MANAGING CHEMICALS FOR SUSTAINABLE DEVELOPMENT

Sound Management of Persistent Organic Pollutants, Ozone Depleting Substances & Other Chemicals

UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)

UNDP is the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life. We are on the ground in 166 countries, working with them on their own solutions to global and national development challenges. As they develop local capacity, they draw on the people of UNDP and our wide range of partners. World leaders have pledged to achieve the Millennium Development Goals, including the overarching goal of cutting poverty in half by 2015. UNDP's network links and coordinates global and national efforts to reach these goals. Our focus is helping countries build and share solutions to the challenges of:

- Democratic Governance
- Poverty Reduction
- Crisis Prevention and Recovery
- Energy and Environment
- Information and Communications Technology
- HIV/AIDS

UNDP helps developing countries attract and use aid effectively. In all our activities, we encourage the protection of human rights and the empowerment of women.

GLOBAL ENVIRONMENT FACILITY (GEF)

The Global Environment Facility (GEF) was established to forge international cooperation and finance actions to address four critical threats to the global environment: biodiversity loss, climate change, degradation of international waters and ozone depletion. Launched in 1991 as an experimental facility, the GEF was restructured after the 1992 Earth Summit in Rio de Janeiro. The facility that emerged after restructuring was more strategic, effective, transparent and participatory. During its first decade, GEF allocated US$ 4.5 billion in grants, 'supplemented by donors' pledges of US$ 3 billion to finance projects from 2002 to 2006. In addition to its original mandate, the May 2003 GEF Council approved two new focal areas. The GEF now provides financial assistance for the mitigation and prevention of land degradation and persistent organic pollutants. GEF funded projects are managed through the three implementing agencies: UNDP, UNEP and the World Bank. The GEF also benefits from having the following executing agencies: African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Food and Agricultural Organization, Inter-American Development Bank, International Fund for Agricultural Development and the United Nations Industrial Development Organization.

FOREWARD

The use of chemicals permeates modern life. While chemicals play an important role with respect to human development, they can simultaneously pose significant risks to human health and the environment in absence of good management practices.

Certain chemicals – such as Persistent Organic Pollutants (POPs) – adversely affect human and ecological health when released into the air, water or soil. Even in small quantities, POPs can wreak havoc in human and animal tissue causing nervous system damage, immune system diseases, reproductive or developmental disorders, and cancers. These pollutants persist in the ecosystem, are capable of traveling long distances on wind and water currents, and biomagnify in food chains. The world's poor routinely face unacceptably high risks from mismanagement of chemicals due to their occupations, living conditions, lack of knowledge related to safe handling practices, and limited access to sources of uncontaminated food and drinking water.

United Nations Development Programme (UNDP) thus promotes the sound management of chemicals as an important component of the global poverty reduction effort. We, at UNDP, advocate for the importance of addressing issues related to chemicals management and chemically linked pollution in developing countries by integrating rigorous chemicals management schemes into national development policies and plans. We also help these countries obtain the necessary resources to improve their chemicals management regimes to achieve desired results.

This publication is the first in a new series that will highlight UNDP's role as a facilitator of sound chemicals management for sustainable development. This issue focuses on the work that UNDP, with support from the Global Environment Facility (GEF), is undertaking in concert with partner countries to meet the aims of the Stockholm Convention on Persistent Organic Pollutants (POPs), and highlights our ongoing commitment to reducing and eliminating releases of POPs. We believe that sustainability of existing efforts to meet the goals of the Stockholm Convention – as well as those targeting other chemicals-related multilateral environmental agreements – can only be enhanced by drawing these issues, as part of a sound management of chemicals dialogue, more effectively into the national development discourse.

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INTRODUCTION

Chemicals play a part in almost all human activities and are a major contributor to national economies. However, whenever chemicals are not properly managed they can put human health, ecosystems, and national economies at risk. Impact-related public health and environmental issues arising from the use or misuse of chemicals can include increased healthcare costs, reduced worker productivity, damage to fisheries and watersheds, reduced crop output, and many others.

The need for effective management of chemicals throughout their life-cycle of production and use is underscored both by the substantial contribution chemicals make to social and economic development, and the significant threats to humans and the environment that arise from their improper use and management.

Chemicals also affect sustainable human development, with the poorest members of the global community, particularly women and children, most vulnerable to their negative effects. The urban and the rural poor routinely face unacceptably high risks of exposure to chemicals because of their occupations, living conditions and lack of knowledge about proper handling. At the same time the ecosystems that provide essential resources for the survival of the rural poor are threatened by chemical pollution and environmental degradation.

Assisting developing countries and countries with economies in transition to sustainably manage the manufacture, use and disposal of chemicals is an important element in UNDP's efforts to progress the Millennium Development Goals (MDGs). With the support of the Global Environment Facility (GEF), the Multilateral Fund (MLF) for the Implementation of the Montreal Protocol and various other donors and partners, UNDP helps countries reduce the vulnerability of their poor to health and environmental stresses; facilitates the integration of environmental issues into national environmental and poverty reduction planning frameworks; and helps increase access to the best available and affordable alternative technologies.

Sound Management of Chemicals (SMC) and sustainable human development

Sound management of chemicals (SMC) means applying managerial best practices to chemicals throughout their life cycle to prevent, and where this is not feasible, to reduce or minimize, the potential for exposure of people and the environment to toxic and hazardous chemicals, as well as those chemicals suspected of having such properties

To protect humans and the environment from adverse effects caused by the use or misuse of toxic and hazardous chemicals, numerous Multilateral Environmental Agreements (MEAs) have been drawn up. The MEAs tackle Sound Management of Chemicals (SMC) issues related to the use of a specific chemical, a class of chemicals with similar characteristics, or provide comprehensive holistic approaches to chemicals governance as a whole.

The best-known MEAs are the Montreal Protocol on Substances that Deplete the Ozone Layer, the Stockholm Convention on Persistent Organic Pollutants, the Rotterdam Convention on the Prior Informed Consent Procedure, the Basel Convention on the Transboundary Movements of Hazardous Wastes and their Disposal and the recently adopted Strategic Approach to International Chemicals Management (SAICM).

With the support of the Multilateral Fund for the Implementation of the Montreal Protocol (MLF), the Global Environment Facility (GEF), the SAICM Quick Start Programme (QSP) Trust Fund and several bi-lateral contributors UNDP supports projects that advance SMC and help countries strengthen national capacities in the following areas:

- Reduce and eliminate the release of Persistent Organic Pollutants (POPs) as specified under the Stockholm Convention (with GEF funding);

At the UNITED NATIONS MILLENNIUM SUMMIT IN SEPTEMBER 2000, world leaders put development at the heart of the global agenda by adopting the Millennium Development Goals (MDGs), which set clear targets, to be achieved by 2015, for reducing poverty, hunger, disease, illiteracy, environmental degradation and promoting social issues such as universal primary education and the empowerment of women. UNDP, which is active in 166 countries, is working through its global network to help reach the MDGs. UNDP links and coordinates global and national efforts by helping countries build and share solutions to the challenges of democratic governance, poverty reduction, crisis prevention and recovery, energy and environment and HIV/AIDS. UNDP is uniquely positioned to advocate for change, find solutions that are nationally-owned, connect countries to the knowledge and resources they need, and coordinate broader development efforts at the country level.

This publication, the first in a series showcasing UNDP's work on chemicals management in support of sustainable development, highlights the assistance that UNDP provides to countries in support of the Stockholm Convention on Persistent Organic Pollutants (POPS) to reduce and eliminate releases of POPs.

- Phase-out Ozone-Depleting Substances (ODS) and achieve compliance with the Montreal Protocol (with MLF, GEF and donor funding);
- Recognize and assess opportunities for incorporating the sound management of chemicals (SMC) into MDG-based national development policies and plans (with SAICM and donor funding); and
- Reduce and prevent chemical pollution of lakes, rivers, groundwater, coasts and oceans (with GEF funding).

UNDP also supports international cooperation and coordination towards improved chemicals management by participating as an observer in the Inter-Organization Programme for the Sound Management of Chemicals (IOMC), and through its membership of the Implementation Committee of the SAICM Quick Start Programme Trust Fund.

UNDP chemicals portfolio and activities

Protecting human health and the environment from Persistent Organic Pollutants P.04

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or for more information visit: www.undp.org/chemicals

Protecting human health and the environment from Persistent Organic Pollutants

The group of organic compounds known as Persistent Organic Pollutants (POPs) are chemicals that are produced and released into the environment by human activity yet resist environmental degradation through the usual chemical, biological and photolytic processes. Some are used as pesticides, some as industrial chemicals, while others are the unwanted by-products of chemical or combustion processes.

POPs have the potential to create significant impacts on human health and the environment because they persist in the environment, are capable of travelling long distances on wind and water currents, bioaccumulate in human and animal fatty tissue, biomagnify in food chains, and can be passed from mother to fetus.

Even small quantities of POPs can wreak havoc in human and animal tissue, causing nervous system damage, immune system diseases, reproductive or developmental disorders, and cancers. Since POPs can be found almost anywhere – in food, soil, air and water - most humans and wildlife have been found to carry amounts of POPs in their bodies that can pose adverse health effects.

The poor are at higher risk of exposure to toxic and hazardous chemicals because of their occupations, living conditions and lack of knowledge about handling chemicals. An estimated 80% of all poisonings occur in developing countries where regulatory, health and education systems are weakest.

SOUND MANAGEMENT OF CHEMICALS CAN IMPROVE THE LIVING ENVIRONMENT AND WORK CONDITIONS OF THE POOR AND THUS THEIR HEALTH, WHILE AT THE SAME TIME PROPER USE OF CHEMICALS SUCH AS PESTICIDES AND CHEMICAL FERTILIZERS CAN BOOST CROP YIELDS, PROTECT THE PRODUCTIVITY OF FRESHWATER AND MARINE FISHERIES, AND ECOSYSTEMS ON WHICH POOR COMMUNITIES DEPEND. SECURED LIVELIHOODS CAN HELP FREE UP TIME FOR OTHER ACTIVITIES, SUCH AS EDUCATION.

The "Dirty Dozen" POPs

The 12 POPs targeted by the Stockholm Convention include eight pesticides (aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex, and toxaphene), two types of industrial chemicals (polychlorinated biphenyls - PCBs, and hexachlorobenzene – HCB), and two chemical families of unintended by-products of the manufacture, use and/or combustion of chlorine and chlorine-containing materials (dioxins and furans).

The Stockholm Convention on Persistent Organic Pollutants (May 2001) recognised that a global effort was required to address the threats posed by POPs. The convention's objective is to protect human health and the environment from the harmful impacts of POPs by eliminating or restricting the production and use of all intentionally produced POPs (industrial chemicals and pesticides), encouraging a continuous reduction of unintentionally produced POPs (dioxins and furans), applying environmentally sound alternative processes and chemicals and effectively managing wastes and contaminated products. The convention targets an initial group of 12 priority POPs, known as the "Dirty Dozen", with the option of adding others.

The Global Environment Facility (GEF) is designated as the principle entity entrusted with the operations of the financial mechanism of the convention. UNDP, in its role as a GEF Implementing Agency, assists developing countries and countries with economies in transition to reduce and eliminate POPs under the Stockholm Convention. UNDP manages a US $50.2 million POPs portfolio and undertakes projects in 29 countries that support activities in four principle areas known as the GEF Strategic Objectives for POPs. These are:

- **National Implementation Plan (NIP) programme development and dissemination of best practices** - UNDP supports countries in meeting their reporting obligations under the Stockholm Convention, by sharing lessons learnt and helping them adopt global best practices;

- **Strengthening capacity for NIP implementation** - UNDP assists countries in building capacity to implement POPs risk reduction measures;

- **Partnering in investments for NIP implementation** - UNDP helps countries reduce the effect of POPs on human health and the environment; and

- **Forming partnerships to demonstrate innovative technologies and practices for POPs reduction** - UNDP helps demonstrate effective alternative technologies and practices that avoid POPs releases.

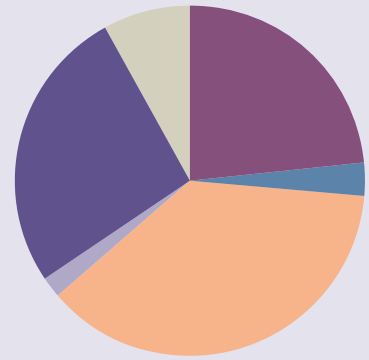
Wherever possible and appropriate, UNDP activities in the area of POPs are undertaken within the context of a country's SMC framework so that there is coordination at the national level with a country's activities in support of other regional or global conventions and agreements on chemicals.

As of April 2007, 181 countries were Party to the Stockholm Convention, of which 52 (29%) had already submitted their National Implementation Plans.

Establishing basic knowledge of science in the primary grades will lay the initial foundation for development of much needed skill sets to enable countries to progress in many areas (manufacturing, health management, legislative enforcement, etc.). Raising awareness about chemical safety issues at the primary level can contribute to reducing the occurrence of chemical-related accidents in the home, community or at work.

SOUND MANAGEMENT OF CHEMICALS ALSO HELPS TO PROTECT CHILDREN'S MENTAL AND PHYSICAL DEVELOPMENT, ENABLING THEM TO ATTEND SCHOOL AND PURSUE EDUCATION.

Distribution of approved funds
(Over US$ 50 million approved as of April 2007)

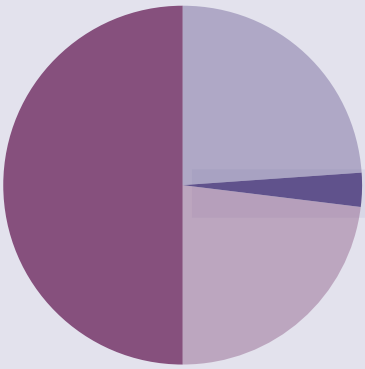


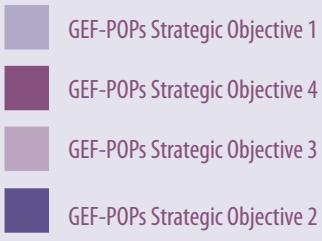
BY REGION

Global	24 %
Africa	3 %
Asia and the Pacific	38 %
Arab States	2 %
Europe and the CIS	27 %
Latin America and the Caribbean	6 %

BY PROJECT TYPE

GEF-POPs Strategic Objective 1: Enabling Activities	24%
GEF-POPs Strategic Objective 2: Capacity building for NIP implementation	3%
GEF-POPs Strategic Objective 3: Investment Projects	23%
GEF-POPs Strategic Objective 4: Demonstration Projects	50%





UNDP's comparative advantage in supporting the implementation of the Stockholm Convention

Many of the challenges relating to the phase-out and elimination of POPs involve enhancing national capacity through initiatives such as human resource development, institutional strengthening, provision of technical assistance and training. As the United Nations' global development network, UNDP is well-placed to advocate for change and connect partner countries with the knowledge, experience and resources required to build capacity necessary to tackle POPs management and elimination issues.

This entails:

- **Campaigning and mobilization** - Provide advocacy and support awareness building for POPs management and sound management of chemicals;
- **Analysis** - Identification of innovative practices, policies and institutional reforms that help countries put in place effective POPs and chemicals management structures that are informed by strategic needs assessment and financial evaluations;
- **Monitoring** - Provision of assistance to countries to track progress on the mainstreaming of POPs and chemicals management into broader national sustainable development strategies; and,
- **Operational activities** - Specific impact-driven assistance to governments to address national challenges and key constraints to advance the management of POPs and chemicals within the context of the MDGs.

National Implementation Plan (NIP) programme and dissemination of best practices

An initial obligation for countries under the Stockholm Convention is the design of a National Implementation Plan (NIP) that outlines how the convention's objectives will be achieved at the national level. The Stockholm Convention allows eligible countries to receive Enabling Activity (EA) funding from the GEF to help them draw up NIPs, build capacity and support training, meet their reporting obligations, support the adoption of best practices for POPs management and address broader issues of chemicals safety and management.

As of 31 March 2007, UNDP was implementing Enabling Activities in nearly 30 countries.

UNDP Portfolio Highlights:

Jamaica: Enabling activities to develop and implement Jamaica's National Implementation Plan (NIP) under the Stockholm Convention

Jamaica's Country Cooperation Framework (2002-2006), the programming instrument used by the Jamaican government and UNDP to set out their planned cooperation, indicated that a major area of focus for UNDP was to develop the government's capacity to implement national programmes and align national priorities with global commitments, including its commitments under the Stockholm Convention which the country signed in May 2001.

The following sections provide snapshots of UNDP project activities around the globe organized according to the GEF Strategic Objectives for POPs:

GEF-POPs Strategic Objective 1.

Jamaica requested UNDP and GEF assistance to design a National Implementation Plan (NIP) to meet the Convention's policy, control and reporting objectives and build necessary local capacity to implement the plan.

With financial support secured through a GEF Enabling Activity, the government of Jamaica invited UNDP to join the national Steering Committee and provide substantive advice to:

- Designation of the National Environment and Planning Agency (NEPA) as the focal point for POPs in Jamaica, after which NEPA would take the lead in coordinating and implementing POPs activities under the Enabling Activity;
- Carry out a POPs stocks inventory and identify priorities for proper disposal;
- Ensure broad stakeholder engagement through a series of meetings to sensitize relevant stakeholders about POPs issues, their roles with respect to the national POPs inventory and future POPs management;
- Preparation of national POPs profiles and establishment of coordinating mechanisms for POPs specific activities, the aim being to strengthen existing local cross-institutional arrangements and establish a recognized national POPs management working group;
- Preparation of a National Implementation Plan (NIP); and
- The Convention ratification process.

Nicaragua: Initial Assistance to enable Nicaragua to fulfil its obligations under the Stockholm Convention on POPs

In order to build the necessary capacity to fulfil its obligations under the Stockholm Convention, the government of Nicaragua requested assistance from the GEF and UNDP in preparing a NIP which would describe the strategy by which Nicaragua intended to eliminate POPs sources and manage POPs contaminated sites. The NIP would also cover wider issues important to SMC, such as the environmentally sound management of toxic chemicals, including preventing the illegal international traffic in toxic and dangerous products – measures called for in Chapter 19 of Agenda 21 adopted at the Rio Earth Summit in 1992.

With UNDP assistance, the government of Nicaragua was able to mobilize the resources necessary to initiate Enabling Activities with the result that:

- A NIP was drafted;
- Inter-sectorial coordination mechanisms were established;
- Capacity of CINCOP, the national coordinating group and focal point on POPs, to formulate, implement and manage the NIP was significantly enhanced;
- A national policy on the comprehensive management of hazardous substances and residues, with a particular emphasis on POPs, was adopted;
- Proposals for correcting regulatory deficiencies that hindered the management of hazardous chemical products, emissions and solid wastes containing POPs were drawn up;
- A preliminary POPs inventory was prepared;
- Required field monitoring and assessment capacities were defined;
- An infrastructure strengthening strategy to allow the management of hazardous residues, in particular those containing POPs was developed;
- Inter-sectorial networks and partnerships to implement the NIP were created/strengthened;
- Capacity at CENIDSUT - Nicaragua's national centre for information and documentation on toxic substances – was strengthened; and
- A communications strategy to raise public awareness of POPs was drawn up.

GEF-POPs Strategic Objective 2.

Strengthening national capacities for NIP implementation

In the process of preparing a NIP, a country must draw up action plans for its implementation if it is to meet its obligations as a Party to the Stockholm Convention. Building a country's capacity to manage POPs, and ensuring that it is in a position to implement risk reduction measures, are the primary objectives for activities supported by UNDP-GEF in this area.

Many countries lack the skills necessary to develop adequate strategic POPs planning and implementation frameworks. With support from the GEF, UNDP provides assistance to countries – especially those lagging furthest behind – in building basic, foundational capacities, with special attention focussed on the understanding that the GEF encourages countries to identify synergies and coordinate POPs activities they undertake with other chemicals related MEAs, including the Basel and Rotterdam Conventions and SAICM.

Depending on the priorities identified in a country's NIP, such harmonized assistance can include strengthening regulatory frameworks, human and/or institutional capacity, monitoring and enforcement capacity, as well as raising awareness among partners and stakeholders.

UNDP Portfolio Highlight:

Action Plan Training and Skills Building for Least Developed Countries (LDCs) to assist with National Implementation Plan Development under the Stockholm Convention

The GEF has funded two Medium-Sized Projects (MSPs) that target action plan training and skills building for NIP development. The projects are being executed by UNITAR, on behalf of UNDP, and in addition to GEF also receive funding from the Swiss Federal Office for the Environment (BAFU). The first project provided support for 25 Least Developed Countries (LDCs). It attracted such a high level of interest that a second project was approved to accommodate a further 15 countries.

In order to boost capacity and skills to adequately develop NIPs and related national Action Plans needed to comply with the Stockholm Convention, the projects provide national–level training designed to contribute towards human resource development by building skills in project planning and management, which may be applied to future chemicals management initiatives.

The projects encourage experience sharing amongst the 40 participating countries. Generation of a wide variety of POPs-focused SMC action plans, including prioritized country-driven follow-up activities, will mark the success of this initiative.

Country-level training sessions using project management and strategic planning tools adapted to the Stockholm Convention context were initially conducted in those countries that were the most advanced with the implementation of their NIPs (Cambodia, Yemen, United Republic of Tanzania, The Gambia and Ethiopia). Lessons

Women and girls are disproportionately affected by indoor air pollution, water and food pollution and the negative effects of household chemicals, as they tend to assume the bulk of household and food preparation responsibilities. Occupational factors, such as the gender division of labor, further expose women to certain chemicals used in e.g. agriculture, the solvents industry and health care. Biases in educational systems may result in the fact that women are less well-equipped to understand, cope with, and anticipate the implications of chemicals exposure and environmental degradation.

SOUND MANAGEMENT OF CHEMICALS CAN IMPROVE WOMEN'S WORKING AND LIVING CONDITIONS, INCREASE THEIR KNOWLEDGE ON THE HANDLING AND HEALTH IMPLICATIONS OF CHEMICALS AND HELP PROTECT THEM AND THEIR FAMILIES. PROPER INTEGRATION OF GENDER CONSIDERATIONS IN SMC INITIATIVES CAN INCREASE WOMEN'S PARTICIPATION IN DECISION-MAKING PROCESSES THAT RELATE TO CHEMICAL SAFETY AND ITS MANAGEMENT.

learned from these countries' experiences were used to refine the guidance and training materials and inform the structure of training sessions that were organized for the remaining 20 LDCs. At the same time, the cumulative lessons learned during execution of the 25 LDC project have served to further refine and inform the guidance and training provided to the additional 15 LDCs under the second project.

Final training sessions for the countries taking part in the first phase of the project were completed in the second quarter of 2006. The final monitoring and evaluation of this project will be conducted in 2007 and will allow for a full assessment of its impact. As has been the practice adopted during implementation, results of the monitoring and evaluation process will be used to inform and refine the ongoing work with the second round of countries.

UNDP Country Offices in each of the 40 participating countries have been involved in the elaboration of training with a view to ensuring that its impact is integrated within the context of each country's environmental management framework.

Phase I - 25 LDCs
Bangladesh, Benin, Cambodia, Chad, Djibouti, Ethiopia, Gambia, Guinea, Guinea Bissau, Haiti, Kiribati, Laos, Lesotho, Malawi, Mali, Mauritania, Nepal, Samoa, Senegal, Sudan, Togo, Uganda, United Republic of Tanzania, Yemen, Zambia.

Phase II - 15 LDCs
Burkina Faso, Central African Republic, Comores, Liberia, Madagascar, Mozambique, Niger, Rwanda, Sao Tome and Principe, Tuvalu.
Additional countries are being selected.

GEF-POPs Strategic Objective 3.

Partnering in investments for NIP implementation to achieve impacts in POPs reduction

The primary objective for the GEF and UNDP supported activities in this area is to reduce environmental and human health stress caused by POPs. Depending on a country's priorities, as identified in its NIP, activities under this strategic objective can include implementing programs for the phase out and disposal of PCBs (polychlorinated biphenyls), the destruction of obsolete stocks of POPs pesticides or the application of best available alternative technologies or practices.

With the financial support of the GEF, this UNDP project is assisting China's efforts to end the use of DDT in anti-fouling paint and replace it with technically feasible, economically viable, and environmentally-friendly alternatives.

UNDP Portfolio Highlight:

China: Alternatives to DDT usage in the production of anti-fouling paint

Anti-fouling paints are used to kill the spores and larva of marine fouling organisms that attach themselves onto boat hulls or the surfaces of submerged structures. When a ship's hull becomes covered with barnacles and seaweed, its friction through the water, fuel consumption and corrosion all increase, with the result being a fall in navigational efficiency and profitability.

Before its use was banned by the Stockholm Convention, DDT was an important constituent of anti-fouling paints, although due to its short-lived action (1.5 years) it was only suitable for small and medium-sized vessels, such as fishing boats. Larger vessels used anti-fouling paints containing organotin-based TBT. Both substances are highly toxic and can contaminate oceans, enter the marine food chain, and endanger ecological balance and human health.

Today China is the only country that continues using DDT-based anti-fouling paint on its ships. It is estimated that the 300,000 fishing vessels which work along China's 18,000 mile coastline use about 10,000 metric tonnes (MT) of anti-fouling paint, of which approximately half (5,000 MT) is DDT based. Since the amount of DDT in anti-fouling paint is about 5% this leads to an estimated 250 MT of DDT being released into the marine environment each year.

Commercial vessels operating in domestic waters use around 20,000 MT of TBT-based paint and larger ocean going vessels use 35,000 MT of TBT-free paint, bringing China's total annual use of anti-fouling paints to 65,000MT – of which 25,000 MT is either DDT or TBT-based.

Improper labeling, storage and use of chemicals are significant causes of poisoning in developing countries. Yearly, many children die as a result of chemical poisoning in the home or at work through involvement in activities such as agriculture and mining. In addition to acute poisonings, chemical pollution of the air, soils, water and food increase the incidence, prevalence, rate of mortality and costs of certain pediatric diseases.

SOUND MANAGEMENT OF CHEMICALS, COMBINED WITH BETTER NUTRITION, CAN IMPROVE CHILDREN'S LIVING CONDITIONS, DECREASE THEIR SENSITIVITY TO CHEMICALS AND REDUCE CHILD MORTALITY.

With the financial support of the GEF, this UNDP project is assisting China's efforts to end the use of DDT in anti-fouling paint and replace it with technically feasible, economically viable, and environmentally-friendly alternatives. The project also supports the long-term phase out of TBT-based paints.

To ensure sustainability of the conversion to sustainable alternatives to DDT anti-fouling paint, the project is reviewing and revising related regulations and standards, and conducting capacity building activities to create an enabling policy environment.

Successful experience in phasing out DDT will also help China establish a long-term mechanism to protect marine environment and human health from pollution by harmful anti-fouling systems and help support the country's efforts to accede to the International Maritime Organization (IMO)'s "Convention on the Control of Harmful Anti-fouling Systems on Ships".

Overall project objectives:

- Eliminate the use of 250 MT/year of DDT as additives in the production of anti-fouling paint by conversion to non-toxic and environmentally friendly alternatives.
- Establish a long-term mechanism to protect marine environment and human health from pollution of harmful anti-fouling systems based on the technologies, experience and instruments obtained from the phase out of DDT-based anti-fouling paint.

Planned project activities and outcomes:

- Establishing project management institutions and building their operational capacity;
- Developing a Management Information System (MIS) and project website;
- Creating an enabling policy environment through capacity building by establishing or revising regulations, standards, and action plans for phasing out DDT-based anti-fouling paint and promoting sustainable alternatives;
- Promoting conversion from DDT-based anti-fouling paints to alternatives through the adoption of multiple means of technological support, policy induction and market regulation, as well as awareness raising and education;
- Using environmental education to promote awareness among key stakeholders and the public, improving their understanding of the harmful effects of DDT/TBT-based anti-fouling paints and the benefits of alternatives; and
- Obtaining and sharing lessons learned from effective monitoring and evaluation of the project's implementation and its achieved results.

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GEF-POPs Strategic Objective 4.

Partnering in demonstration in innovative technologies & practices for POPs reduction

This GEF strategic objective differs from the previous three in that it places emphasis particular on the demonstration of effective and replicable alternative technologies and practices that avoid the release of POPs. Depending on a country's NIP priorities, activities under this objective can support demonstrating alternative pest management practices to replace the intentional use of POPs pesticides or demonstrating effective technologies to avoid the unintentional production of POPs, such as dioxins and furans.

UNDP Portfolio Highlight:

Global Project: Demonstrating and promoting best techniques and practices for reducing healthcare waste to avoid environmental releases of dioxins and mercury

The healthcare sector is a major source of dioxin emissions to the global environment, primarily the result of medical waste incineration and an unintended consequence of the choice of materials and practices used to improve human health. As developing countries strengthen and expand their healthcare systems in order to meet the MDGs, there is concern that associated releases of POPs, including dioxins, could rise substantially.

The Stockholm Convention encourages the promotion of waste treatment processes, techniques and practices that are as effective as medical waste incinerators but do not produce POPs.

While cautioning that health concerns must be paramount, the Convention also recommends that consideration be given to the recovery, reuse and recycling of resources, waste separation and the promotion of products that generate less waste.

The GEF is therefore supporting a UNDP global – seven country, five region - demonstration project in Argentina, India, Latvia, Lebanon, Philippines, Senegal and Viet Nam to demonstrate and promote the replication of best environmental practices and techniques for healthcare waste management including installation and use of non-combustion waste treatment technologies. The project will work with existing rural and urban healthcare facilities and help implement comprehensive training programmes in order to remove barriers to national implementation and replication of these practices.

Building awareness of the links between healthcare waste management and public health (including occupational exposure), is an important project objective. Key partners in this area include national ministries, hospitals, health clinics, healthcare professionals, waste workers and the providers of waste management services (among the most vulnerable sub-populations), technology developers, training institutions and universities, as well as a broad range of environmental, health and community development NGOs at local, national and international levels. The project will give special focus to the health implications of dioxin exposure on vulnerable populations, such as women workers, pregnant women, and children.
In addition, a partnership formed with the University of Dar-

Certain types of chemicals (such as Persistent Organic Pollutants) can build up to dangerous levels in humans causing adverse reproductive, developmental, immunological, hormonal and carcinogenic effects. With respect to reproductive health, exposure to these chemicals can lead to miscarriages, low birth weight babies and premature births. Women who have accumulated these kind of chemicals in their lipids or body fat can pass as much as one third of their toxic burden to their infant children, both prenatally and after birth (through breastfeeding).

SOUND MANAGEMENT OF CHEMICALS CAN LOWER A WOMEN'S RISK OF CONTAMINATION, IMPROVE MATERNAL HEALTH AND THEREFORE, THE HEALTH OF FUTURE GENERATIONS.

es-Salaam in Tanzania will help the project develop, test and disseminate locally produced, affordable, healthcare waste treatment technologies that do not rely on incineration and are appropriate for the conditions found in much of Sub-Saharan African.

Another aspect addressed by the project focuses on the fact that in addition to unintentionally releasing dioxins, healthcare facilities in developing countries are also a source of the release of mercury, a highly toxic persistent substance, especially when metabolized into methyl mercury into the atmosphere.

other objectives, the proper clean-up, handling and storage of mercury wastes in healthcare settings. The project will introduce mercury-free medical devices in model facilities, evaluate their acceptability and efficacy, and develop and distribute awareness-raising and educational materials related to mercury.

The project has two principle cooperating agencies: WHO, the United Nations specialized agency on health, and the international NGO coalition Health Care Without Harm (HCWH), an international coalition of 443 organizations in 52 countries

The project will demonstrate and promote the replication of best environmental practices and techniques for healthcare waste management including installation and use of non-combustion waste treatment technologies

Mercury-containing thermometers, blood pressure meters and other medical devices are in widespread use, and their breakage or improper disposal through incineration leads to mercury release. At the time of project development, none of the countries participating in this project had programs or policies in place to reduce mercury releases from their healthcare waste facilities.

Although mercury is not covered under the Stockholm Convention, a synergistic mercury component in included in the project, as it will benefit from the best environmental practices and techniques for healthcare waste management that the project will establish to reduce releases of POPs.

The programme will also offer participating countries an opportunity to implement the 2005 World Health Organization (WHO) policy on mercury in healthcare that promotes, among

working to transform the healthcare industry so that it operates in an environmentally-friendly way. Both organizations bring to the project their global networks and guiding principles related to healthcare waste management, which include the promotion of sound healthcare waste management policies and practices and the prevention of health risks to patients, workers and the pubic associated with exposure to healthcare wastes.

The project also involves a number of other project partners, such as the University of Illinois at Chicago Great Lakes Center (GLC) for Environmental and Occupational Safety and Health, which engages in international research and training in environmental and occupational health. At the national level a large number of country-based NGO groups and experienced experts as well as national stakeholders will contribute to the implementation of the project.

The Montreal Protocol is recognized globally as a success, evidence of which can be gleaned from the massive reductions in ODS use worldwide since it came into force in 1987. Described as "perhaps the single most successful international agreement to date" by Kofi Annan, former UN Secretary General, the Montreal Protocol will celebrate its 20th Anniversary on International Ozone Day 2007 (16 September). While considerable work remains to be done, impressive gains have been made and the time for celebration is at hand.

Not only did the Montreal Protocol help protect the ozone layer, recent research (March 2007) led by the Netherlands Environmental Assessment Agency showed that the Protocol has helped to reduce global warming (some ODS also have significant global warming potential). Without the Montreal Protocol the amount of heat trapped due to ODS release would be double that of today.

Phasing out Ozone-Depleting Substances under the Montreal Protocol

Two decades ago coffee served in a Styrofoam cup at a coffee shop or use of a spray deodorant bought at the local pharmacy contributed to depletion of the earth's ozone layer. Such common everyday items contained Ozone-Depleting Substances (ODS).

ODS are a group of man-made chemicals that, when released into the atmosphere, can thin the ozone layer and allow increased levels of ultraviolet radiation to reach the earth's surface. This affects human health with higher rates of skin cancer, eye cataracts and damaged immune systems and also harms the environment, resulting in reduced food crop productivity and oceanic plankton levels.

Since 1987 the Montreal Protocol on Substances that Deplete the Ozone Layer has been working to eliminate the consumption and production of ODS and reverse the damage already done to the ozone layer.

With financial support from the Multilateral Fund for the Implementation of the Montreal Protocol, the GEF and various bi-lateral donors, UNDP has been managing a global programme of US$ 496 million to undertake Montreal Protocol projects in over 100 countries. In total these projects will prevent over 60,689 tonnes of ODS being released into the earth's atmosphere.

UNDP works with a broad range of national partners including governments, industry and representative organizations such as technical associations, agricultural institutes, academia and civil society to phase-out the use of ODS in foam production, refrigeration and air-conditioning, aerosol and solvents applications, fire protection and agriculture.

UNDP assists its partners to comply with Montreal Protocol targets through provision of:

- **Capacity Development** – assisting governments to develop more effective national policies and programmes to meet ODS elimination targets including development of ODS management country programmes, institutional strengthening and national phase-out management plans.

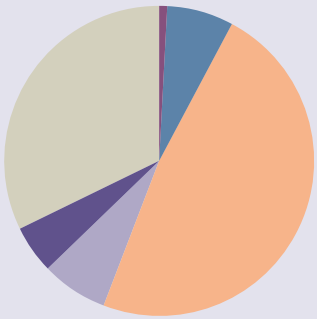
- **Technical Assistance, Training and Demonstration Programmes** – providing technical support and information dissemination regarding ozone-friendly alternatives to ODS. This is done through practical, hands-on training sessions and in-field demonstrations, designed to build technical and economic confidence in alternative substances and processes.

- **Technology Transfer** – facilitating access to the best available technologies and related technical assistance to allow governments and enterprises to adopt alternative production processes and ozone-friendly technologies.

Proper use of medications and other chemical medical products (such as treated mosquito bed nets) play a major role in disease prevention and treatment. Chemicals are also used for effective control of vector-borne diseases, such as malaria, kala-azar, dengue fever and chagas disease and help prevent millions of deaths worldwide.

SOUND MANAGEMENT OF CHEMICALS PROMOTES SAFE HANDLING AND DISPOSAL OF EXPIRED MEDICATIONS AND HEALTH CARE WASTE AND ENCOURAGES THE USE OF ENVIRONMENTALLY-FRIENDLY VECTOR DISEASE CONTROL PRACTICES TO HELP MINIMIZE NEGATIVE IMPACT ON THE ENVIRONMENT.

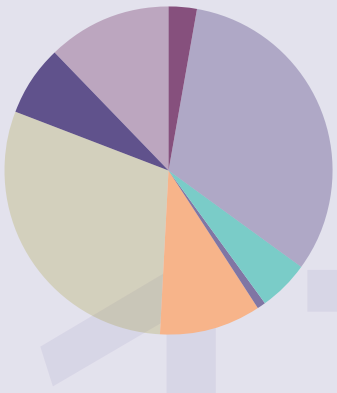
Distribution of approved funds
(nearly US$ 500 million approved as of April 2007)



BY REGION

Global	1%
Africa	7%
Asia and the Pacific	48%
Arab States	7%
Europe and the CIS	5%
Latin America and the Caribbean	32%

Aerosols	3%
Foam	32%
Fumigation	5%
Halons	1%
Phase-Out Plans	10%
Refrigeration	30%
Several (incl. Institutional Strengthening)	7%
Solvents	12%



Integrating the Sound Management of Chemicals into MDG-based national plans

The Strategic Approach to International Chemicals Management (SAICM), adopted in February 2006, supports the achievement of the 2002 World Summit on Sustainable Development (WSSD) target to ensure that, by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health.

SAICM promotes strengthened focus on improved cross-sectoral governance for SMC at the national and local levels, and works on the basis that that for SMC to be advanced significantly beyond the existing situation, much stronger links need to be established with the development planning priorities and processes of developing countries.

Following the adoption of SAICM, and drawing from experience and expertise gained in providing support to developing country partners under the auspices of other chemicals-related MEAs, namely the Montreal Protocol and the Stockholm Convention, UNDP been assisting national governments and UNDP Country Teams to begin more systematically incorporating SMC into their MDG-based national development planning processes. UNDP interventions in support of SAICM, and more broadly sound chemicals management, are two-fold: strategic policy and economic guidance related to the interaction of SMC and the MDGs; and support in building SMC capacity in developing countries, consistent with the UNDP mandate to advocate for change and connect countries to knowledge, experience and resources to help people build a better life.

Thanks to financial support received from the Norwegian government, and working with recognized SMC experts, UNDP has developed

Chemicals can contribute to global warming, ozone depletion and climate change, can cause severe environmental degradation and disrupt ecosystems through the contamination of water, soil, air and flora and fauna.

SOUND MANAGEMENT OF CHEMICALS CAN HELP PREVENT AND/OR MINIMIZE HARMFUL CHEMICALS FROM ENTERING THE ENVIRONMENT AND REDUCE THE NEED FOR DIFFICULT AND COSTLY ENVIRONMENTAL REMEDIATION.

Thanks to financial support received from the Norwegian government, and working with recognized SMC experts, UNDP has developed a guidance document to help national partners in their effort to incorporate SMC in MDG-based policies and plans.

a guidance document to help national partners in their effort to incorporate SMC in MDG-based policies and plans.

In order to build national SMC capacity, and in line with the SAICM objectives in 2006 UNDP and UNEP developed a Partnership Initiative for SMC to help client countries to:

- Assess their SMC regimes relative to the strategic objectives of SAICM and put in place a plan to begin addressing gaps in the national regime; and
- Improve the incorporation of national SMC priorities into the national development planning agenda.

This Partnership Initiative will draw on the unique support services that can be provided by each of the cooperating agencies and seek to broaden its scope through the involvement of other partners.

In 2007, with funding secured through the first round of the SAICM Quick Start Programme (QSP) Trust Fund, the Partnership Initiative will launch implementation in Uganda and Ecuador, and using bi-lateral funding received from the Swedish Chemicals Agency (KemI) will begin related activities in Cambodia and Zambia. The Partnership Initiative now intends to offer its services to additional countries and may serve to assist the government of Macedonia in implementing its recently approved SAICM QSP project.

Reducing chemical pollution of the world's waters

Aquatic ecosystems – lakes, river basins and estuaries, aquifers, ocean and coastal areas – provide many economic goods and services to human societies, including water for drinking, sanitation and industrial use, fisheries, transportation corridors, tourism, recreation, and other amenities.

Aquatic systems also provide critical environmental services: wetlands sequester excess nutrients from rivers; ecosystems such as coral reefs, wetlands and mangroves are important centres of global biodiversity, and each year the oceans absorb billions of tonnes of carbon dioxide from the atmosphere.

However, the earth's aquatic ecosystems have come under significant pressure from a number of threats, including pollution, overfishing, the introduction of invasive species and overuse of freshwater resources.

Chemical pollution of water can be caused by poorly or untreated municipal and industrial wastewater, pesticide and fertilizer run-off from agriculture, spills and other ship-related releases, mining, and other sources. Chemical pollution is one reason why over a billion people lack access to safe drinking water, and over two billion lack access to basic sanitation; a problem which results in the deaths of over 6,000 children each day.

The MDGs include a target of halving the proportion of people without access to safe and affordable water by 2015.

Working through the GEF's International Waters focal area, UNDP is currently assisting more than 100 developing countries which share important water bodies – lakes, river basins, aquifers and marine ecosystems – to improve their joint management of these transboundary resources through analysis and priority setting, and by developing and implementing joint action programmes. A major portion – over US$ 180 million – of UNDP-GEF's International Waters funding is used to prevent or reduce chemical pollution.

Examples of GEF International Waters projects that address chemical pollution include:

- Reducing nutrient pollution in the Danube-Black Sea basin through an innovative strategic partnership with the World Bank, UNEP and the European Union;
- Helping Central European countries introduce cleaner production technologies and practices and sustainable business models to reduce industrial pollution releases to the Danube River basin (with UNIDO);

International co-ordination and co-operation efforts towards improved chemicals management, such as through the Strategic Approach to International Chemicals Management (SAICM) adopted in 2006, and chemicals-related Multilateral Environmental Agreements (MEAs), create global partnerships and initiatives.

GLOBAL PARTNERSHIPS AND INITIATIVES HELP COUNTRIES INTEGRATE SMC OBJECTIVES INTO NATIONAL AND LOCAL DEVELOPMENT POLICIES AND PLANS, WHILE SIMULTANEOUSLY IDENTIFYING OPTIONS TO CATALYZE NECESSARY SUPPORTING FINANCING.

Chemical pollution of water can be caused by poorly or untreated municipal and industrial wastewater, pesticide and fertilizer run-off from agriculture, spills and other ship-related releases, mining, and other sources. Chemical pollution is one reason why over a billion people lack access to safe drinking water, and over two billion lack access to basic sanitation; a problem which results in the deaths of over 6,000 children each day"

- Introducing alternative mining technologies and practices to reduce the release of mercury into the environment from artisanal gold mining in six pilot countries (with UNIDO); and
- Reducing industrial chemical pollution in the Dnipro River basin through the introduction of cleaner production technologies, sustainable financing, harmonized legislation and improved environmental monitoring.

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THE UNDP-GEF TEAM

The Global Environment Facility team of the United Nations Development Programme (UNDP-GEF) is headquartered in New York. UNDP-GEF has six regional coordination units located in Thailand, Slovakia, Lebanon, Panama, Senegal and South Africa. Working with other international organizations, bilateral development agencies, national institutions, non-governmental organizations, private sector entities and academic institutions, the UNDP-GEF team supports the development of projects and oversees a mature portfolio of projects in all six GEF focal areas of biodiversity, climate change, international waters, land degradation, persistent organic pollutants and ozone depleting substance phase-out (the latter minimally). The cumulative UNDP-GEF portfolio stands at US$ 2.6 billion in core grants, with over US$ 3 billion raised in additional co-financing. On behalf of the GEF partnership, UNDP-GEF also manages two corporate programmes, the GEF Small Grants Programme and the GEF National Dialogue Initiative.

THE UNDP-MPU TEAM

The Montreal Protocol on Substances that Deplete the Ozone Layer, which came into force in 1989 is an international treaty designed to protect the ozone layer by phasing out the use and production of ozone-depleting substances (ODS). The Multilateral Fund for the Implementation of the Montreal Protocol provides funds to help developing countries meet the protocol's objectives.

UNDP's Multilateral Fund activities are managed by the Montreal Protocol Unit (MPU) at UNDP headquarters in New York, and the majority of activities are executed nationally with support of UNDP country offices. The MPU team is made up of programme coordinators with expertise in relevant technical, economic and political sectors, as well as regional and national experts, who help governments and industry to design, implement, monitor and evaluate ozone-depleting substances (ODS) phase-out projects.

MPU currently has three regional programme coordinators who support Montreal Protocol programming in Europe and the CIS, Asia and the Pacific and Central America. Technical consultants are also brought in to advise on projects. Over the years, MPU has developed a network of technical experts and consultants who provide expertise to partner countries.

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