners, ash furnaces, salt-smelting and infrared treatment has been under discussion. These processes, however, are still under development and will presumably be used for only a few types of waste that are insignificant in terms of quantity generated. Only one plant has started to work at Freiberg for melting wastes like dusts with a high content of heavy metals. Grateless systems are mainly used to incinerate hazardous waste. The rotary kiln above all has proved its worth as a universal incineration system. As an „omnivore" it is a well-tried incineration method, reliable in operation which constitutes the basic equipment of all German hazardous waste incinerators.

The biological treatment, however, is a slow process and not well suited for the detoxification of wastes containing PCBs. Biological methods are under development and applied in the remediation of contaminated areas, especially in cases when an off-site treatment is not possible.

The ideal disposal operation does not exist. The method which is used depends on the type of waste, on the waste produced by the disposal operation, on the technical possibilities, on the economical conditions as well as on the experience and the knowledge of the administration and the public. However in every case the wastes should be disposed of in an environmentally sound manner, that is, using the best available techniques and the best environmental practices, taking into account the whole environmental impact of the operations.

Annex

Tab. 3: List of production names of capacitors containing PCBs

BRAND NAME	Type of capacitor	MODEL	Type of PCBs-Impregnating material
AEG		LFB 71224 EW XI LFB375/385 EW VI	4 CD
AEG (HYDRA)	Power capacitors Fluorescent tubes /motor capacitors	From 1956- 1983	Clophen CPA 30, 40, 50 3 CD, 4 CD, 5 CD 3 CD, 4 CD, CD, CP
ACEC	High voltage capacitors	CAN 50	
AEROVOX			
ABB (ASEA Dominit, Lepper Dominit, ASEA Lepper)	Power Capacitors	CPN... (except CPN 7and CPN9), CPH, CKN, CKH	A30 A50 3 CD Cp Cpstab
AXEL ELECTRONIC			
BAUGATZ	Power Capacitors Fluorescent lamps/ motor capacitors	LD... LU... KSE... OVL.... KSE/OVL.... TV... KSE/ TV... CpD ... CpM ... CpN ... CpNK ... HSE ... HSD .... RKO ... ZZD ... CpH ... MB... CpL... Motostal...	CD, 3 CD, 4 CD, CPA 30, CPA 40 CP, CPA 40, 3 CD, 4 CD
BICC		All capacitors	
CAPACITOR SPECIALISTS			
CESA			
CINE-CHROME LAB			
COGEGO		PRA 2211210 34202, TS420V	
COMAR	Several uses	50013.5/oil	
CORNELL DUBLIER			
DUBLIER			
DUCATI	Power capacitors Fluorescent tubes / motor capacitors Washing machine capacitors	16.52.22.89 HMF 16.52.23.89 HMF 16.43.41. 90, 16.67.06, 16.67.11.94	3CD 3 CD LDO 3CD
ELECTRIC UTILITY			
ELECTRICA		No designation	
ELECTRONICON RFT/ GERA		0.218. xxx 0.219.xxx	Chlordiphenyl Chlordiphenyl
ELOS		560-6 JPF	CP
ERO	Dishwashers capacitors Power capacitors Fluorescent tubes / motor capacitors	Up to 1983 BX RCD 5LY5011 Phcl LX	 CPA 40 CD CP
ESTA	 Power capacitors Fluorescent tubes / motor capacitors	BX/LMX/5LY5011 BX/LMX/5LY5010 BX/LMX/5LY5010 BX/LMX/5375 HMC BX/LCX/559 HMF Phclz, Phclf, Phkc, Phfp, Phfpw LCU, MCX, MCU	CD CD CD CD P25 CP, CD

F+G		Neptun 922-758-50 IPF 922-758-51 IPF 922-758-51 INF 922-758-50 INF 922-758-50 IPF 922-758-50 ISF	CP CP CP CP 4 CD CP
FELTEN & GUILLEAUME	Power capacitors	0.220…output data 0.230… 0.380… 0.400… 0.500… 0.526…	Clophen, Cp, P, CP 25, 30, 40, 50
FRAKO	 Kitchen hood capacitors Power capacitors Fluorescent tubes / motor capacitors Washing machine capacitors	LR 15TW, LR 31T, LR 2 Up to 1983 Ph LR, M…RLB, M…RKB, M…RFB	3 CD, 3 CD CPA 40 3 CD, A 30, 4 CD, A 40, Cp 3 CD, A 30, 4 CD, A 40, CP, CD, 3 D, 76 C, CP, CPA 40 CPA 40, Clophen
GEC			
GENERAL ELECTRIC	 High voltage capacitor	36F780G11, 61 F39LAA, MNP-50, MNP-2531 UNIFILM 100	
GENERAL ELECTRICA ESPANOLA (currently ABB)		130, CMA-150, CMA-200, CMDK-200, CMA-100	
HYDRA	Dishwashers capacitors Fluorescent tubes / motor capacitors Washing machine capacitors	Up to 1983 MKB/20/2521	3 CD C2, CPA 50, 4C, 4 CD, 3 CD, LFB, CPA 40
HYDRAVERK			
IBM			
ICAR-SLIMOTOR	Kitchen hood capacitors Dishwashers capacitors Power capacitors Fluorescent tubes / motor capacitors Washing machine capacitors	1411051 up to 1983 all between 1972-76 From 1976-1986 MS 55, 697, JTYP, MS	 3 CD, MS 55 CP 5 CD, 3 CD, C 100, C 125, C 180, CD, 3 CD, C, C100, C 105, C 180, C 125, CD
INCO	Power capacitors Fluorescent tubes / motor capacitors Dishwasher capacitors Washing machine capacitors	 Up to 1983 6911 717	3 CD 3 CD
INDUKON		All capacitors until mid 1970's	
INF			
IPF			
ISF			
ISKRA	Fluorescent tubes / motor capacitors Washing machine capacitors	 KPM 1015, KPM, KPM 1017	9D, 8D 9D, 8D
ISOKOND	Power capacitors BK LKC LKP LKCA LKCI LKPA KCI KPI	Orophen Cp, CD A 50, A 30 5 CD, 3 CD	
ITAL-FARAD	Fluorescent tubes / motor capacitors Washing machine capacitors	All between 1969-1970 RL4546, KPM.711, KPM.1015	C C
ITT			
JARD CORP			
JENSEN	Motor capacitors	CXX, NXX	

KAPSCH	Power capacitorsc Fluorescent tubes / motor capacitors	KO 7943 RLO	CD CP, CD 3C 3CD
LCC			
LILJEHOLMEN	Low voltage capacitors	DRA…	
LK		All capacitors 1960-1980	
LUMAX	Fluorescent tubes / motor capacitors	LFB, 922, 933, 922-758-59 922-758-51 ISF, LBF 3.74/ 380Xi KPF, LFB 9/222 XI	CPA 40 CP
MALLORY			
MARON	Fluorescent tubes / motor capacitors	M22AMFL256W	
McGRAW-EDISON		5	
NATIONAL INDUSTRY	High voltage capacitor	FPF-U 2C-0100A03	
NETO			
NEUBERGER	Fluorescent tubes / motor capacitors		CP, CD, 3LP, 3CP, LDO3, NOKIA
Nokia/Nordisk Brown Bovery	Power capacitors Low-voltage capacitors High-voltage capacitors	AD*, AY*, ED*, EY*, HD*, HY*, RD*, RY* *= A, D, E, I, K, O, P, S, U or V between 1960-1976 the first two characters of the batch number indicate the year of manufacture between 1960-1978 the first two characters of the batch number indicate the year of manufacture	
NORDFALK		All capacitors between 1959-1982 Capacitors are numbered in succession 19.500 aprox <Capacitor number < 58.500 aprox	
OTTO JUNKER	Power capacitors	CFpc… CEpc… CPpc… CDpc… CWpc… BZW	A 30; CP 30 A 40, CP 40 A 50, CP 50 3 CD 4 CD 5 DC
PHILIPS	Fluorescent tubes	2222 240 26031 2222 240 26035 2222 240 11431 C120 BA UDE 2222 240 76035 2222 240 241, C 120, C 124, C 125, C 126, 82280-82228	CP 3 CD 3 CD
RF INTERONICS			
RIFA	Fluorescent tubes/ motor capacitors	PLJ 5011, PLJ 5013-5015, PLJ 503-505, PLJ 605	
ROEDERSTEIN (EROESTA)	Power capacitors Fluorescent tubes / motor capacitors	Phcl, Phclz, Phclf, Phkc, Phfp, Phfpw LCX, LCU, LMX, LMU, MCX, MCU	CPA 40 P 25 CD Cp
SANGAMO ELECTRIC			

SIEMENS	High voltage capacitors (above 1Kw) Low voltage capacitors (below 1Kw) Power capacitors Fluorescent tubes / motor capacitors	Since 1954 All capacitors between 1954-1975 The year of manufacture appears from the batch number, identified by the first two digits after the designation D. 4RA, Co, Cd, NSP: Ce… Co… Cd… Cod… 4 RA Msp: ICd… fCe ICp… frCE… 4 RG… 4 RH… MF: lCe… lCy WCe… kCe… RI… (up to 1976) B 13311… B 13312 … B 13314 (up to 1973) B 13319 … B 15030 … B21311 B21312 B21313 B21314 B21315 B21316 B21317 B21318 B21319	C1p30, C1p40, P25 PCB Askarel Clophen CP A 30 CP A 60 CP A40
SIEVERTS (ASEA) cable plant	Low voltage capacitors High voltage capacitors Shunt or series capacitors and furnace capacitors Special capacitors		CRA 3, CLE 01, CLD 01, CLD 1, CLD 2, CLD 3, CLD 4, CLD 5, CLFA 100, CRK 5, CRK 8, CRK 10, CRK 20, CRK 40, CRKS 5, CRKS 8, CRKS 10, CRKS 25, CRKS 40 CTVA 6, CVGA, CHF 31, CVF 31, CVFA 50, CVFA 100, CVGA 50, CVGA 100, CVH CKTA 5, CTDA 6, CHA 50, CHA 100, CHX, CR 50, CR 100, CRS 50, CRS 100, CPNI, CHF, CHF 20, CHF 50, CHF 100 CLFL 100, CRU, CUD HMRV 25 HMRV30
SPA	All capacitors	Up to 1988, KSK…	
SPRAGUE	All capacitors labeled CHLORINOL		
SUKO	Power capacitors Fluorescent tubes / motor capacitors	Ph…380 PH…400 (up to 1974) MCAL f(up to 1970) 31…260 up to 450 (up to 1982) CLA… (up to 1970)	CD, CPA CD, CP, BE(5), BEE, CDA… (up to 1970) 11/13…220 (up to 1982), 12/14…380 (up to 1982), 12/14…420 (up to 1982) 560-665F R
THOMSON		LS3 LCX 559	3 CD
THOMSON-CSF (Elos, Ducati)	Fluorescent tubes / motor capacitors	LEUKO – LS xxx 250-420 MOTKO – 16.60XXX DCT – MS xx Elos	3 CD 3 DC
TOBE DEUTSCHMANN LABS			
UNIVERSAL MANUFACTURING CORPORATION			
VALVO	Fluorescent tubes / motor capacitors		P CP
VEB Spindelberg	Washing machine capacitors	TS 66, TS 60	
VEB Schwarzenberg	Washing machine capacitors	WM 66, ELECTRO 02, WA 45, WA 46, WVA 500, WM 60, TM 64	
WESTINGHOUSE	High voltage capacitors	FE 65549-1, 65549-1 200KVAR-9.6KV DV…	
YORK ELECTRONICS			

UNKNOWN	Kitchen hood capacitors	Italian manufacturer 03834 P.RIC up to 1983	
	Washing machine capacitors	ex-DDR manufacturers up to 1976, 0291, TLG 10589, Up to 1977, A-TGL 8699, 25/070/56, 10/070/56, KPM 1013, DB 764, Up to 1984 TLG 200/8268	Chlordiphenyl CD AK 50
	Unknown appliance	LFB ewl, BB LR 2211 210 23017 (Philips?) 2222 240 90091 560-6 0277 FP (Philips?) 2222 240 11431 QF (Philips?) LCX GIO BO 40 MF EUC 958-501401 2-3 S 120 ZX X.3 2222 290 11055 (Philips?) N NEUKO LS 2222 240 90059 (Philips?)	3 CD 3 CD 3 CD 3 CD CD 3 CD 3 CD

Table 4: Synonyms and trade names for PCB, PCT and PBB

Chemical	Some Synonyms and Trade Names*)
Polychlorinated biphenyls (PCB)	Aceclor, Adkarel, ALC, Apirolio (Italy), Arochlor, Arochlors, Aroclor/Arochlor(s) (US), Arubren, Asbestol, Ask/Askarel/Askael, Auxol, Bakola, Biphenyl, Biphenyl, Chlorinated, Chlophen, Chloretol, Chlorextol, Chlorfin, Chlorinal/Chlorinol, Chlorinated biphenyl, Chlorinated diphenyl, Chlorobiphenyl, Chlorodiphenyl, Chlorphen, Chorextol, Chorinol, Clophen/Clophenharz (Germany), Cloresil, Clorinal, Clorphen, Decachlorodiphenyl, Delor, Delorene, Diaclor, Dicolor, Diconal, Diphenyl, chlorinated, DK, Duconal, Dykanol, Educarel, EEC-18, Elaol (Germany), Electrophenyl, Elemex, Elinol, Eucarel, Fenchlor (Italy), Fenclor, Fenocloro, Gilotherm, Hydol, Hyrol, Hyvol, Inclor, Inerteen, Inertenn, Kanechlor (Japan), Kaneclor, Kennechlor, Kenneclor, Leromoll, Magvar, MCS 1489, Montar, Nepolin, NoFlamol, No-Flamol, Non-Flamol, Olex-sf-d, Orophene, PCB, PCB, PCB's, Pheaoclor, Phenochlor, Phenoclor, Plastivar, Polychlorinated biphenyl, Polychlorinated biphenyls, Polychlorinated diphenyl, Polychlorinated diphenyls, Polychlorobiphenyl, Polychlorodiphenyl, Prodelec, Pydraul, Pyraclor, Pyralene (France), Pyranol (US), Pyroclor (US) Phenoclor (France), Pyronol, Safe-T-Kuhl, Saf-T-Kohl, Saf-T-Kuhl, Santosol, Santotherm (Japan), Santovac, Solvol, Sorol, Soval, Sovol (USSR), Sovtol, Terphenychlore, Therminal, Therminol, Turbinol
PCT	Aroclor (US), Clophen Harz (W), Cloresil (A,B,100), Electrophenyl T-50 and T60, Kanechlor KC-C(Japan). Leromoll, Phenoclor, Pydraul
PBB	Adine 0102, BB-9, Berkflam B10, Bromkal 80, Firemaster BP-6, Firemaster FF-1, Flammex B-10, hbb, hexabromobiphenyl, HFO 101, obb, BB-8, Berkflam B10

*) The list of trade names is not intended to be exhaustive. Source: Draft PCB, PBB, PCT Basel Guideline

Table distributed to participants

Panel III.			Inventories			Domestic avail. disposal facility			Export			Hazardous waste incineration			Cement kilns			Underground Landfilling			Landfilling			Thermal Cracking			Conversion		
			x	o	n	x	o	n	x	o	n	x	o	n	x	o	n	x	o	n	x	o	n	x	o	n	x	o	n
CFC´s		pure																											
		foams																											
POP´s	PCBs	pure																											
		transformers																											
		small capacitors																											
	PCDDs/PCDFs filter dust																												
	pesticides																												
Hazard. wastes	industrial	organic																											
		inorganic																											
	mixed collected	organic																											
		inorganic																											
	mixed unknown																												
			national									national/EU																		

Part IV

REPORT

1. BACKGROUND

The overarching objective of the different chemicals and hazardous wastes Conventions is the protection of human health and environment from pollution by certain chemicals and hazardous wastes. The scope of the Basel Convention covers a broad range of hazardous wastes, including chemical wastes, subject to transboundary movements. The Convention aims to reduce these movements to a minimum by minimising the quantity and hazardous nature of the wastes generated and by promoting the treatment and disposal of hazardous wastes as close as possible to their source of generation. The Rotterdam Convention specifically addresses certain hazardous pesticide formulations, subject to international trade. The Stockholm Convention has as its priorities the reduction or elimination of releases of persistent organic pollutants (POPs) from international production, unintentional productions, stockpiles and wastes. The Rotterdam and Stockholm Conventions have provisions to add further chemicals to the treaties. The aim of the Montreal Protocol is to protect the ozone layer by phasing out the production and consumption of ozone-depleting substances.

The proliferation of Multilateral Environmental Agreements (MEAs) has placed an increasing burden on Parties to meet their obligation and responsibilities. The proposed workshop on the strengthening of co-operation based on chemicals and hazardous wastes Conventions was the follow up activity aimed at:

i) clearly identifying links between the chemicals and hazardous wastes Conventions;
ii) supporting their implementation;
iii) strengthening the partnership; avoiding duplication of activities including targeting the National Focal Points (NFPs) of these Conventions inclusive representatives of industrial associations, customs authorities and environmental inspection authorities;

The workshop took place in Prague-Průhonice from 15 to 17 March 2004. The presentations of the participants focused on the achievements of implementation of the following MEAs: Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal; Stockholm Convention on Persistent Organic Pollutants (POPs); Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and Montreal Protocol on Substances that Deplete the Ozone Layer.

The panel discussions focused on the strengthening of co-operation between chemical and hazardous waste conventions, exchange of information and experience, and on addressing some technical difficulties experienced during actual enforcement of legal requirements into practice in participating countries.

This report aims at providing the overview of the workshop, especially on the outcome of the summary discussion and the recommendations and conclusions of the workshop. The related documents and presentations are available at the Ministry of the Environment of the Czech Republic (Ms. Klara Quasnitzova, e-mail: quasnitzova@env.cz) or at the Basel Convention Regional Centre (BCRC) in Bratislava, Slovakia.

2. PARTICIPANTS

The workshop was attended by representatives of seven countries: Austria, Czech Republic, Germany, Hungary, Poland, Slovakia, Slovenia. Other participants to the workshop were Mr. Nelson Sabogal on behalf of Secretariat of the Basel Convention; Mr. Suresh Raj on behalf of UNEP DTIE and Ms. Dana Lapešová, Head of BCRC Bratislava. The list of participants is attached to this report.

3. OBJECTIVE OF THE WORKSHOP

The objective of the workshop was to identify and discuss common issues of the above-mentioned Multilateral Environmental Agreements (MEAs) and to strengthen the co-operation among the NFPs and other stakeholders involved in the process of implementation and enforcement of Conventions in the participating countries. Other objectives: use the workshop as a model for other CEE countries; publish the outcomes of the workshop and distribute them to other CEE countries; propose a way of how to strengthen effective co-operation between representatives in the participating countries.

This Workshop supported the implementation of the Strategic Plan for the implementation of Basel Convention (priority fields regarding prevention and monitoring of illegal traffic, enhancement of education and awareness-raising and partnership at all levels between countries), and the Implementation Plan adopted at the World Summit on Sustainable Development held in 2002 in Johannesburg.

[1] It should be noted that whenever "disposal" is used hereinafter, it is considered to be in accordance with Article 6, paragraphs 1 (d) (ii) and 1 (d) (iii) of the Stockholm Convention.

The following topics were discussed during the workshop:

- Status of Implementation of the MEAs in the participating countries;
- The transboundary movements of relevant waste streams (PCBs, POPs, ODS, etc.) and the prevention, detection and monitoring of illegal traffic of these waste streams;
- The environmentally sound management of these waste streams;
- The situation regarding technical capacity, available technology and guidelines in connection with esp. disposal[1] of these waste streams.

4. OPENING OF THE WORKSHOP

The workshop was opened by Ms. Dana Lapešová, Head of the BCRC Bratislava. Then Mr. Tomas Novotny, Deputy Minister of the Environment of the Czech Republic, welcomed the participants to the workshop in the Czech Republic. He thanked the representatives of Austria and Germany who accepted the invitation to the workshop for their preparedness to chair the discussion panels on relevant waste streams and environmentally sound management of wastes. In his speech Mr. Tomas Novotny pointed out the significance of a successful implementation of the MEAs especially now, that Hungary, Poland, Slovakia, Slovenia and the Czech Republic are becoming members of the European Union. The Secretariat of the Basel Convention representative, Mr Nelson Sabogal, welcomed the participants on behalf of the Secretariat and mentioned that this workshop was one of the project proposals submitted by the Regional Centre to the second session of the Open-Ended Working Group held in October 2003, in order to identify and discuss common issues of the Basel, Rotterdam and Stockholm Conventions and the Montreal Protocol and to strengthening the co-operation among the national Focal Points and other stakeholders involved in the process of implementation and enforcement of these Multilateral Environmental Agreements. He added that the Secretariat recognized the efforts of the Regional Centre and the host country in order to make this workshop a success and also in order to use it as a model for other Central an Eastern European countries and hoped that the sharing of information and experience among the countries present and future members of the European Union would help the implementation of the Basel, Rotterdam and Stockholm Conventions and the Montreal Protocol. Mr. Sabogal highlighted that the aim at the end of the workshop, after the discussions of the Panels, was to have a plan on how the co-operation among these four Multilateral Environmental Agreements could be converted into projects in order to address issues such as inventories, prevention, detection and monitoring of illegal traffic or in other areas that are of importance to the countries in the region and invited them to share fruitful collaboration in the course of the workshop.

5. SESSION I

Linkages between the Basel, Stockholm and Rotterdam Convention and the Montreal Protocol (with regard to the close entry into force of the Rotterdam and Stockholm Convention)

The presentations to address the linkages between the Basel, the Stockholm and the Rotterdam Convention were delivered by Mr. Nelson Sabogal and the presentation on the Montreal Protocol by Mr. Suresh Raj. They underlined the goals of the Conventions and their priorities as well as the relevance of strengthening the co-operation in the region including cooperation to implement the Montreal Protocol. Finally they accentuated the key issues of capacity building and education in the area. Mr. Nelson Sabogal, the SBC representative, presented the Basel Convention and its linkages to other MEAs. He also put forward the main objectives of the Stockholm and Rotterdam Conventions, as well as, key issues, priorities and foreseen activities to implement at these Conventions in the near future. He stressed the role of the Basel Convention Regional Centres that was endorsed by the sixth Conference of the Parties to the Basel Convention to implement the priority actions of the Strategic Plan and that are considered to be the main channels for implementing the Strategic Plan.

Ms. Dana Lapešova did a presentation to highlight the co-operation among parties to implement the MEAs and improve the enforcement of the different Conventions. Mr. Jiří Hlaváček from the Czech Ministry of the Environment referred in his speech to the priorities of the European Union and their linkage with relevant MEAs. He mentioned as well the history of adoption of the Conventions by the Czech Republic including the harmonisation of the Czech legislation with EU regulations, that was very important for the participants. He stressed, inter alia, that it is our society that has been increasingly producing more waste and therefore, it is our responsibility to take all measures to improve the environment accordingly.

Discussion

Slovakia called for better co-operation and more frequent exchange of information between counterparts in the field of waste management (e.g. on implemented inventories of pesticides including achieved results; expert estimation of POPs stockpiles). Moreover, co-ordination is needed since different ministries share responsibility for different conventions. It was pointed out that isolated activities prevent deeper collaboration and prevent achievement of better results in the area of waste management.

Some participants stressed the important role of environmental inspections. The inspections carried out in the field are considered to play an important role to supervise the correct functioning of the activities under the environmental legislation of the countries and therefore ensure the practical implementation of the environmental agreements. However the role of these inspections can vary depending on the different controls performed, their quality as well as their quantity. In some instances national inspection offices suffer the lack of capacity to perform more inspections.

6. SESSION II

Joint implementation of the Basel, Rotterdam and Stockholm Convention in participating countries focusing on: Status quo, participating/implementing national authorities and their cooperation, practical experience with the implementation of the MEAs, interference with EU legislation (meeting EU legislation obligations while implementing UN Conventions).

During this session, representatives of each participating country made presentations on the implementation status of the Conventions in their countries regarding the national programs and the applicable legal acts/regulations adopted. Participants were informed on the legal practices and on the experience gained in the course of the implementation in the different countries.

Representatives of Germany and Austria gave practical examples on the implementation of the Conventions and found positive linkages through implementation of the Conventions and improvement of the environment including impact on the behaviour

of communities and individuals. Regarding CFCs strengthening of co-operation is needed. There is no problem in controlling large companies using refrigerants but small refrigeration equipment may sometimes evade out of the controlling mechanism. It was also noted that CFCs were subject to chemical control but conversely these substances were in practice mostly under the regime of waste management. Germany presented its good experience through "all competence one authority" and through the enforcement of legal requirements exercised by customs offices. Representatives of Germany mentioned the system of modification/harmonisation and highlighted the importance of national standards and their compliance with the different Conventions. Germany pointed out the need to continue phasing out the ozone depleting substances, in particular CFCs and halons. The measures and adopted legal undertakings to meet requirements of theMontreal Protocol in Germany were presented as well as the achievements accordingly. Regarding ozone depleting substances, in general no particular problem has been observed related to regulations and control of large companies. Some difficulties can appear with regard to small business (refrigeration equipment) and how to control them. As regard to the Basel Convention, Germany's good experience has been due to the application of the obligation to re-export and the provision of financial guarantees. Austria presented, among others, the outcomes of study regarding POPs dissemination and concentrations in Austria and Antarctica. The results of the study show that POPs have been transported world wide and has a deep effect on animals and the environment and get into the food chain. Regarding waste management, Austria highlighted that in some cases, disposal of wastes in a landfill is not the best environmentally sound technology, and therefore in these cases, there are preferable alternative solutions that must be identified and used.

All presentations delivered described in detail how the tasks of the competent authorities have been carried out with regard to adopted laws and regulations at the national level in order to respond to the requirements of the Basel, Stockholm and Rotterdam Conventions and Montreal Protocol. Presentations showed that countries participating in the workshop had in place all legal prerequisites, had created sound administrative systems and/ or appropriate laws should be in place soon. For example, the legal basis for the implementation of the Basel Convention in Poland is currently not fully consistent with EU legislation. However, the preparation of the new act on international shipments is now under way. It is expected that the act will be adopted by the end of March 2004.

NGO Arnika, as participating organisation of IPEN made a presentation on two topics of Stockholm Convention and related problems under the Basel Convention regarding BAT (best available technology) and BEP (best environmental practice) expert group including definitions and criteria for destruction of POPs waste. According to Arnika's opinion, high temperature incineration is not the most suitable and environmentally acceptable technology for disposal of POPs/PCBs (taking into account the content of chemicals in the inputs and outputs before and after the disposal process and concentrations of residuals after combustion). Arnika proposes to support clean technologies rather than combustion.

Discussion

During the presentations, the participants also exchanged information on national legislation on the control of transboundary movements of hazardous wastes, on cases of illegal traffic, on sanctions and penalties and on the enforcement of these instruments. The role and capacity of customs offices and the possibility of strengthening the regional co-operation regarding prevention and detection of illegal traffic were discussed. There were also discussions related to regional co-operation in the view to share the experience among governments responsible for national implementations of MEAs, monitoring of the trade of controlled chemicals under different Conventions, information system on mechanisms for integrated management of chemicals.

Poland

Poland was interested in learning more about Austria's guidelines on the regulation of exports/imports of dangerous chemicals.

Slovenia

Slovenia was interested in the program that is being implemented in Austria for customs offices regarding prevention of illegal shipment of wastes.

Customs offices have been trained, and they have access to laboratory facilities to be able to detect dangerous and regulated chemical substances. They were trained for that purpose on technical and physical visual aspects, methods for testing and testing equipment.

Lessons learned

Germany and Austria have developed good practices regarding exports/imports of waste to control the obligations of exporters and importers. With regard to the developing countries and gained experience it is proposed to give developing countries some assistance upon request otherwise. Iit is difficult to make exports/ imports due to certain administrative problems, e.g. questionable is what language shall be used for labelling the dangerous materials or chemicals to assure good understanding of printed legends. Another problem is that it is sometimes difficult to understand local administrative procedures in importing countries.

In the field of waste control the legislative authority is split between different ministries and agencies. Intensive co-operation and co-ordination is needed among national authorities/agencies for the different tasks. Most common problems identified are related sometimes to the insufficient or inadequate capacity of the responsible bodies or some other times to an overload of experts, or lack of some data or data need for the improvement of the existing system, insufficient data sharing and, in some instances restrictions concerning confidentiality of some sensitive data.

Other identified problems:

- the likely administrative changes could have an impact on the co-ordination and co-operation at national and regional level;
- non responsive and /or non corresponding administrative procedures at national level during exports/imports of wastes mostly related to the developing countries ;
- some countries might have difficulties with the monitoring of regulations and procedures;
- different and/ or non-corresponding categories used for banned commodities e.g. wastes in some importing countries.

7. SESSION III

Discussion of common issues concerning the implementation and enforcement of the Basel, Stockholm and Rotterdam Conventions and the Montreal Protocol

During the presentations and panel discussions, the following topics were addressed:

a) Situation regarding technical capacity, available technology and guidelines for POPs disposal

Introduction

For the purposes of this topic, Mr. Ivan Holoubek prepared an extensive background document. This document refers to the Stockholm and Basel Conventions and specifically to the international commitment to the identification and management of POPs wastes including GEF Operational Program for Reducing and Eliminating Releases of POPs into the Environment. Environmental and health concerns about emissions of POPs by-products from combustion have encouraged the development of alternative disposal technologies. Emerging technologies could play an important role in the final treatment and or disposal of obsolete POPs stockpiles. Therefore, the major part of this section was devoted to technologies available for disposal and decontamination of POPs/PCBs.

Discussion

Discussions focussed on the following problems: what incineration methods are the most appropriate, available disposal technologies, free capacity for disposal in different countries and selection of technology, how to measure chemical contamination, identification of what areas in a country might suffer the most of contamination, transboundary impact of these technologies and management issue. Some participants stressed that setting up concentration limits of hazardous components (toxic substances) in wastes is difficult and that there is a need to introduce more standards and methods for making decisions. Participant also proposed to share the analytical methods related to setting up concentration data. Germany confirmed the analytical reference method for determination of final concentration of PCBs in oils and petroleum products (EN 12766-1, 2). It was explained that final result of concentration of PCBs means a sum of six congeners multiplied by five. Concerning PCBs, PCB containing transformers which are maintained insufficiently, constitute a serious environmental hotspot. Moreover, the group also had discussions related to the efficiency of incineration and other disposal facilities, the safety measures of these facilities and their control. Regarding incineration of POPs/PCBs it is important to take into account the cost of this technology. Alternative non-incineration technologies were also discussed and proposed for further observation and development. It was emphasized that the incineration technologies must be safe, commercially viable and must have sufficient capacity corresponding with the needs for disposal. It is foreseen that the countries should carry out inventories of wastes and set up the appropriate disposal capacity accordingly. It will also be desirable to disseminate among countries the results of the inventories, and also to include the available disposal capacity and the capacity that will be needed in the future.

For the purpose of disposal, participants pointed out that the solution should be to focus on the currently available technologies rather than technologies in development. Some participants noted that building on sufficient capacity for disposal would not be an easy task (due to political reasons, investment costs, etc.)

Discussion also touched the problem of how to treat wastes in a short-term perspective (appropriate storage regulations and conditions for storing (sites), safety measures, etc.) until better environmentally friendly disposal technologies and capacities are in place. In addition, it was highlighted that the option of the storing of dangerous wastes would not be a long term solution and could be considered for a bridging period only.

b) Transboundary movement of relevant waste streams and the prevention, detection and monitoring of illegal traffic of these waste streams

Prohibition of import of chemicals included in the Rotterdam Convention

Introduction

For the purposes of Panel 2 discussion, Mr. Andreas Moser, Federal Ministry of Agricultural, Foresting, Environment and Water Management, of Austria prepared the comprehensive paper to summarise the following issues: common principles included in all four chemical Conventions, implementation of Treaties, monitoring of illegal shipments, training of control persons, restrictions in controls by EU legislation and efforts on EU level.

Discussion

The participants exchanged information on national legislation on the control of transboundary movements of hazardous wastes, including information on the experience of illegal traffic, on sanctions and penalties, on enforcement of these instruments and on the strengthening of regional co-operation regarding prevention, detection and penalisation of illegal traffic. Discussions focussed on the following concerns: costs for shipment of wastes compared to the costs for treatment in local facilities; substantial restrictions on exports/imports that might affect larger use of waste removal/ treatment through foreign existing capacity which would require an adjustment of the shipment regime; waste incineration or recycling play important role in decision making and in shipments in Europe. Regarding CFC and shipments of refrigeration equipment, the evidence must be in place and control carried out; as experience shows local recycling and disposal of CFCs is more suitable because it is governed by national legislation. It is important to improve co-operation of inspectorates, customs and other authorities and help countries to meet their obligations for safe handling, storage and transportation of wastes. Regarding regulated substances up grade information system to collect relevant data for the linkage of waste management, shipments and movement of waste.

8. SESSION IV

Environmentally sound management of wastes with regard to the obligations of the three MEAs and EU legislation, the activities undertaken in the region and the enforcement of the MEAs on a regional basis

Chaired by: Dr. Joachim Wuttke, Deputy Head of Waste and Water Management Department and Head of Focal Point Basel Convention, Federal Environmental Agency, Berlin, Germany

As the basis for discussion background paper prepared by Dr. Joachim Wuttke and Dr. Jorg Friedrich was circulated.

Panel discussion focused on the Basel Convention

Introduction

Persistent Organic Pollutants are highly stable organic compounds used as pesticides, herbicides, fungicides or in the chemical industry. Most POPs are synthesized substances, including by-products. They are/were also generated unintentionally as by-products of industrial processes and combustion. Some of the produced POPs can occur naturally. However, human activity accounts for the greatest proportion of formation and release of

POPs. The characteristics of POPs (toxicity, persistence and bio-accumulation, the potential for their long-range transport, and their presence through the world in ecosystems and in humans) were the impetus for the Stockholm Convention. POPs are also listed as wastes in the annexes of the Basel Convention. Improper disposal of a POPs waste can lead to releases of POPs and, in certain cases, to the generation and release of newly formed unintentional by-products POPs into the environment with subsequent potential for exposure.

Discussion

Discussions focussed on the following concerns: regarding intention to create disposal capacities and proper handling including waste management system there is a need to take decision on foreign treatment capacity or domestic facility as the option; there is identified need to make the control of inventories/sources, to analytical tools available and improvement, to disposal facilities and treatment methods.

Incineration of PCBs or POPs is possible in the Czech Republic in the current hazardous waste incineration plant. Domestic capacity for disposal of POPs and PCBs differs in various countries. Existing technology differs for diverse substances. Therefore exchange of information is needed in this regard. Inventories of POPs are still in process and inventories of CFCs shall include foams. It is important to take measures to secure contaminated sites with POPs. The discussion also identified the need to share experience regarding the treatment of contaminated soil and possible use of landfills. Unification of procedures is required regarding fly ash from waste incinerators and the treatment through landfilling or through a specific processing. In some instances fly ash could be used in the energy sector or in recycling. It is important to decrease the amount of dioxins contained in the ashes. For disposal of fly ash in the Czech Republic, a variety of industrial technologies including incinerators is used. However, secured and protected hazardous waste landfills will have to be mostly used after May 1, 2004 because of the deadline to meet the emission limits. In Slovakia filters are used as well as landfilling. In Austria limit values are checked first and then decision is made on how to handle the waste as hazardous waste or not. The same procedure is followed in the Czech Republic. Waste producers have to categorize their wastes according to its non-hazardous/hazardous properties.

At the end of this discussion, participants voluntarily filled in the tables that were distributed (blank form illustration are attached) to test how they appraise the current situation in their countries regarding inventories, exports, disposal facilities, etc., including CFCs, POPs, and waste.

There were also small working group discussion on inventories, disposal needs, domestically available disposal capacities, change of legal basic with EU accession (Art. 16 EU WSR: total ban) possibility to use retrofitted cement kilns, export to other EU countries and underground secured landfills.

9. SUMMARY OF PANEL DISCUSSIONS

Participants from Austria, the Czech Republic, Germany, Hungary, Poland, Slovakia and Slovenia especially discussed the following points:

- Most of the participating countries export the POPs waste for disposal[2] within Member States of the European Union. In the European Union there is sufficient capacity for decontamination and disposal (e.g. incineration) of POPs.
- Two new disposal facilities with non-combustion technologies will be available in the region in the near future – BCD in Spolana Neratovice in the Czech Republic and one to be selected in Chemko Strazske in Slovakia. Envisaged capacity in Slovakia is about 1000 Mg per year.
- On the meeting, the NGO expressed a strong position on the use of non-combustion technologies in the region to address POPs waste disposal.
- Advanced storage facilities for interim storage of collected POPs waste are necessary in the countries to reach a proper level of environmental sound management. Countries are encouraged to evaluate the actual situation as soon as possible from the national and regional perspective.
- It is necessary to secure the POPs contaminated sites to avoid additional pollution of the environment until the final clean up is done.
- while addressing problems related to a wide range of PCBs equipment including identification of existing equipment it has been recognised that inventories of PCBs and PCBs equipment have still been in progress and, to complete the process countries in the region inquire better co-operation and exchange of information
- The follow-up workshop on harmonization on regional approach on environmental sound management in POPs as waste in selected CEE countries will be held in Bratislava, Slovakia in May 2004.
- Participants identified, based on the questionnaire developed during the workshop, common lacks of knowledge. The questionnaire should serve as a basis for further work and should be attached to the report of the workshop.
- Inventories of CFCs foams (from building and demolition wastes) should be taken into account as a possible source of CFCs.
- With regard to PCB for large transformers (after draining off the liquids) and capacitors, D12 (permanent storage e.g. emplacement of containers in a mine, etc.) is still a valuable disposal option. In this connection, the members of the working group identified the need of sound and specific proposals regarding the limit values for low level POPs wastes for the upcoming 3rd OEWG of the Basel Convention.

10. CONCLUSIONS AND RECOMMENDATIONS

Taking note the UNEP Governing Council Decision 22/IV on SAICM and on the need to develop coherent inter-linkages among existing international environmental conventions and WSSD Plan for Implementation and the Strategic Plan for Implementation of the Basel Convention.

Taking into account other relevant international environmental agreements e.g. UN ECE Protocol on POPs.

Participants agreed on the following recommendations:

1. To encourage regional co-operation for sharing the experience among government officers responsible for the management of

[2] It should be noted that whenever "disposal" is used hereinafter, it is considered to be in accordance with Article 6, paragraphs 1 (d) (ii) and 1 (d) (iii) of the Stockholm Convention.

national implementation of MEAs under the chemical cluster – Montreal Protocol, Basel, Rotterdam, Stockholm Conventions and UN ECE Protocol on POPs;

2. To improve and strengthen national and regional cooperation among these four multilateral agreements through regularly updated information exchange on NFPs, DNAs, inspectorates, customs and other relevant authorities, responsible and competent persons that should be channelled through the BCRC Slovak Republic which will maintain database;
3. To exchange results of national inventories concerning POPs and POPs wastes. The BCRC-Slovakia will facilitate this process in the CEE region. Representatives of Austria and Germany agreed to join this activity;
4. To inform other countries about the list of PCB products, PCB transformers, capacitors and other equipment containing PCBs, which were produced and used in the countries of the region. BCRC-Slovakia will facilitate this process;
5. To make an inventory of pesticides as soon as possible;
6. To evaluate the need for the establishment of a safety storage system for POPs and POPs wastes as an interim storage site in the countries. It is also recommended to share information concerning free capacity of suitable disposal facility or construction of own asuitable disposal capacity;
7. To secure the POPs contaminated sites to avoid additional pollution of the environment until the final clean up is done;
8. To submit proposals regarding the limit values for low level POPs wastes for the upcoming third session of the Open Ended Working Group of the Basel Convention;
9. To take into account foams from building and demolition wastes as a possible source of CFCs in the context of inventories of CFCs;
10. To organize a combined training of customs on all export -import related measures of MEAs;
11. To exchange the basic information aimed at rising public awareness;
12. To link information systems of the trade of goods, waste management and movements of waste in order to centralise relevant data covering the whole life cycle of relevant substances for proper monitoring and control. The co-operation with the World Customs Organisation and other relevant bodies is a pre-requisite for a successful work;
13. To leverage experiences and lessons learnt during the implementation of one MEA (e.g. Basel) for the implementation of other MEAs related to chemicals (i.e. Montreal Protocol and Rotterdam and Stockholm Conventions) to achieve an integrated chemicals management;
14. To encourage closer co-operation among responsible bodies of the four Conventions in order to help countries to fulfil their obligations for safe handling, transport and interim storage until substances will be finally destroyed;
15. To expand UNEP's effort on the Green Customs Initiative for the effective monitoring of trade in controlled chemicals under the MEAs in the chemicals cluster, i.e. Montreal Protocol and the Basel, Rotterdam and Stockholm Conventions;
16. To explore the possibility of development by UNEP of the clearinghouse mechanism for integrated chemicals management building on the existing clearinghouse under the Montreal Protocol;
17. To coordinate UNEP's ongoing activities related to the regional network, South-South, North-South, West-East and East-East Cooperation and develop policy assistance towards all chemicals related conventions.

11. OFFICIAL CLOSURE OF THE WORKSHOP

At the end of the workshop Ms. Dana Lapešova and Mr. Nelson Sabogal appreciated the progress of the workshop and its outcomes. They also expressed their gratitude for the participation of Austria and Germany and their preparedness to share their experience and active role during the panel discussions. Mr. Michal Pastvinsky, on behalf of the Czech Ministry of Environment, invited participants to send their papers in word format to the Czech Ministry of Environment or to the BCRC in Bratislava by the end of March in order to prepare a publication on lessons learned from the workshop. He thanked all participants for the fruitful and successful co-operation during the meeting and closed the workshop.

Part V

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