



Prepared on behalf of International HCH and Pesticides Association (IHPA)

Aim

The aim of this newsletter is to disseminate information in a cost-effective way on the developments taking place in the area of POPs as implicated in the Stockholm Convention and other PTS of concern. It will cover mainly the news on science and technology for disposal of obsolete stocks and remediation of POPs contamination which might be of interest for commercial exploitation both in developed and developing countries. Special emphasis will be given to bio-remediation related technologies which will benefit developing countries. The newsletter will not go into technical details of selected scientific publications but only highlight salient features for the benefit of the readers. One can subscribe and read IHPA Newsletter (2 times/yr free of charge) at: <http://www.ihpa.info/subscription.php>

1. Note from the Editors

Those who are regularly visiting the IHPA web site would notice that the name of the Newsletter is changed from Bio-remediation Newsletter to POPs news letter. This was mainly due to remove the ambiguity that many a time we in the past covered areas outside the bio-remediation of POPs. So at the request and queries raised by many readers we have broadened the scope of the Newsletter. It is also worth mentioning that due to time constraints, the Newsletter will be biannual appearing in June and December. We also would like to make a request to our readers to submit articles of interest on POPs or a coverage of news, and events so that we could include them in the Newsletter. The Newsletter will acknowledge the contribution as appropriate.

As we release this newsletter, the 50th country France ratified the Stockholm Convention and hence it becomes legally binding. With the Rotterdam Convention on PIC and Stockholm Convention on POPs going in tandem, both with expansion possibilities to include future toxic and persistent chemicals, the world has a powerful tool to eliminate or reduce the use of toxic- persistent and hazardous chemicals.

In this newsletter we are very pleased to publish an article by Prof. Ivan Holoubek, and Dr. Blaha from the Research Centre for Environmental Chemistry and Ecotoxicology (RECETOX), Brno, Czech Republic. Prof. Holoubek is well known for his valuable contributions in POPs and has been actively involved in the Stockholm Convention enabling activities helping many countries in the Central and Eastern Europe and also recently in Egypt. He is also actively involved in OECD and European commissions on setting up norms and standards in the area of POPs. Czech Republic is the first country to submit the NIP under the GEF enabling activities on POPs as defined by the Stockholm Convention.

2. RECETOX (Brno, Czech Republic) - History, Aims & Activities*

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* The article is mainly for information only and the Newsletter is not intended to promote the cause of the institute and the authors should be contacted for any details.

2.1. Summary

RECETOX (Research Centre for Environmental Chemistry and Ecotoxicology, established in 1994 and being EU-DG Research Centre of Excellence from 2002; EVK1-2002-00519) is an interdisciplinary center at Masaryk University (Brno, Czech Republic) which provides research, educational as well as consultancy activities in the fields of Environmental chemistry, Ecotoxicology, Ecological and human risk assessment, Environmental impact assessment, Biostatistics and complex data evaluation. RECETOX activities focus dominantly on fate, effects and risks of Persistent Organic Pollutants (POPs) and Persistent Bioaccumulative and Toxic chemicals (PBTs) with respect to both scientific and regulatory aspects. RECETOX is the national implementation agency of the Stockholm Convention in the Czech Republic coordinated UNEP/GEF Project Regionally Based Assessment of Persistent Toxic Substances, region III - Europe; and administers international and national networks EURPOPsNET, CEECPOPsNET, CZNPOPsNET and CZNPOPsCTR (<http://www.recetox.muni.cz>)

2.2. History

RECETOX (Research Centre for Environmental Chemistry and Ecotoxicology) was established in July 7, 1994 as a research unit of the Department of Environmental Chemistry and Ecotoxicology. This establishment was covered through the PHARE Programme. In 2001, RECETOX merged with the Department of Environmental Chemistry and Ecotoxicology, and since, provides master and postgraduate studies in the fields of environmental protection, ecotoxicology and environmental chemistry. From 1997, cooperating research teams under the umbrella of RECETOX (Masaryk University, Brno) and TOCOEN (private spin-off company) use the acronym RECETOX - TOCOEN & Associates (R - T & A) for their common presentations. Since 2002 RECETOX activities were honoured by the EU-DG, and it is now a Centre of Excellence for Environmental Chemistry and Ecotoxicology (EVK1-2002-00519). The Centre is not setting a goal to be a large research workplace or institution of the classical type, but it is instead based on the philosophy of relatively smaller groups of co-workers and ad hoc research teams of specialists from all of Europe getting together to provide study programmes, to solve problems, grants, demands from the industry etc.

2.3. Specialization

The main fields of RECETOX scientific, research, educational and consultancy activities include Environmental chemistry, Ecotoxicology, Ecological and human risk assessment, Environmental impact assessment, Biostatistics, complex data evaluation and software development with specific attention to persistent organic pollutants (POPs) and persistent, bioaccumulative and toxic compounds (PBTs).

These major fields are effectively combined in several long-term, conceptual frame projects with features of both fundamental and applied research:

- Project TOCOEN - Toxic Compounds in the Environment which aims to derive, collect and process basic experimental data (both chemical and ecotoxicological) for further comparison and critical evaluation;
- Project BETWEEN - The study of relationships BETWEEN environmental levels of pollutants and their biological effects which should provide scientific background for expert risk assessment purposes;
- Project IDRIS (I, II) - Identification of Risks which uses and combines results of previously mentioned projects and other informational sources with the aim to develop methodology for serious practical applications in ecological risk assessment at local and regional scales.

Specific topics of the frame projects TOCOEN, BETWEEN and IDRIS include:

- Studies of the fate of POPs / PBTs in the environment
- Modelling of the fate and distribution on the global, regional and local scale
- Ecological risk assessment at regional scale, based on high quality multivariate environmental data
- Contribution to effective biomonitoring of stressed soils
- The development and applications of biological methods for studies of PBTs with carcinogenic potential
- Research on toxic effects and toxicity mechanisms of PBTs, their mixtures, metabolites and derivatives
- Development of a novel type of software for environmental science - interactive database expert-system

2.4. Activities

RECETOX provides education in master and Ph.D. programmes at Masaryk University, Brno. It is actively involved in basic experimental research in the fields of environmental analytical chemistry and photochemistry, environmental modeling, soil and aquatic ecotoxicology, research of toxicity mechanisms and biostatistics. Additionally, RECETOX co-ordinates applied research and other activities in connection to industrial companies, local authorities, government as well as international bodies.

Activities of RECETOX cover the Czech participation in the EMEP Programme of the UN/ECE Convention (CLRTAP) and culminate with the regional background monitoring of persistent, toxic substances in the area of Košetice observatory of the Czech Hydrometeorological Institute.

At present, RECETOX, as a part of R - T & A, is the implementation agency of the Stockholm Convention in the Czech Republic (GEF/UNIDO project enabling activities to facilitate early action in the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs Convention) in the Czech Republic). RECETOX also coordinated UNEP/GEF Project Regionally Based Assessment of Persistent Toxic Substances in region III - Europe.

From 2002, RECETOX is the EU-DG Research Centre of Excellence for Environmental Chemistry and Ecotoxicology (EVK1-2002-00519; Fifth-Framework Programme EC RTD project proposal) which focuses on the support, research presentation and integration of Newly Associated States (NAS) in the region of Central and Eastern European Countries (CEECs) into the EU Research Area.

An important part of RECETOX activities is the establishment of POP/PBT expert networks in Europe ("EURPOPSNET"), regional network joining Central and Eastern European Countries including Newly Independent States ("CEECPOPSNET"), as well as Czech national network ("CZNPOPSNET") and National POPs center ("CZNPOPSCTR"). These scientific networks provide platform for effective informational exchange and allow closer co-operation between academia, science, governmental institutions, industry or industrial associations at different levels. Along with existence of informal networking and internet discussion clubs, RECETOX organizes research exchange visits, scientific conferences, workshops and summer schools to provide an opportunity to create new personal contacts between people solving similar problems and preparing joint projects. The networks focus particularly on the research and regulatory aspects of implementations of the Stockholm Convention, POPs Protocol of CLRTAP and other EU and international documents.

2.5. Networks Aims

EURPOPSNET specifically focuses on the fate of PBTs in the European region (source inventories, emission/deposition processes, long-range transport, transformation processes, bioavailability of PBTs in terrestrial ecosystems, modelling of chemical fate); development of new methods (sampling, analytical methods, new bioassays and mechanism-based specific biomarkers); studies of toxicity and ecotoxicity at various levels of biota (environmental mixtures, poorly characterized effects as phytotoxicity, soil and aquatic microbial populations and fauna); destruction and (bio)remediation; ecological risk assessment with special attention to new types of chemicals, and those for which inadequate monitoring data exist.

CEECPOPSNET brings together experts to specifically explore PBTs aspects within the Central and Eastern European region (inventories, levels monitoring, hot spots identification, effect and epidemiological studies, ecological and human risk assessment) with a common strategy to use regional capacities for measurements, research and validation of procedures based on European standards.

CZNPOPSNET gives special attention to POP expert activities for the Czech Government, local authorities, NGO and the public as well as to educational programmes in which experts from various fields play important role. Environmental chemistry and ecotoxicology are relatively young subjects of university education in the Czech Republic and the network should also contribute to preparation of textbooks multimedia teaching materials, exchange of teachers and students, organisation of discussion tables, workshops and conferences, preparation of common projects at the national level, problem presentation to public in national journals, media and internet.

R - T & A consortium established the networks as informal and open platforms and awaits and acknowledges the contribution of experts from academia, regulatory institutions and industry to solve scientific and practical problems related to PBTs in European region. All relevant information can be reached via internet at <http://www.recetox.muni.cz>.

3. Lindane Task Force Holds Public Meeting in Anchorage, Alaska, U.S.A.

On February 11th - 13th, the North American Task Force on Lindane held its second public meeting in Anchorage, AK. The Task Force was established by the Ministers of Environment from Canada, Mexico, and the U.S. through the Commission for Environmental Cooperation (CEC). The Task Force is responsible for developing a North American Regional Action Plan (NARAP) that promotes pollution prevention, risk reduction, and national capacity building strategies for the remaining uses and obsolete stockpiles of lindane. This meeting, held in conjunction with the Alaska Forum on Environment, provided an opportunity for the Task Force to solicit the views from indigenous communities from the North (note: lindane is of particular interest to Arctic peoples since it is a persistent organic pollutant that travels over long distances and is found in traditional foods and the Arctic environment). The task force also invited renowned experts to present information on children's exposure to lindane, long range atmospheric transport, alternative lice and scabies treatment, exposure through traditional food sources, and lindane in Arctic indigenous populations and wildlife. The majority of public participants called for the elimination of lindane, especially its use to control human head lice.

Now that the Task Force has held public meetings in Alaska and in Mexico, it will begin to draft the NARAP. The NARAP is scheduled for completion by May 2005. Mark Howard (SRRD), Janice Jensen (FEAD) and Jon Wilkins (FDA) represent the U.S. Government on the Task Force. Keith Chanon (FEAD) is the Chairperson. Canada is represented by Health Canada and Environment Canada, and Mexico by the National Institute of Ecology. Other stakeholder members represent indigenous peoples, environmental Non Governmental Organizations, academia, and industry. Background information on the task force and other NARAPs can be found at www.cec.org (Go to Programs: Sound Management of Chemicals). Mark Howard +1 308-8172; Janice Jensen +1 305-7706; Keith Chanon+1 305-5306)

4. Pesticides Legacy – Report from Chem.&Ind. 5 Jan.2004.

According to WWF report, human blood shows chemicals banned. Most of the chemicals found in blood belonged to organochlorines, PCBs, polybrominated diphenyl ethers (PBDEs), and some recent flame retardants. At the same time the report says that it is very difficult to predict what adverse effects the cocktail of chemicals will have on human beings of different sexes, and age groups. According to WWF, the PBDEs are present at 420 PPM. The toxicology of these compounds is being investigated. The levels of PCBs are declining. While the report is not conclusive, it declares when it comes to bioaccumulation in fat tissues one has to be careful of the side effects.

5. Nanotechnology

Nanotechnology is getting more attention both in pesticide and pharmaceutical applications. While the benefits in medicinal field is definite, in pesticide, the word caution is used since nanoparticle could penetrate skin easily and also when inhaled it can reach the brain through the mucus membranes. According to Alan Knowles, an expert on pesticide formulation, the particle size is not that small to cause any concern.

6. REACH

We reported in previous issue on REACH (registration, Evaluation, Authorization of Chemicals). The German Government (also UK) is demanding redraft of EU-REACH because it is too bureaucratic and that they put company competitiveness and jobs at risk. (Che.&Ind.1, Sept.2003 ,p.5).

7. Proactive NGO in a Developing Country

A NGO Organization (Society for Environmental Communication) in India publishes a journal called Down to Earth which brings articles on many environmental issues and offers wealth of knowledge of awareness about existing environmental issues and how things are handled by industries, government and other civil organizations. It raised many a times the issue of toxic chemicals including POPs in food. In the December issue of the journal a detailed article 'A Refreshing Guide to Food Safety' gives an excellent guide for people who are not familiar with issues and global and national norms of food safety. Contact Address: Society for Environmental Communication, 41, Tughlakabad International Area, New Delhi- 110062(fax 0091-11-29955124).

8 Books:

Chemical Analysis of Contaminated Land, K.Clive Thompson and C Paul Nathanail, Blackwell Pub. 2003. For review see, Chem & Ind., December, 2003 p27.

Bioremediation of Contaminated Soils. The book covers both bioremediation (use of living organism to reduce or eliminate environmental hazards resulting from accumulation of toxic chemicals and other hazardous wastes) and phytoremediation (exploiting various biogeochemical processes in the rhizosphere including extraction, immobilization and degradation of contaminants.). Written by D.C.Adriano, J.M. Bollag, W.T.Frankenberger.Jr. and R.C. Sims published by Ame. Society of Agronomy and Soil Science Society of America. Contact < books@agronomy.org > .

9. Events:

May 24-27, 2004, 4th International Conference on Remediation of chlorinated and recalcitrant compounds, Monterey, California, May 24-27, 2004. Previewed by Dr. Sushil Khetan, Co.Editor, POPs Newsletter.

This appears to be one of the most important conferences for all kinds of remediation approaches for anything that is unwanted. Amongst its many relevant sessions of our interest, a few are cited here.

Session on 'Emerging issues in the environment' has listed some interesting papers for presentation. These include,
- Catalytic destruction of aromatic molecules over SCR catalysts from Univ. of Bologna, Italy.

- 1,4-Dioxane and other solvent stabilizers in the environment: California's developing story from Santa Clara Valley Water District;
- Pesticide contamination and remediation of an agricultural soil of Thiruvallur district in Tamilnadu, India from Center of Environment Studies, India;
- Potassium Ferrate: A novel chemical-warfare agent decontaminant from Battelle, USA. The last mentioned article is very interesting work on decontamination of chemical-biological warfare agents.

Another session on water and wastewater treatment has some interesting papers;

- Advances in methanogenic-denitrification bioreactors: Applications to the removal of recalcitrant and chlorinated organic pollutants from Univ. Idaho
- Aquamendo biotreatment of pentachlorophenol in groundwater from Adventus Remediation Technologies, Canada,
- The effect of biomass thickness on 2,4,6-trichlorophenol removal by methanogenic bioparticles under variable conditions of oxygen and co-substrate supplementation from Mexico.

Session on Remediation of Pesticides and Intermediates has several papers of interest. Some that caught my eye are cited below:

- Chiral signatures of chlorinated pesticides in groundwater: Evidence of biodegradation from Exponent, Inc., USA
- Chloropicrin degradation in soil from Univ. Palermo, Italy
- Degradation of chlorinated benzenes by sedimentary halophilic cultures from Goa Univ., India
- Stimulated in situ biodegradation of hexachlorocyclohexane (HCH): A Dutch field study from TNO- MEP, The Netherlands

Session on Remediation of PCBs and Dioxins contains papers such as:

- Dechlorinations of polychlorinated dioxins in pure cultures and stimulated sediments from Rutgers Univ.
- Degradation of monochlorinated dibenzo-p-dioxin by Janibacter Sp. strain YA from Univ. Tokyo, Japan
- New remediation technology for dioxins-contaminated sediments from Kobe Steel, Japan
- Emerging innovative and versatile mechanochemical techniques for remediation of hazardous wastes and contaminated sites from Univ. Appl. Sciences-NE Lower Saxony, Germany.

There are also sessions on Remediation of PAH-contaminated Sites, Achieving Remediation Goals with a Combination of Technologies, Strategies for remediation of cis-1,2-DCE and VC in groundwater, Strategies for addressing contaminated sediments, Remediation of Energetics and Explosives-contaminated soils and Groundwater and some sessions devoted to remediation of heavy-metal contaminated sites.

June 15-17, 2004. Accelerating Site Closeout and reducing costs through optimization, 15-17, Dallas Texas. For information: <http://cluin.org/siteopt>

Sept. 12-15, 2004. Sept Contaminated Land- Achievements and Aspirations, Loughborough Univ. UK. The four day conference will cover a wide area of land contamination problem from legal, administrative, risk assessment, analysis, testing, bio.availability to societal aspects. Contact www.sci.org/contaminatedland

Nov. 30, 2004. Environmental and human Health Effects of Endocrine Disrupting Chemicals SCI headquarters, 14/15 Belgrave Square, London, U.K. There are three sections dealing with Assessing the Effect, Environmental Impact, and Human effects. Contact:

UNEP meetings

Feb.22-26, 2004. Sub.regional Dioxin and Furan inventory Training for French speaking African Countries and NIP coordination meeting. April 21-23, 2004 PRTR Conference for the Americas, Mexico

May 3-6, 2004. UNEP Regional Workshop on Stockholm Convention on POPs and alternative Approches to POPs Pesticides for the South East Asia Region.

October 4-8, 2004. Second session of the Preparatory Committee for the development of strategic Approach to international Chemicals management (SaiCM Prep. Com 2). Venue not decided.

October 11-16, 2004. Third Session - Stockholm Convention Expert Group on BAT/BEP, Japan

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