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Harmful substances and hazardous waste

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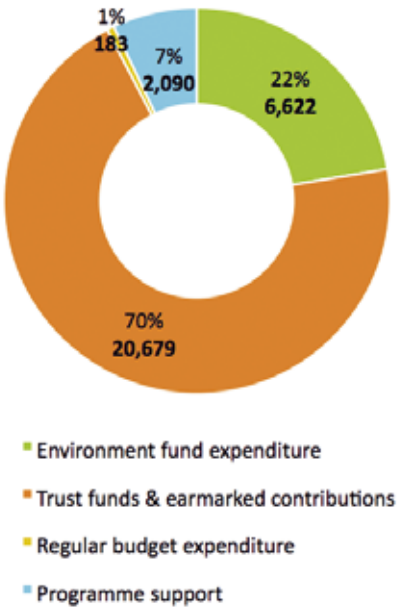
HARMFUL SUBSTANCES AND HAZARDOUS

Total expenditure 2010

Harmful Substances and Hazardous Waste ($29,574 million)



RESULTS TARGETED

The capacities and financing of States and other stakeholders to assess, manage and reduce risks to human health and the environment posed by chemicals and hazardous waste are increased.

Coherent international policy and technical advice is provided to States and other stakeholders for managing harmful chemicals and hazardous waste in a more environmentally sound manner, including through better technology and best practices.

Appropriate policy and control systems for harmful substances of global concern are developed and in line with international obligations and the mandates of relevant entities.

Sound management of chemicals and hazardous waste

UNEP's objective is to minimize the impact of harmful substances and hazardous waste on the environment and people. UNEP achieves this through four core services:

- UNEP assesses trends in the use, release and disposal of harmful substances around the world to inform policymakers and raise awareness on the need for action.
- UNEP helps governments use data and information from these global assessments to make informed decisions.
- UNEP uses scientific assessments and legal instruments as a basis for technical assistance and capacity building for States, helping them design and implement national programmes supporting sound management of harmful substances and hazardous waste.
- UNEP helps governments monitor, evaluate and report on the impacts and progress of their systems for managing harmful substances and hazardous waste.

HARMFUL SUBSTANCES AND HAZARDOUS WASTE (HS & HW): A SNAPSHOT OF 2010 RESULTS

Supporting Multilateral Policy and Control Systems
UNEP supports *China, South Africa* and *the Russian Federation* to understand mercury emissions from coal combustion and the means to reduce them.

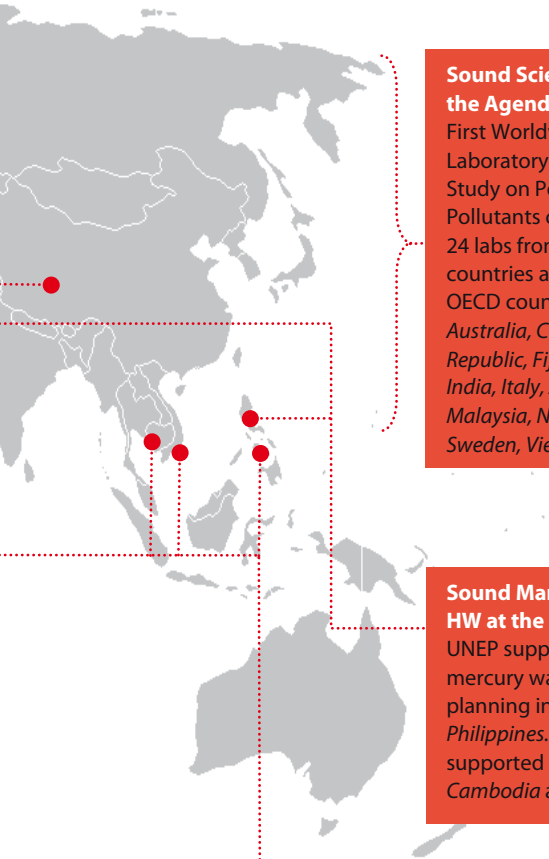
Sound Science Guides the Agenda
UNEP supports analytical capacity building for Persistent Organic Pollutants (POPs) and global monitoring with GEF funding. POPs laboratories in 32 developing countries use UNEP's guidelines for sampling and analysis of relevant matrices; their capacities are strengthened through hands-on training to generate high quality data for the Stockholm Convention and SAICM.
Antigua & Barbuda, Bahamas, Barbados, Brazil, Chile, Cuba, the Democratic Republic of Congo, Ecuador, Egypt, Ethiopia, Fiji, Ghana, Haiti, Jamaica, Kenya, Kiribati, Mali, Marshall Islands, Mauritius, Mexico, Nigeria, Niue, Palau, Peru, Samoa, Senegal, Solomon Islands, Togo, Tuvalu, Uganda, Uruguay, Zambia. Germany, Netherlands, Spain, Sweden and *Switzerland* to provide training.

Sound Management of HS & HW at the National Level
Tools and methodologies developed for country Situation Analysis and Needs Assessments (SANA), leading to development of national plans of joint action in *Angola, Cameroon, the Democratic Republic of Congo, Ethiopia, Gabon, Lesotho, Madagascar, Mali, Mozambique* and *Tanzania.* Similar tools and methodologies developed in *Congo Brazzaville, Ghana* and *Kenya.*

Supporting Multilateral Policy and Control Systems
UNEP has supported national activities towards the reduction of mercury use and its release from artisanal and small-scale gold mining activities in *Bolivia* and *Peru,* and similarly in *Cambodia* and *the Philippines.*

Sound Science Guides the Agenda
UNEP with OECD and WHO is developing the Global Chemicals Outlook (GCO) to assess the status of health, environmental, economic and institutional factors related to the production, use, and disposal of chemicals, with a focus on issues relevant to developing and transition countries.

Supporting Multilateral Policy and Control Systems
Partnership for Clean Fuels and Vehicles (PCFV) succeeded in the phase out of leaded gasoline in two more countries: *Tajikistan* and *Uzbekistan*.



Sound Science Guides the Agenda
First Worldwide UNEP Laboratory Intercalibration Study on Persistent Organic Pollutants concluded. Included 24 labs from Asian developing countries and 14 labs from OECD countries including: *Australia, Canada, China, Czech Republic, Fiji, Germany, Greece, India, Italy, Japan, Korea, Malaysia, Norway, Spain, Sweden, Vietnam.*

Sound Management of HS & HW at the National Level
UNEP supported national mercury waste management planning in *Pakistan* and *the Philippines*. Similar work also supported in *Burkina Faso, Cambodia* and *Chile.*

Sound Management of HS & HW at the National Level
The Chemical Information and Exchange Network (CIEN) extended to seven countries and training carried out to facilitate chemical information access and exchange. Countries covered include: *Bolivia, Burundi, Cambodia, Peru, Philippines, Uruguay* and *Vietnam.*

KEY FACTS

An estimated 18 to 22 million people are at risk from lead poisoning, 15 to 19 million from mercury, 13 to 17 million from chromium and 5 to 8 million from pesticides.

Twenty-one of the most Persistent Organic Pollutants (POPs) are now strictly controlled by the Stockholm Convention agreed in 2001 which now has 172 Parties.

The Secretariat of the Basel Convention estimated that about 318 and 338 million tonnes of municipal solid waste were generated in 2000 and 2001 respectively.

As much as 80 per cent of the pollution load in coastal waters and the deep oceans comes from land-based activities.

GREEN economy

In order to ensure sustainable development in fast-growing economies that are experiencing rapid industrialisation, countries must seek to maximise the benefits of chemicals and minimize their negative impacts through safer production and improved management.

MANAGEMENT OF CHEMICALS

Chemicals play an essential role in our daily lives. They are used in every economic sector and in many of the common products we buy. Many chemicals are critical to human well-being and sustainable development; yet they can also endanger health and the environment if not manufactured, used and managed properly. There are over 100,000 different chemical substances in use today.

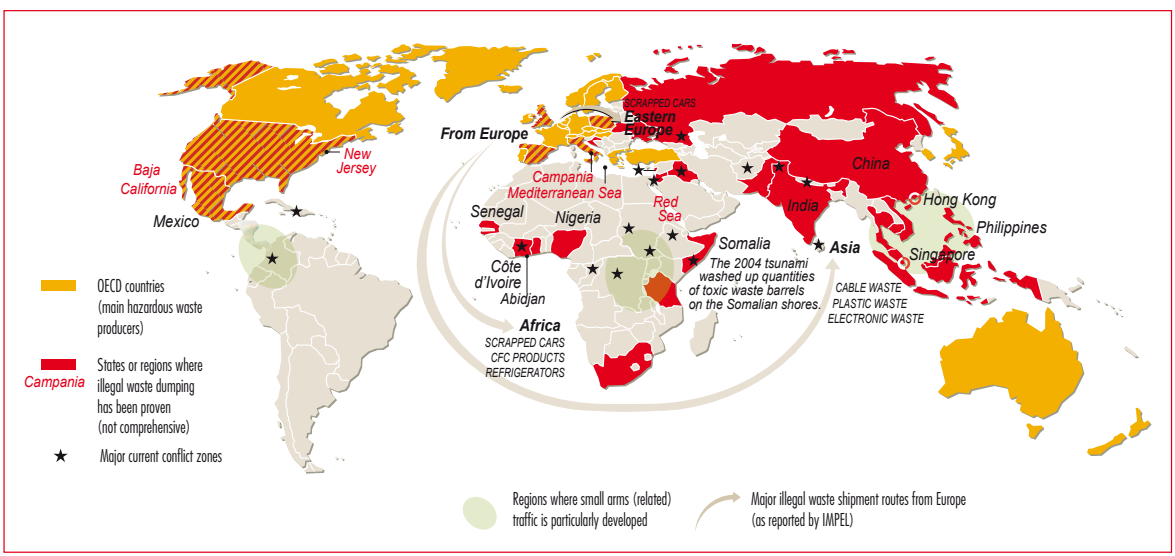
Strategic partnerships in chemicals management: avoiding the worst by encouraging the best–China

The Awareness and Preparedness for Emergencies at a Local Level (APELL) programme was launched by UNEP in 1986 against a background of major technological accidents, which took place around the world during the 1980s. These included Bhopal in India, Sandoz in Switzerland, and San Juanico in Mexico.

UNEP has built an extensive network of APELL and safer production practitioners over the years. As part of this, a joint project between UNEP's China Ministry of Environmental Protection (MEP) and the Dow Chemical Company, was developed over 2010 to promote safer operations and emergency preparedness of the chemical sector in China.

The project presents a first-of-its-kind example of private sector engagement with UNEP to promote safer production in partnership with government and local authorities in China.

Waste trafficking



Source: compiled from multiple sources in *Vital Waste Graphics Update*. UNEP, Nairobi and Arendal (*www.vitalgraphics.net/waste2/download/pdf/VWG2_p36and37.pdf*).
In: *Global Environment Outlook 4. Environment for Development, 2007*

MANAGEMENT OF CHEMICALS


Scientist checking seedlings in plant experiment © Corbis

Exchanging information

National officers with responsibilities for the control and registration of chemicals neither have the time nor resources to find the information they need on the many chemicals that may be imported. To help find and exchange information, UNEP established the system of Chemical Information Exchange Networks (CIEN) which brings together national chemicals information from various stakeholders and provides access to international information resources.

During 2010, seven more countries: Cambodia, the Philippines, Vietnam, Bolivia, Peru, Uruguay, and Burundi were added to over 50 countries in Africa, Asia and Latin America already using CIEN. More than 1,600 national officials have been trained.

Catalysing chemical management through a global plan of action on chemicals

The Strategic Approach to International Chemical Management (SAICM) provides an overarching strategy and a Global Plan of Action to address problems of chemical management and safety, nationally and globally. To facilitate the implementation of SAICM's Global Plan of Action, the Quick Start Programme and its Trust Fund have been established to build initial capacities for the sound management of chemicals in developing countries and countries with economies in transition.

The Fund has now received donations of over $30 million for projects and supported 117 projects, which are currently being undertaken by 97 governments and 12 civil society organizations involving activities in 95 countries, including 46 least developed countries and/or Small Islands Developing States.

UNEP supports a number of government-led projects funded from the SAICM Quick Start Programme. The UNEP-UNDP partnership on mainstreaming sound chemicals management into national development policies and programmes is gathering momentum. *More than 12 countries are now being assisted.*

The new five-year development plan of Uganda, one of the first countries to join the programme, recognizes the important benefits that come from good practices and the avoidance of chemicals-related impacts on human health and the environment.

In a similar fashion, the 'UNEP-World Health Organization (WHO) Health and Environment Initiative' brings together national officers to examine inter-linkages between pollution, environmental degradation and health impacts.

More than 17 countries are now preparing inter-ministerial situation analyses and needs assessment (SANA) reports to help to identify critical issues for inclusion in planning for sustainable development.

As part of its hazardous waste management capacity-building programme in Côte d'Ivoire, UNEP provided sixteen laboratory staff with 80 days of intensive training over two years © UNEP

ASSESSMENT AND MANAGEMENT OF RISKS

UNEP analysis contributes to prevention of hazardous waste-related disasters: Côte d'Ivoire

In 2006, when thousands of Abidjan residents in Côte d'Ivoire reported health problems after large quantities of toxic sludge was discharged from the vessel '*Probo Koala*' and dumped on open landfills and in local waterways, the world's attention turned to the ability of many African countries to detect and manage hazardous waste. Four years later, in a bid to prevent a repeat of the Côte d'Ivoire incident and as part of a systematic strengthening of the country's capacity to manage hazardous waste, a modern laboratory was established in Abidjan with the help of UNEP and its Basel Convention Secretariat.

The laboratory is able to test for hazardous waste from ships entering the West African port as well as test for potential contamination in soil and water samples. Sixteen laboratory staff also received intensive training on sampling and analysis so that the laboratory can provide the analytical services necessary to advise the government and protect those communities whose livelihoods are dependent on healthy waterways. The Côte d'Ivoire model is now to be introduced by the Basel Convention Secretariat in Gabon, Morocco and Madagascar.

> "I am impressed not only by the quality of the equipment procured by UNEP, but also by the quality of the staff that was trained by UNEP's experts. My Ministry can now count on an effective tool and well-trained staff to detect and analyse any type of pollution, including of course the type dumped by the *Probo Koala* vessel, which is still present in our minds. This is very reassuring to the people of Côte d'Ivoire."
>
> Mr. Karim Fadiga, Minister of Environment, Water and Forests of Côte d'Ivoire having toured the new laboratory.

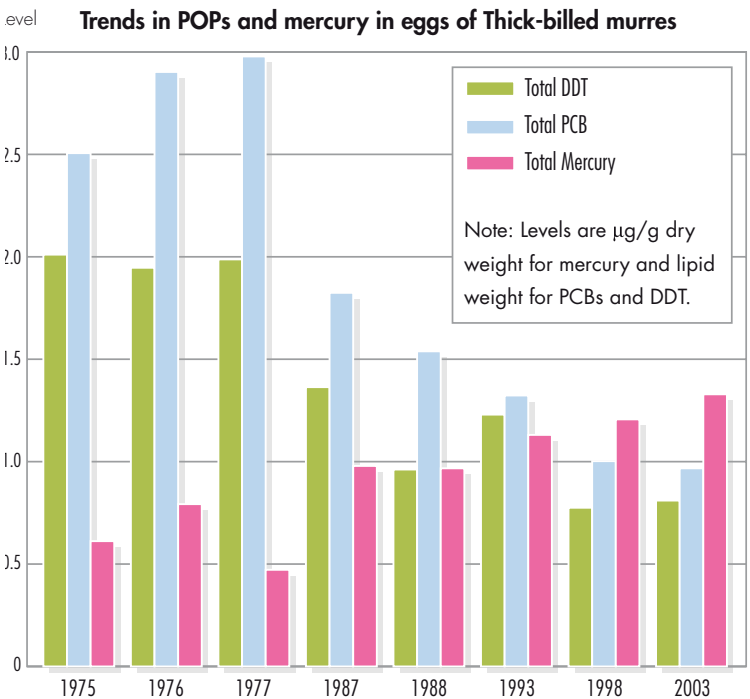

Toxic smoke © iStockphoto

Piloting innovative approaches through global study on Persistent Organic Pollutants: Asia Region

While the Stockholm Convention on POPs seeks the global elimination of many of the most hazardous chemicals, work at national level to implement the control measures in the treaty needs to be based on a clear understanding of local problems. Until recently, few developing countries had the ability to analyse POPs and the laboratories that existed struggled to be recognized as providing reliable results that country Parties could use for reporting under the Convention.

In 2010, and as part of long-term efforts to build laboratory capacity, *UNEP concluded the first Worldwide Intercalibration Study on POPs in the Asia region, with 24 laboratories from Asian developing countries and 14 laboratories from OECD countries.* The study tested the ability of all the laboratories to analyse standard samples and demonstrated the competence and reliability of participating laboratories in Asia.

Twenty-one of the most persistent organic pollutants (POPs) are now strictly controlled by the Stockholm Convention agreed in 2001, which has 172 Parties. Fourteen of the POPs are pesticides. Others are industrial chemicals including some brominated flame retardants; the remainder include dioxins and furans, which are found in small amounts in the environment, including air, water and soil.



Trends in POPs and mercury in eggs of thick-billed murres

Source: Indian and Northern Affairs Canada 2003 *Canadian Arctic Contaminants Assessment Report II.* and Braune and others 2005 *Persistent organic pollutants and mercury in marine biota of the Canadian Arctic: an overview of spatial and temporal trends.* In: *Global Environment Outlook 4. Environment for Development, 2007* Photo by M. Mallory

Gold mining in French Guiana © Corbis

CONTROL OF TARGETED CHEMICALS

Reducing risks from mercury

An important step forward towards eliminating the use of one of the world's most toxic heavy metals, mercury, was taken in June 2010. UNEP, serving as the Secretariat, convened the first session of the Intergovernmental Negotiating Committee to prepare a global legally binding instrument on Mercury (INC1). UNEP recognizes that it will be some time before a legally-binding instrument comes into force.

In the interim, the Global Mercury Partnership has been formed to take immediate action wherever possible on mercury use and release. Since 2009, membership has trebled to almost 70; including 14 governments, four intergovernmental organizations, 31 non-governmental organizations and 19 other groups, organizations or individuals.

Probably the largest intentional use of mercury is by artisanal and small-scale gold miners who add mercury to their crushed ore and 'concentrate' to help separate the gold, producing 20 to 30 per cent of total world gold production. Few miners use any equipment to trap the mercury vapours so these evaporate and are breathed in by the miners, their families and neighbours — causing them long-term, severe and sometimes irreversible medical problems.

During 2010, UNEP helped countries develop an understanding of their mercury problems; to develop national plans for tackling mercury waste and to examine options to store unwanted mercury, as well as examine the socio-economic influences driving the growth in artisanal and small-scale gold mining.

The partnership helped countries with many coal-fired power plants to understand and quantify their unintentional mercury releases. Good practices for pollution control to restrict mercury emissions have been developed for coal-fired power plants and for waste incinerators.

CONTROL OF TARGETED CHEMICALS

Barrel containing harmful substances washed up on a beach © iStockphoto

Taking the lead on lead

During 2010, the number of countries still using leaded vehicle fuels was reduced and today only six countries use small amounts of leaded gasoline. The UNEP-led Partnership for Clean Fuels and Vehicles is working with all of these to help develop plans to phase out those fuels and 'beat the lead habit'.

However, breathing in the exhaust fumes from vehicles using leaded fuels is not the only way in which children and adults become poisoned by lead. Paint and the dust created during building work is also an important exposure route.

In 2009, at the second International Conference on Chemicals Management, the world was reminded that paints containing lead compounds are easily available for domestic use in many countries. UNEP and WHO were asked to initiate a partnership to work towards the elimination of lead paints.

An inaugural meeting of the Global Alliance to Eliminate Lead Paint was held during 2010 and attracted 35 participants from governments, intergovernmental organizations, civil society organizations, industry and academia. This resulted in endorsing the establishment of a global partnership to promote the phase-out of the use of lead in paint.

The overall goal is to prevent children's exposure to lead paints and to minimize occupational exposures to lead in paint. A broad objective is to phase out the manufacture and sale of paints containing lead and eventually to eliminate the risks from such paint.

Coherence in actions to prevent further degradation of the marine environment from land-based activities

During 2006, the global annual total amount of Municipal Solid Waste (MSW) reached 2.02 billion tonnes, representing a 7 per cent annual increase since 2003 (*Global Waste Management Market Report, 2007*). This trend is predicted to continue. For hazardous waste, the Secretariat of the Basel Convention estimated that about 318 and 338 million tonnes were generated in 2000 and 2001 respectively.

As much as 80 per cent of the pollution load in coastal waters and the deep oceans come from land-based activities. The pollutants include heavy metals and POPs, litter, radioactive waste, hydrocarbons and chemicals — including nutrients. Excess use and inefficient practices leads to nutrient over-enrichment, causing soil acidification, groundwater pollution, and the undermining of marine and coastal ecosystems and the services and livelihoods they support.

For more on UNEP's work on nutrients, see page 71.

Water pollution © iStockphoto

CONTROL OF TARGETED CHEMICALS

Chemicals at sea

Harmful substances and waste generated on land find their way into waterways and are transferred to marine and coastal environments. The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA-Marine) is the only global intergovernmental initiative directly addressing the link between watersheds, coastal waters and the open ocean.

The Regional Seas Programme, launched in 1974, is one of UNEP's most significant achievements over the past 35 years. The Regional Seas conventions and action plans contribute to the sustainable management and protection of the coastal and marine environment by preventing further degradation of the marine environment from pollution derived from land based activities.

There are currently 18 Regional Seas conventions and action plans across the world, involving 184 countries.

In March 2010, Ministers and officials from ten countries and territories in East Africa endorsed or signed a potentially far-reaching protocol to protect East Africa's coastal and marine environment. Ten countries of the Western Indian Ocean region signed the Final Act of the Land-based Sources and Activities (LBSA) Protocol and eight countries signed it during the Sixth Conference of Parties to the Nairobi Convention organized by UNEP. This regional LBSA protocol is expected to bind governments towards a common objective of managing pollution from land-based sources and activities in order to protect and sustain the marine and coastal environment in the Western Indian Ocean.

During 2010-11, the programme will link to on-land activities to strengthen the mainstreaming of sound chemicals management.

COHERENCE IN ACTION

Two men in protective gear cleaning up after a chemical accident © iStockphoto

Strengthening the chemicals and waste Multilateral Environmental Agreements

In February 2010, governments agreed to merge the administrations of the Basel, Rotterdam and Stockholm Conventions on chemicals and hazardous wastes — an unprecedented historical model where three Conferences of the Parties met simultaneously and undertook simultaneous decision-making in a wave of cooperative action towards boosting delivery in country. This was the outcome of extended intergovernmental discussions supported by UNEP, which administers the Secretariats for these Conventions.

Presidents of the Basel, Rotterdam and Stockholm Conventions gavel a decision simultaneously
© Photograph courtesy of IISD/Earth Negotiations Bulletin