



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

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Editor: B.Sugavanam, Email: [mbsugavanam@yahoo.co.uk](mailto:mbsugavanam@yahoo.co.uk)  
Co-Editor : Lindita Tafaj, Email : [mltafaj@albmail.com](mailto:mltafaj@albmail.com)

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**Aim**

The aim of this newsletter is to disseminate information in a cost-effective way on the developments taking place in bioremediation technology moving the frontiers of technology for commercial exploitation both in developed and developing countries. Special emphasis will be given to bio-removal of pollutants in soil, water matrices and will cover mainly Persistent Organic Pollutants (POPs) as designated by the Stockholm Convention on POPs and also other persistent toxic pollutants not covered under the POPs conventions. It will also highlight cleaner and environment friendly technologies, which show good promise in this area. 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 (3-4 times/yr free of charge) at: <http://www.iHPA.info/subscription.php>

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**1. Note from the Editors**

Since the last newsletter, the major event has been the 7th International HCH Forum held in Kiev, Ukraine. Thanks to the organizers, the Forum was successful with solid support from participating countries.

The Forum had an excellent support as documented from the letters the organizers received prior to the meeting. These letters of support gave the impetus and momentum to the Forum to go ahead for the goal of establishing Obsolete Pesticides Stockpile Programme for CES and NIS countries. Some of the excerpts from the support letters are given below:

"This event is of main importance for our country. It will draw attention of the EC to the issue of obsolete pesticides and bring together efforts of government officials, public, experts as well as NGOs for solving their huge environmental problem in Eastern Europe"

*Minister of Agricultural Policy, Ukraine.*

"Now it is time for urgent action to eliminate the stocks of obsolete pesticides including POPs and we hope that the Forum will adopt the necessary action for that. We support the idea of creation of the CEEC/NIS Pesticides POPs stockpiles fund. We need efficient and urgent solutions in the next 2-3 years. We are ready to host the office of secretariat of that fund in Chisnau"

*Mr. Gheorghe Duca, Ministry of Ecology, Construction and Territorial Development, Moldova.*

"We strongly support the Forum in June in Kiev. A special initiative is needed by the European Union to deal with the problems caused by obsolete pesticides in Eastern Europe"

*The Belgian Special Federal Minister of Consumer, Health and Environment, Brussels.*

"The scale of obsolete stockpiles and associated problems in CEEC is beginning to be understood and is acknowledged to be extremely serious. Dealing with these stockpiles is an important target in terms of compliance with international agreements such as SC on POPs and also in terms of removing serious health and environmental risks."

*Plant Protection and Production Division, FAO, Rome.*

"Confirm GEF's interest in contributing to the solution of large scale POPs/pesticides problems in CEE. In principle we believe that GEF Council would support the establishment of the CEE Stockpile Fund similar to the Africa Stockpile programme which was recently approved by the Council"

*GEF Secretariat.*

"We give full support to the Forum to be held in Kiev. It is our hope that these attempts to raise the European wide awareness of this issue will be successful prompting a positive response that will --- benefit the people of Eastern and Central Europe.

*Members of European Parliament, Yorkshire, Scotland, East Midlands, United Kingdom and Northern Ireland.*

"Obsolete pesticides are considered as waste and as such fall under the EC legislation on waste treatment. Should the candidate countries or the NIS choose to do so they can request capacity building assistance for the development of their waste management plans or investment support for safe disposal facilities through the Community financial instruments such as ISPA and TACIS. Those countries that join the EU in 2004 will have access to the structural and cohesion funds for this purpose"

*Directorate General Environment, European Commission, Brussels.*

"We support strongly the idea of creating a European Fund to facilitate national efforts aimed at the safe destruction of stockpiles of obsolete pesticides."

*Syngenta Foundation for Sustainable Agriculture, Switzerland.*

"In the Round table of Ministers of Environment of CEE countries held in June 2002, UNIDO and IHPA proposed the establishment of a Fund for obsolete POPs/pesticides stockpiles for the EEC and NIS regions. UNIDO supports the organization of this Forum and will present a paper on UNIDO's position on the establishment of the Fund".

*Division PD and TC, UNIDO, Vienna.*

"Health problems in agriculture and rural areas are priorities of the WHO European programme of Occupational Health and Safety. Therefore we strongly support focusing on international debate in Kiev on the ways to tackle the problems of obsolete pesticides in CEEC and central Asia."

*Div. of Tech. Support and Health Determinants, WHO, Geneva.*

The Association of Former United Nations Industry and Development Experts (AFIDE), Vienna, Austria actively participated in the Forum. The president of AFIDE Ms. A. Thecknavorian has been elected as member of the Forum's international Scientific and Programme Committee. AFIDE will cooperate with the organizers and Danish Environmental Protection Agency on the preparations for the next Forum in Bulgaria.

The declaration of Kiev Forum is available on internet: [www.hchforum.com/conclusions.php](http://www.hchforum.com/conclusions.php)

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**2. Success of Montreal Protocol could give hopes to Stockholm Convention on POPs**

US Scientists say they have produced the first conclusive evidence that the ozone layer is being restored to health. However they say that it will not be completely healed for at least 50 years.

Researchers say the recovery is due to the success of an international ban on damaging chemicals. The recovery is due to the success of one of the first global environmental treaties, the Montreal Protocol. Established in 1987, it banned the chemicals responsible for ozone damage, notably CFCs, used predominantly in aerosols and refrigerators. But they say the success of the Montreal Protocol shows what could be done with other international treaties for other even more serious issues such as climate change etc.

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**3. Paper presented at the 7th Kiev Forum claims total success of full-scale Bioremediation of POP contamination.**

TNO and TAUW Holland have successfully carried out the first full-scale in situ HCH (pesticide) bioremediation at a contaminated site. This success was possible through a new approach that allows existing bacteria in the soil, groundwater and wastewater treatment to mineralize all HCH isomers into end products like CO<sub>2</sub>, methane, HCl etc. Calculations for this industrial site in the Netherlands have shown that the cleanup technology is 20-35% cheaper than the best alternative containment technology including Pump & Treat. More important, the opportunity for combining waste management, remediation and redevelopment has already resulted in major investments by local investors. The result is a fully restored economic viability of the site while using bioremediation as a cleanup strategy. Injection of biological enhancing substances created the special groundwater conditions for the bacteria to biodegrade HCH. Overall monitoring results have proven complete mineralisation. The pollution of soil and groundwater with stocks and wastes are causing serious environmental problems. "Obsolete pesticides" like hexachlorocyclohexane (HCH, lindane) have gained large political attention over the last years. Central and Eastern Europe (CEE), the Newly Independent States (NIS) and Africa have put it on their agenda. The availability of faster, better and cheaper remediation technologies will become crucial for the establishment of a sustainable strategy and public acceptance.

The unique experience with this in situ bioremediation technology can be applied at other pesticide sites. The project was presented at the "7th INTERNATIONAL HCH & PESTICIDES FORUM, 5-7 June 2003, KIEV, Ukraine"

**Contact address for further information:**

Name: Herco van Liere

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#### 4. Yet another study on global distribution of PCBs and HCB in Background Surface Soils. (Env. Sci. Technol. 37, 667-672, 2003.)

Researches at Lancaster Univ.; Norwegian inst. For Air Research, Norway and Institute of Chemical and Env. Res., Spain, carried out extensive survey of 191 global background surface (0-5cms) and measured PCBs and HCH. According to the study background soil PCB concentrations were strongly influenced by proximity to source of application and soil organic matter. Concentrations of PCBs are highest in the 30-600 latitude of temperate Northern Hemisphere, most of it by atmospheric deposition. Using the data the authors conclude that the global burden of the sum of PCBs in background sub. soils is ca. 7200tons. This is only 34% of total PCB concentration in source materials. So on extrapolation to the correct estimate of total PCBs, global burden in background soils could be in the region of 21,000 tons. More than 60% of it based on production/use data should reside in the 30-600 N latitude. Despite many assumptions made in the paper, it makes a very interesting study.

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#### 5. Call for ban on waste burning

India: The Global Alliance for Incinerator Alternatives (GAIA) has on the occasion of Global Day of Action (GDA) called for a worldwide ban on burn technologies. The day was marked by the global release of a report, "Waste Incineration: A Dying Technology".

In a release issued in New Delhi said waste burning of all kind causes emission of several Persistent Organic Pollutants (POPs) which poison the food chain. Citing a United Nations Environment Programme (UNEP) report, it said that incinerators alone account for 69 per cent of dioxin emissions worldwide. Dioxins are endocrine disrupters, which impact the human reproductive system among other things.

The release of the note countrywide coincides with the first day of the Seventh Intergovernmental Negotiating Committee (INC 7) meeting of the Stockholm Convention on POPs held in Geneva.

The GAIA comprises 227 groups and individuals from 61 countries.

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#### 6. Plastic waste can be used to ensure road durability

The Bangalore (India) Mahanagara Palike (BMP), which has initiated recycling of dry waste as part of its new cleanliness campaign, is also "seriously examining" a proposal for using plastic waste to asphalt roads.

A City-based firm, KK Plastic Waste Management Pvt. Ltd., and a team of engineering experts, led by C.E.G. Justo from Bangalore University, have developed a new way of using such waste for road reconstruction. On a pilot basis, the firm has already laid over 35 km of roads here, and experts from Bangalore University Centre for Transportation Engineering have tested the strength and durability of the roads. The Central Road Research Institute has evaluated the experiment, and the results are "encouraging," He said that the firm would be allowed to take plastic waste from the City's daily garbage collection. K. Ahmed Khan and K. Rasool Khan, proprietors of the firm, claim to be pioneers of the technology in India. "It has been used in Canada, Brazil, etc., but we are the first to use it in India," they said.

According to them, melted plastic is mixed with bitumen in a particular ratio. The plastic acts as a strong "binding agent" for tar, making the asphalt last longer. A stretch of road made with plastic waste mix is found to be three times better than conventional. The company buys plastic waste from rag pickers at Rs.6 (US\$0.15) per kg. It is then segregated, pulverised and added to bituminous concrete mixes in a blender designed by the company. They say the technology will lead to less road repair. Rainwater will not seep through because of the plastic in the tar. And as each km of road with an average width requires over two tonnes of polyblend, using plastic will help reduce non-biodegradable waste, they said.

In 1997, a team of students at the RV College of Engineering did a study and used the polyblend to fill potholes on RV Road. Prof. Justo and A. Veeraraghavan from the Centre for Transportation Engineering reviewed it. They noted that using processed plastic in bitumen reduced the amount of bitumen and increased road life, roughly, three times. But such roads cost more than conventional ones. According to an expert Dr. E.T. Balazs (ex. UNIDO) that Hungary has also developed similar technology but the cost is much less than the technology developed in India and he is ready to cooperate with them.

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#### 7. Bottled water surfaces once again in India

Previously the POP's and Obsolete Pesticides Newsletter published about pesticide residues in bottled water in India (No.4, April, 2003). Now more serious allegation have come up from a NGO Organization Central Environment Agency saying that most of the well known brands of soft drinks in India contain more than the WHO allowed limits of pesticides including some POPs. This is a serious allegation and the companies deny the validity of the studies and are taking legal action. Whatever happens the lawyer will have a field day while the common man will be wondering where to go next to quench his thirst.

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#### 8. Another Environmental Issue from India: Pesticide Action Network (PAN) reports:

"The Indian chemical industry has urged their government not to ratify the Stockholm Convention, on POPs that is nearing global ratification. The Indian Chemicals Manufacturing Association (ICMA) released a statement in early June warning that "the globally legally binding treaty would be detrimental to the health of the Indian chemical industry" if it is accepted by the Indian government. India was one of the 97 countries that signed the treaty in May 2001, indicating intent to ratify and implement the Convention. The Stockholm Convention, which currently has 33 of 50 ratifications needed to come into effect".

It is rather surprising why the Indian pesticide industry is taking such a stand. Over the decades the Indian Pesticide Industry has evolved into a major player in the global market and is becoming a powerful force to be reckoned with. Obviously there are one or two chlorinated pesticides outside the POPs have good market in India. There are alternatives to these pesticide and we hope the industry take steps forward rather than look backward to those days when the industry was not seriously considered in the global arena. India and China as developing countries could be a role model for taking on major markets along with other few developed nations that dominate the pesticide market.

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#### 9. POP cancer Link

Research workers at Liege, Belgium have shown that women with breast cancer have five times more DDT residues and nine times more HCB residues in their blood than control group.

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#### 10. Meetings:

**Africa Obsolete Pesticides Stockpiles Programme:** Pretoria, S.A. Sep. 9-19, 2003.

The meeting is hosted by NEPAD (New Partnership for Africa Development). The lead sponsor is the World Bank and will be attended by all party countries. Individual negotiations will take place to decide contributions to WB/GEF.

**Environmental and human health impacts of endocrine Disrupting chemicals**, March 2004, SCI, Belgrave Square, London. Contact: [Richard Greenwood](mailto:Richard.greenwood@port.ac.uk)

**Contaminated land: 25 years on, what we have learned?** September 2004 Loughborough, UK; Contact: [g.fowler@ic.ac.uk](mailto:g.fowler@ic.ac.uk)

**STAP/GEF Technical Workshop on Emerging Innovative Technologies for the Destruction and Decontamination of Obsolete POPs**, 1-3 October 2003, Washington D.C. Contact: [Anne-Marie Verbeken](mailto:Anne-Marie.Verbeken@unep.org)

**The First Workshop - Persistent Toxic Substances Contamination of the European Region as a reflection of results of the GEF/UNEP Regional Based Assessment of Persistent Toxic Substances (RBA PTS) in Europe, the implementation of the Stockholm Convention and "Community Strategy for Dioxins, Furans and PCBs"**, Hotel Santon, Brno, Czech Republic, November 10-12, 2003, Contact: [holoubek@recetox.muni.cz](mailto:holoubek@recetox.muni.cz)

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