



Managing Chemicals *for* Sustainable Development

SOUND MANAGEMENT OF CHEMICALS AND
SUSTAINABLE HUMAN DEVELOPMENT

UNDP ENVIRONMENT & ENERGY GROUP





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The Sound Management of Chemicals is essential if we are to achieve sustainable development, including the eradication of poverty and disease, the improvement of human health and the environment and the elevation of the standard of living in countries at all levels of development.

”

Dubai Declaration on International Chemicals Management, Feb 2006



FOREWORD

The use of chemicals permeates modern life. While chemicals play an important role with respect to development, including through the production and use of life-saving medicines, purification agents for treating drinking water supplies, and agricultural chemicals that boost on-farm productivity, use of chemicals can, in absence of good management practices, pose significant risks to human health and the environment.

Effects on human health and the environment can be immediate and catastrophic, as in the case of oil spills, large accidental releases of industrial chemicals, and acute pesticide poisoning. Less noticeably, long-term exposure to toxic chemicals in water, food, air, and soil can cause or exacerbate many serious human health problems, including damage to reproductive and neurological systems, as well as different types of cancers.

The world's poorest people routinely face the highest risk of exposure to toxic and hazardous chemicals, due to their occupations, living conditions, lack of knowledge about safe handling practices, limited access to sources of uncontaminated food and drinking water, and the fact that they often live in countries where regulatory, health, and education systems are weak.

The United Nations Development Programme (UNDP) thus promotes sound management of chemicals as an important aspect of our work to reduce global poverty and promote human health. 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 in order to achieve desired results.

This publication highlights UNDP's role as a facilitator of sound chemicals management for sustainable development. It focuses on the work that UNDP, with support from different trust funds and donors is undertaking in concert with partner countries to meet the aims of the Strategic Approach to International Chemicals Management (SAICM), the Stockholm Convention on Persistent Organic Pollutants, the Montreal Protocol on Substances that Deplete the Ozone Layer, as well as other chemicals-related multilateral environmental agreements. These efforts are enhanced by UNDP's commitment to help draw chemicals management issues more effectively into the national development discourse.



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INTRODUCTION

Chemicals play a part in almost all human activities and make major contributions to national economies. However, whenever chemicals are not properly managed, they can put human health, ecosystems, and national economies at risk. Health and environmental impacts from the mismanagement of chemicals include increased sickness levels and healthcare costs, reduced worker productivity, damage to fisheries and watersheds, reduced crop outputs and many others.

Chemicals also affect progress towards 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 of chemicals. 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.

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

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 promote progress in achieving the Millennium Development Goals. This work is supported by the Global Environment Facility, the Multilateral Fund for the Implementation of the Montreal Protocol, the Quick Start Programme Trust Fund of the Strategic Approach to International Chemicals Management (SAICM) and various other donors and partners. In collaboration with these 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 increases their access to the best available and affordable alternative technologies.

Sound Management of Chemicals 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.

A number of multilateral environmental agreements (MEAs) have been drawn up to protect people and the environment from adverse effects caused by the use or misuse of toxic and hazardous chemicals. The MEAs tackle sound management of chemicals issues related to the use of a specific chemical, or a class of chemicals with similar characteristics, or provide comprehensive holistic approaches to chemicals governance as a whole.

The best known MEAs related to chemical management 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 for Certain Hazardous Chemicals and Pesticides in International Trade;
- the Basel Convention on the Trans-boundary Movements of Hazardous Wastes and their Disposal; and
- the relatively recently adopted Strategic Approach to International Chemicals Management (SAICM).

With the support of the Multilateral Fund for the Implementation of the Montreal Protocol, the Global Environment Facility, the SAICM Quick Start Programme Trust Fund, and a multitude of bi-lateral donors, UNDP implements projects that help countries achieve sound management of chemicals by:

- Incorporating sound management of chemicals into MDG-Based national development policies and plans in support of the Strategic Approach to International Chemicals Management.
- Reducing and eliminating the release of persistent organic pollutants (POPs) as specified under the Stockholm Convention on Persistent Organic Pollutants.

- Phasing out ozone depleting substances and achieving compliance with the Montreal Protocol on Substances that Deplete the Ozone Layer.
- Reducing and preventing chemical pollution of lakes, rivers, groundwater, coasts and oceans in support of international water agreements.

Sound Management of Chemicals – a Cross-Cutting Issue

Sound management of chemicals is integral to sustainable human development. It is a requirement for healthy people and environments, affecting drinking water, air and food, as well as ecosystems. Because chemical management is a cross-cutting issue, UNDP aims to ensure that SMC is incorporated into all relevant aspects of initiatives to protect human and environmental health.

In addition to the multilateral environmental agreements specifically addressing chemicals management and pollution, other international agreements also benefit from incorporation of SMC, including the treaties on biodiversity, land degradation and climate change.

For example, with respect to sustainable land management, the application of SMC practices and principles can play an important role in combating land degradation caused by chemical pollution from excessive use of chemical fertilizers or irrigation with chemically polluted water.

With regard to climate change, the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) commits signatory countries to reduce emissions of six greenhouse gases, but is at present not putting restrictions on the emissions of other powerful greenhouse gases, including certain ozone depleting substances and some of their alternatives, that are currently controlled under the Montreal Protocol. The sound management of such chemicals plays a vital role in the global fight against climate change, and UNDP strives to ensure that efforts aiming to achieve the sound management of chemicals are coordinated with those striving to safeguard the ozone layer and the global climate. Similarly, UNDP promotes synergies between chemical-related MEAs and the UNFCCC and the Kyoto Protocol, and increases countries' access to technically and economically feasible solutions to both climate change and sound management of chemicals.



Integrating Sound Management of Chemicals into MDG-Based National Plans



The Strategic Approach to International Chemicals Management adopted in February 2006 supports achievement of the goal on chemical management agreed to at the 2002 World Summit on Sustainable Development: “that by the year 2020, chemicals will be produced and used in ways that minimize significant adverse impacts on the environment and human health”.

The Strategic Approach to International Chemicals Management (SAICM) promotes a strengthened focus on national and local governance that is cross-sectoral, addressing overall chemical management concerns rather than dealing with issues on a chemical-by-chemical basis. SAICM emphasizes the role of sound management of chemicals in achieving sustainable development goals, including poverty eradication, improvement of human health, environmental protection and elevation of living standards, and advocates for much stronger links between sound management of chemicals and countries’ overall development planning priorities and processes.

Since the adoption of SAICM, UNDP has been assisting national governments and UN Country Teams in beginning to integrate sound management of chemicals more systematically into MDG-Based national development planning processes and related strategies. In this work, UNDP is drawing on its experience and expertise gained in providing support to developing country partners in implementing other chemicals-related multilateral environment agreements, particularly the Montreal Protocol and the Stockholm Convention.

UNDP interventions in this area include:

- Advancing countries’ sound management of chemicals capacity at the local and national level, based on UNDP’s country-level expertise and presence on the ground.
- Providing strategic policy and economic guidance related to the interaction of sound management of chemicals and the Millennium Development Goals, as well as other national development priorities.
- Identifying specific areas of chemicals management likely to result in concrete environmental, health and economic benefits as a result of introducing sound

management practices, and supporting plans to begin addressing identified national priorities.

- Building capacity to assess national development and budgeting planning processes, and identifying opportunities to integrate national SMC priorities into these plans.
- Offering guidance on integrating chemicals management priorities into national discussions, development processes, policies and plans, with the objective of fostering national budget commitments.

With support provided by the Norwegian Government, UNDP has developed a technical guide to assist governments and UN Country Teams in recognizing and assessing opportunities

for incorporating sound management of chemicals into national development planning processes: the *UNDP Technical Guide for Mainstreaming the Sound Management of Chemicals (SMC) in MDG-Based Policies and Plans*. The guide is one of several tools that UNDP’s Environment and Energy Group/Bureau for Development Policy has developed to enhance assistance to partner countries through a comprehensive approach to sustainable development.

The methodology for integrating sound management of chemicals in MDG-Based policies, as put forward in this technical guide, follows the steps that countries typically go through to advance their national chemicals management regimes. These steps can generically be described as follows:

MONITORING & EVALUATION



GENDER MAINSTREAMING

AWARENESS RAISING & PROMOTING MULTI-STAKEHOLDER INVOLVEMENT

STEP 1

BASELINE ANALYSIS

- ★ **Determine** what information is available and record it, using documents containing information on a country's chemicals management situation (e.g. updated National Chemicals Profile and other relevant sources).
- ★ **Development** of a National Chemicals Management Situation Report that provides information on the degree of integration of SMC in national development planning and that is an essential prerequisite for an integrated assessment and analysis of the linkages between chemicals management and related economic, health and environmental impacts.

STEP 2

DIAGNOSTICS/ NEEDS ASSESSMENT

- ★ **Identify** high risks of chemical exposure affecting biodiversity, vulnerable ecosystems, and human health (both acute and long term effects) using information gathered through a multi-stakeholder approach.
- ★ **Prepare** an in-depth assessment of chemicals management issues relevant to national MDG-Based development planning.

STEP 3

IDENTIFICATION OF NATIONAL OPPORTUNITIES AND PRIORITIES

- ★ **Undertake** a qualitative analysis of the links between major chemical problem areas and human health and environmental quality to identify opportunities and priorities for national decision making on sound chemical management.
- ★ **List and describe** opportunities (legal, technical and institutional) that can strengthen the national chemical management regime and through a multi-stakeholder priority setting exercise select national priorities using as a starting point the opportunities identified.

STEP 4A

EVALUATING THE ECONOMICS OF SELECTED SMC PRIORITIES

- ★ **Estimate/quantify** the costs of action to pursue identified chemical management opportunities versus the costs of human suffering and environmental degradation when no action is taken.
- ★ **Determine** economic costs and benefits of policy options to address chemical management problems recognized as national priorities (including potentially 'hidden' costs) and identify appropriate choices that are efficient and equitable, with the purpose of further engaging the government's central finance and economic development agencies, for which valuation is a crucial decision-making tool.

STEP 4B

DEVELOPING POLICY AND REGULATORY RESPONSES FOR SELECTED PRIORITIES

- ★ **Develop** targeted policy and regulatory responses for chemicals management actions that are priorities from a national development planning perspective, taking into consideration the wide range of potential interventions that could be implemented. In addition to economic incentives, consideration should be given to technological interventions, social measures such as health promotion, and legal and regulatory measures.
- ★ **Initiate** legislative and institutional reforms to facilitate the implementation of selected priorities and their integration into national development planning.

STEP 5

INTEGRATING SMC INTO MDG-BASED NATIONAL DEVELOPMENT PLANNING PROCESSES

- ★ **Integrate** sound management of chemicals priorities into national development planning to address the most serious problem areas, while making the utmost use of opportunities that link sound management of chemicals with sustainable development factors.
- ★ **Foster** national budget commitments, in partnership with donor assistance, following the integration of sound management of chemicals priorities into national policy and planning documents.

Awareness Raising & Promoting Multi-Stakeholder Involvement

Stakeholder consultations and awareness-raising throughout the step-by-step approach to integrating sound management of chemicals into development plans will enable a country to ensure that identified priorities are an accurate reflection of emerging needs, and place chemical management priorities at the core of national development debates. Without stakeholder consultations, the results could be partial and unsustainable. Stakeholder involvement can lead to better policy options by fostering alternative, pro-poor choices, and ensuring the participation of vulnerable populations in policy development and decision making processes.

Gender Mainstreaming

Efforts to ensure the sound management of chemicals within a context of sustainable development have important gender dimensions. In daily life, men, women, and children are exposed to different kinds of chemicals in varying concentrations. Levels of exposure to toxic chemicals—and resulting impacts on human health—are determined by social as well as biological factors. Therefore, it is critical to raise awareness about the linkages between chemical exposure, human health, environmental threats, and gender differences in risks and impacts.

Integration of gender considerations throughout all stages of a country's process to strengthen its national chemical management regime will ensure that women's, as well as men's, concerns and experiences are taken into account in the design, implementation, monitoring and evaluation of chemical management policies and programmes, so that they can benefit equally and gender inequality is not perpetuated.

Monitoring & Evaluation

Monitoring and evaluation throughout the step-by-step approach will allow countries to track progress in meeting goals, measure results in achieving established goals, codify lessons learned, evaluate feedback, ensure accountability vis-à-vis project partners, donors and stakeholders, and ultimately improve the quality of follow-up programmes and projects for sound management of chemicals. Identifying and/or developing the "right" indicators that can be linked to national development goals and targets is particularly important for monitoring a country's progress in integrating sound management of chemicals into its Millennium Development Goal targets and national development plans. A multi-stakeholder approach during the identification and/or development of such indicators will ensure that a variety of potential indicators are proposed for selection.

The UNDP-UNEP Partnership Initiative for the Integration of Sound Management of Chemicals into Development Planning Processes: Maximizing Return on Investment

In support of SAICM, and in line with the Global Partnership between the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP), which aims to increase collaboration and joint activities between the two UN agencies to better support internationally agreed environment and sustainable development goals espoused by partner countries, UNDP and UNEP developed a Partnership Initiative to help countries to:

1. Identify specific areas of chemicals management that are likely to result in concrete environmental, health and economic benefits as a result of introducing sound management practices, and put in place a plan to begin addressing identified national priorities.
2. Assess the adequacy of national development strategies in terms of protecting the environment and human health, and determine to what extent identified national chemical management priorities can be integrated into national MDG-Based development planning.
3. Improve the integration of chemicals management priorities into national discussions, development processes, policies and plans.

The UNDP-UNEP Partnership Initiative draws on the unique support services provided by the two cooperating agencies. With funding secured from the Swedish Government (through the Swedish Chemicals Inspectorate - KemI) and the SAICM Quick Start Programme Trust Fund, the Partnership Initiative has been applying the "Integrating SMC" methodology in a number of pilot countries. These pilot countries' experiences and lessons learned will further inform strategic policy and economic guidance related to the interaction of sound management of chemicals and the MDGs.

Protecting Human Health and the Environment from Persistent Organic Pollutants



The Stockholm Convention on Persistent Organic Pollutants

The Stockholm Convention on Persistent Organic Pollutants (POPs) is a global treaty designed to protect human health and the environment from chemicals that do not degrade in the environment for long periods of time, are widely distributed geographically, and accumulate in the fatty tissues of humans and wildlife. Exposure to POPs can lead to serious health effects, including certain types of cancer, birth defects, developmental problems, dysfunctional immune and reproductive systems, and generally greater susceptibility to disease. Given the long-range dispersion of POPs on wind and water currents, no single government acting alone can protect its citizens or environment from exposure to POPs. The Stockholm Convention, which was adopted in 2001 and entered into force in 2004, requires countries that are parties to it to take measures to eliminate or restrict the production and use of all POPs that are intentionally produced.

The Convention also encourages countries to undertake continuous reductions in the amounts of POPs that are unintentionally produced, and to adopt the use of environmentally sound alternative processes and chemicals while promoting sound management of wastes and contaminated products. Up until now, the Stockholm Convention has targeted the elimination of an initial group of 12 priority POPs. However, at the May 2009 Conference of the Parties to the Convention (COP 4), nine new chemicals will be considered for action.

UNDP and the Stockholm Convention

UNDP, in its role as an implementing agency of the Global Environment Facility (GEF), has been supporting developing countries, and countries with economies in transition, in their efforts to reduce and eliminate POPs and meet the objectives of the Stockholm Convention.

Many of the challenges and priorities relating to the reduction and elimination of POPs require enhancement of national capacities with respect to human resources development and institutional strengthening, as well as increased availability

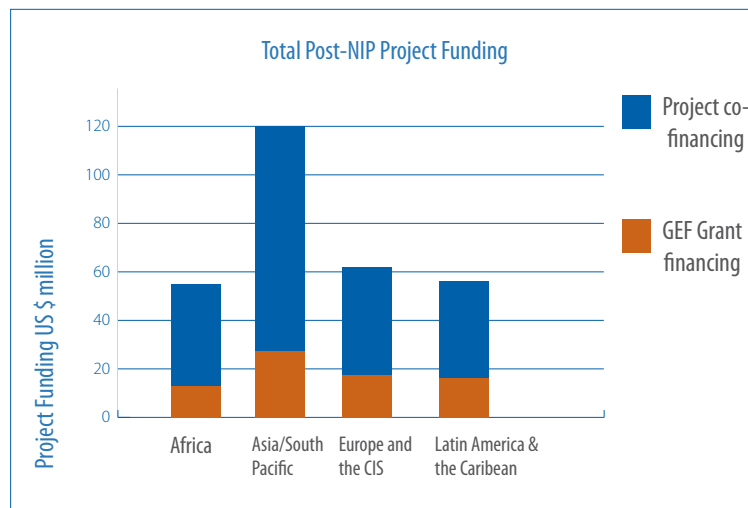
of technical knowledge and training opportunities. As the United Nations' global development network, with an on-the-ground presence in 166 countries, UNDP is well placed to assist countries in gaining the knowledge, experience and resources required to tackle POPs management and elimination issues.

UNDP assists countries in meeting their commitments under the Stockholm Convention, including:

- Meeting reporting obligations, sharing lessons learned and adopting global best practices.
- Building necessary capacity to implement POPs risk reduction measures.
- Reducing the effects of POPs on human health and the environment.
- Demonstrating effective alternative technologies and practices that avoid POPs releases.

During the early years of the Convention's implementation, much of the focus was on national planning, as well as building necessary national capacity, meeting countries' reporting obligations, and compiling National Implementation Plans (NIPs). Through the implementation of 'Enabling Activities' projects, UNDP has been instrumental in providing support to 29 countries in developing their National Implementation Plans, while supporting 40 Least Developed Countries in strengthening their capacity to develop National Implementation Plans through action plan training and skills building.

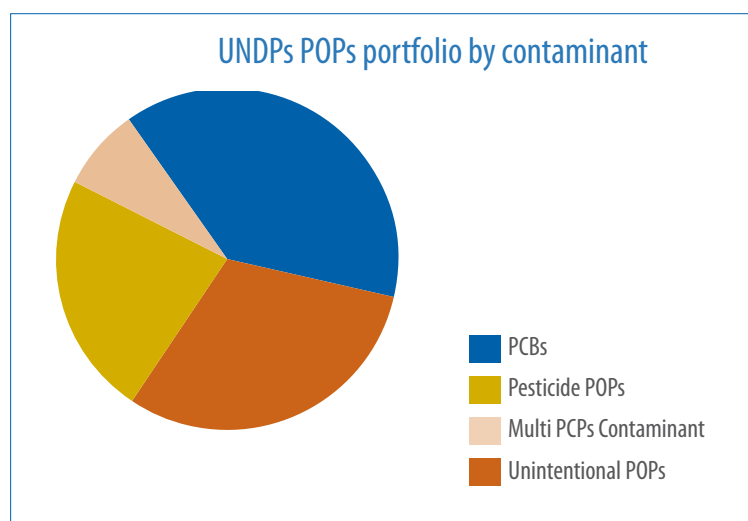
Since for most countries the preparation of POPs National Implementation Plans has now been completed, or is in a very advanced stage, country level action has been shifting from preparation of National Implementation Plans to implementation of activities to address POPs priorities included in those plans.



Graph 1. Geographical distribution of UNDP implemented post-NIP projects.

As of March 2009, UNDP was supporting 20 "post-National Implementation Plan" country activities, as well as three global programmes, with a combined portfolio of projects amounting to over US \$215 million (including US \$78 million of grants programmed through the GEF). (See Graph 1.)

UNDP-supported country projects and global programmes address a variety of national and Stockholm Convention priorities, as well as GEF Strategic Objectives. Through the implementation of "post-NIP" projects, UNDP supports the reduction and elimination of all types of POPs contaminants included under the Stockholm Convention (see Graph 2), covering a multitude of sectors and activities.



Graph 2. Distribution of UNDP's post-NIP projects by POPs contaminants

These sectors and activities range from POPs-free agricultural practices to reduction of unintentional POPs releases related to medical waste disposal, and from sound management of PCBs contained in equipment to minimization of the exposure levels of communities living close to contaminated areas.

In addition, UNDP has supported capacity development with respect to POPs management in a large number of countries. This has been accomplished through GEF-funded global skills development projects, as well as through UNDP-implemented projects that aim to integrate the sound management of chemicals into national development planning processes in support of the Strategic Approach to International Chemicals Management (SAICM).

Wherever possible and appropriate, UNDP POPs activities are undertaken within a country's framework for sound management of chemicals, to ensure national coordination among chemicals-related activities in support of regional or global conventions and agreements on chemicals. UNDP's key approaches to helping countries advance the sound management of chemicals include:

- **Campaigning and mobilization** – Advocacy and awareness building among stakeholders about POPs management and sound management of chemicals.
- **Analysis and capacity building** – Identification of innovative practices, policies and institutional reforms to help countries put in place effective POPs and chemicals management structures that are informed by strategic needs assessments and financial evaluations.
- **Technical assistance** – Specific impact-driven technical assistance for addressing national challenges and constraints affecting the management of POPs and other chemicals.

- **Monitoring and integration** – Assistance to countries in tracking progress on mainstreaming of POPs priorities and sound chemicals management into broader national MDG-Based development strategies.

The Sound Management and Disposal of POPs Pesticides

UNDP assists countries in the implementation of POPs pesticides projects, building countries' capacity to soundly manage and dispose of POPs pesticides. POPs multi-contaminant projects, implemented by UNDP, also include important POPs pesticide components.

With respect to the sound management and disposal of POPs pesticides, UNDP supports countries in:

- **Developing national capacity to safely manage and dispose of obsolete POPs pesticide stockpiles.** This involves training in how to identify, label, remove and transport obsolete POPs pesticides, improvement of national storage facilities and infrastructure to allow for the temporary safe storage of obsolete POPs pesticides, and identification of environmentally sound solutions for final disposal.
- **Promoting sustainable alternatives to POPs pesticides.** This involves testing of POPs-free alternatives, awareness building about POPs-free alternatives, support for the conversion of POPs production technologies into POPs-free production opportunities, and application of Integrated Pest Management practices where possible.

Management of PCBs

UNDP supports countries in their efforts to avoid environmental releases of polychlorinated biphenyls (PCBs), which

are contained in e.g. electric transformers and capacitors, as well as a variety of other applications and equipment.

UNDP helps countries create an enabling policy environment for POPs risk reduction measures and build their capacity to manage and dispose of PCB-containing equipment and wastes in an environmentally sound manner by:

- **Strengthening legal frameworks and improving enforcement capacity pertaining to PCB management** by addressing gaps in national PCB management regulations and creating an enabling environment for the environmentally sound management and destruction of PCBs.
- **Undertaking additional PCB inventories to identify remaining geographically dispersed PCBs and sensitive sites**, for example by identifying small and medium-sized enterprises possessing a portion of the remaining inventory.
- **Improving PCB management practices** (such as handling, storage, transport, and destruction) by providing technical guidance on management and safe disposal of PCBs and training for government officials, handlers of PCB-containing equipment, and other private sector entities, to ensure the sound management of PCBs throughout their life cycle.

- **Ensuring safe disposal of PCBs** in collaboration with PCB – containing equipment holders, by developing safe domestic disposal facilities, facilitating export of PCB waste to safe disposal facilities abroad, and improving coordination among PCB holders to lower the cost of transport and destruction of PCBs.
- **Implementing public awareness campaigns and communication strategies** to support all of the above activities.

Avoiding the Release of Unintentional-Produced POPs (UPOPs)

Certain POPs, such as dioxins, furans, HCBs and PCBs, are unintentionally formed and released during industrial processes, and from combustion, including uncontrolled waste burning, power plants, and waste incinerators. UNDP supports countries in their efforts to reduce and eliminate such unintentional releases by:

- **Gradual implementation of best available techniques (BAT) and best environmental practices (BEP) for existing sources.**
- **Use of best available techniques and best environmental practices for new sources.**



4

Phasing Out Ozone Depleting Substances: Protecting the Ozone Layer and Safeguarding the Global Climate



'By 2010, the Montreal Protocol will have prevented between 9.7 and 12.5 GtCO₂-eq from entering the atmosphere - five to six times the reduction target of the first commitment period (2008-2012) of the Kyoto Protocol'¹.

Ozone depleting substances (ODS) are a group of man-made chemicals that damage and deplete the ozone layer. This depletion allows increased levels of ultraviolet (UV) radiation to reach the earth's surface. In turn, increased UV radiation poses significant threats to human health by compromising immune systems and causing higher levels of skin cancer and eye cataracts. It also disturbs the ecological balance of watersheds, agricultural lands and forests.

The 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, which set targets for eliminating the production and consumption by 2010 of a range of ozone depleting substances, mostly the Chlorofluorocarbons (CFCs), has contributed to reversing the damage done to the ozone layer. Although many challenges remain, the Montreal Protocol has been recognized as a global success, as evidenced by the massive reductions in ODS use worldwide since it came into force.

In addition to depleting the ozone layer, most ozone depleting substances are also powerful greenhouse gases. Technical and scientific assessment panels under the ozone protection and climate change regimes have noted that the global decline in ODS emissions as a result of activities undertaken in support of the Montreal Protocol have resulted in greenhouse gas reductions equivalent to several billion tonnes of CO₂ equivalent. These enormous reductions make the Montreal Protocol a key contributor to the global fight against climate change.

Up to its 20th anniversary in September 2007, the Montreal Protocol had succeeded in facilitating the sustainable phase-out of over 95 percent of the ozone depleting substances it set out to control. However, challenges still remain, such as the continued production of ODS, the illegal trade in these substances, the escalating increase in production and consumption of hydrochlorofluorocarbons (HCFCs), and the steady growth of

¹.Velders, Andersen, Daniel, Fahey and McFarland. 2007. 'The importance of the Montreal Protocol in protecting climate'. *Proceedings of the National Academy of Sciences (PNAS)*, March 20 2007, Vol. 104, no.12, pp 4814-4819. Washington: PNAS.

ODS stockpiles (“banks”). The unsound disposal of ODS in banks can potentially jeopardize the ultimate repair of the ozone layer and pose significant threats to the global climate.

These challenges moved the Parties to the Montreal Protocol to take important decisions in September 2007 that led to an accelerated phase-out schedule for HCFCs, and to also urge its Parties and the Multilateral Fund for the Implementation of the Montreal Protocol (MLF) to take action with respect to the recovery and destruction of ODS banks.

UNDP Activities Supporting Compliance with the Montreal Protocol

With financial support from the Multilateral Fund, the Global Environment Facility and bilateral donors, UNDP is working with a broad range of partners, including governments, industry, representative organizations such as technical associations, agricultural institutes, academia and civil society, in helping developing countries and countries with economies in transition to adopt and implement strategies that preserve the ozone layer while safeguarding the global climate.

To date, UNDP has been managing a global programme of over US\$ 500 million to provide financial and technical assistance to more than 100 countries, enabling them to phase out the use of ODS in activities such as foam production, refrigeration and air-conditioning manufacturing and servicing, aerosol and solvents applications, fire protection, and crop fumigation. In total these projects will prevent over 63,000 tonnes of ODS from being released into the earth’s atmosphere.

UNDP assists its partners in complying with Montreal Protocol targets through:

- **Capacity Development** – Assisting governments to develop more effective national policies and programmes to meet ODS elimination targets, including development of country programmes related to ODS, institutional strengthening, and performance-based national phase-out management plans.
- **Technical Assistance, Training and Demonstration Programmes** – Providing technical support and information dissemination regarding ozone and climate friendly technologies and alternative substances 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/ climate friendly technologies.
- **Increased Access to Funding** – Supporting countries in securing financial support from the MLF to meet compliance with the Montreal Protocol, and assisting in identifying and mobilizing additional financial resources to address climate co-benefits from the GEF, carbon markets, bilateral donors, and other sources.

introduced as substitutes for ozone-damaging chlorofluorocarbons (CFCs) in the early 1990s and were instrumental in allowing a smooth transition from CFCs. However, at the time it was acknowledged that these chemicals with considerably lower ozone depleting potential were transitional and had to eventually be phased out.

Many HCFCs have high global warming potential, some up to 2000 times that of CO₂, and thus contribute significantly to climate change. HCFC production and consumption increased dramatically over the past two decades, mainly due to the economic growth experienced in developing countries and resulting market penetration of appliances using HCFCs, such as air conditioners. With the escalating use of HCFCs, the threat to the ozone layer and the global climate became more clear and imminent.

Phasing out HCFCs

HCFCs (Hydrochlorofluorocarbons) are chemicals that are also controlled by the Montreal Protocol. Their production and consumption was targeted for phase-out by 2040. While some HCFCs, such as HCFC-22, were traditionally used as refrigerants, many HCFCs were

Consequently, in 2007 the Parties adjusted the Montreal Protocol setting an accelerated phase-out schedule for HCFCs (Decision XIX/6). The adjustment will not only contribute to an earlier repair of the ozone layer but will also result in mitigation of emissions amounting to about 16 GtCO₂-eq.



The first two HCFC control steps are a 2013 “freeze” of HCFC production and consumption (the baseline being the average of 2009 and 2010) and a subsequent reduction of 10% by 2015.

In order to achieve these reductions, the implementing and bilateral agencies, with financial assistance from the MLF, are helping countries to prepare and implement their HCFC Phase-out Management Plans (HPMPs).

Managing ODS banks

In the global fight against climate change, all economically and technically feasible measures to reduce emissions of greenhouse gases are being actively pursued. The opportunity exists to prevent emissions of significant quantities of ODS from existing stockpiles, and from products that are discarded because they are no longer useful, or because they are replaced in connection with energy efficiency programmes. The Technology and Economic Assessment Panel (TEAP) estimated² that currently in developing countries 4 to 5 GtCO₂-eq are contained in “ODS Banks”. If not properly managed and/or destroyed, these ODS will harm the ozone layer and climate system.

Against this background the Montreal Protocol Parties agreed in 2008 to instruct the Multilateral Fund to finance pilot projects for the recovery and destruction of ODS banks as soon as possible. Pilot projects will be instrumental in helping to determine the economic feasibility of collection and destruction strategies, and their results will help to identify and secure funding necessary to collect and destroy ODS banks on a larger scale.

UNDP and the Carbon Finance Agenda

Over the last five years, UNDP has been an active participant in the carbon finance arena, and in June 2007 launched the

MDG Carbon Facility. The facility offers project development and management services to emission reduction projects, and operates within the frameworks of the Clean Development Mechanism (CDM) and Joint Implementation (JI), the market-based mechanisms under the Kyoto Protocol that allow developed countries to meet their compliance targets by financing greenhouse gas emission reduction projects located in other countries.

The MDG Carbon Facility is an innovative mechanism for harnessing the vast resources of the carbon market in order to bring long-term sustainable development and poverty reduction benefits to a wider range of developing countries and project types, particularly in those countries that are currently under-represented in the carbon market.

One of the areas in which UNDP’s MDG Carbon Facility is seeking to expand its activities is the rapidly increasing voluntary emission reduction market. An expansion of its scope is foreseen with respect to non-Kyoto gases, in particular the funding of suitable projects that aim to phase-out ozone depleting substances, an area in which UNDP has long-standing expertise. UNDP’s current role as Lead Agency for a significant number of countries seeking to phase out HCFCs puts it in a unique position to help countries identify and develop appropriate greenhouse gas emission reduction projects while building market credibility and managing risks appropriately.

UNDP believes that a central requirement for any successful entry into carbon finance, whatever form is taken (voluntary, compliance, fund-based), is the establishment of a robust oversight framework.

² TEAP report “Response to Decision XVIII-12- August 2007

Reducing Chemical Pollution of the World's Waters



Access to clean water plays a pivotal role in achieving sustainable human development, including poverty reduction. However, chemical pollution of water resources is one of the major threats to the achievement of sustainable water resources development and management. Chemical pollution can be caused by: poorly treated or untreated municipal and industrial wastewater; pesticide and fertilizer run-off from agriculture; spills and other ship-related releases; mining; and other sources. It is one of the contributing factors to the current global crisis in which nearly a billion people lack access to safe drinking water.

UNDP's response to this water crisis has been to emphasize an integrated approach to water resource management through effective water governance, referring to the range of political, social, economic, and administrative systems to develop and manage water resources and the delivery of water services at different levels of society. An integrated water governance system comprises the mechanisms, processes, and institutions through which all involved stakeholders, including citizens and interest groups, articulate their priorities, exercise their legal rights, meet their obligations and mediate their differences.

UNDP's strategy in strengthening water governance—and thereby boosting progress toward the MDGs—includes:

- Incorporating water management, water supply and sanitation into national development and poverty-reduction strategies.
- Catalyzing financing for improved water governance.
- Supporting and participating in global, regional, national and local dialogues on water governance.
- Building capacity to manage water resources effectively.
- Promoting women's empowerment and human rights as essential components of effective water governance.

As one of the implementing agencies of the Global Environment Facility (GEF), UNDP administers and implements an important programme on International Waters, assisting 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 of UNDP-GEF's International Waters funding is used to prevent or reduce chemical pollution originating from land-based human activities – including agriculture, industry, mining, oil and gas exploitation, and wastewater management – that place ecological stress on marine and freshwater systems and degrade them, often affecting their use by another country or community that shares the resources.

Examples of types of UNDP supported projects that aim to reduce chemical pollution of international waters include:

- Projects implementing stress reduction measures in major trans-boundary water bodies that result in measurable reductions in pollution loads and evidence of ecosystem recovery, through the introduction of cleaner production technologies, transfer of environmentally sustainable technologies and practices, sustainable financing and business

models, harmonized legislation and improved environmental monitoring..

- Projects leading to a reduction in the release of mercury into the environment from artisanal gold mining, by supporting mining policy reforms, transferring sustainable mining technologies and practices, and introducing sustainable livelihood options.
- Creation of artificially engineered wetlands treating municipal wastewater, for national and regional replication.

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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.

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UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)

UNDP is the UN's global development network, an organization 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, environment and energy and 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.

Sound management of chemicals is regarded by UNDP as an important component of the global poverty reduction effort. As an implementing agency of the Multilateral Fund for the Implementation of the Montreal Protocol (MLF), the Global Environment Facility (GEF), the Strategic Approach to International Chemicals Management (SAICM) Quick Start Programme Trust Fund, and a multitude of bilateral donors, UNDP is working with a broad range of partners, including governments, industry, technical associations, agricultural institutes, academia and civil society, to help developing countries and countries with economies in transition adopt and implement strategies that target environmental preservation and sustainable development and aim to achieve the objectives of chemical-related multilateral environmental agreements.

Further UNDP support for international cooperation and coordination to improve chemicals management is provided through our participation as an observer in the Inter-Organization Programme for the Sound Management of Chemicals and membership on the Implementation Committee of the SAICM Quick Start Programme Trust Fund, as well as through interagency coordination meetings hosted by the GEF and MLF Secretariats.

ENVIRONMENT AND ENERGY at UNDP

Environment and energy are essential for sustainable development. The poor are disproportionately affected by environmental degradation, and lack of access to clean, affordable energy services, which is why the protection and preservation of the environment is a fundamental development issue. The poor depend heavily on the earth to make a living but when their environment is degraded as a result of poor sanitation, air pollution, loss of biodiversity and climate change, among else, poor communities are hit first and hardest.

UNDP helps countries strengthen their capacity to address environmental and energy challenges at the global, national and community level, by seeking out and sharing best practices, providing innovative policy advice and linking partners through projects that help people in developing countries to build sustainable livelihoods. UNDP helps governments make smarter budgeting and investment decisions, using traditional Official Development Assistance (ODA) as a catalyst to assess, access, sequence and manage funds and facilities, including new 'green' financial resources. When countries start planning how to finance their development and to coordinate ODA, UNDP is called to the table for advice.

UNDP's environment and energy work focuses on four priority areas:

- Incorporating environmental issues into the foundations of all development planning.
- Mobilizing finance to improve environmental management.
- Addressing the increasing threats from climate change.
- Building local capacity to better manage the environment and deliver the services it provides, especially water and energy access to the poor.

UNDP's Environment and Energy Group (EEG), is part of the Bureau for Development Policy (BDP) and is structured into three main clusters to best support UNDP's priority areas: Natural Resources, Climate Change and Energy Access, and Ozone Depleting Substances and Chemicals (ODS and Chemicals).

The ODS and Chemicals cluster takes the lead in all chemicals-related programmes, working with different funding sources, identifying synergies among MEAs, and integrating them into its programme, while searching for holistic solutions. UNDP's ODS and chemicals programme assists countries in implementation of the Montreal Protocol, the Stockholm Convention and other chemicals-related conventions, and aims to ensure that synergies between ozone and climate-related activities are recognized and resources for potential financing identified.

UNDP is working closely with other UN bodies and international agencies to ensure that developing countries get the support they need and that our environment gets the protection it deserves. UNDP is one of the implementing agencies of the Global Environment Facility (GEF), the world's largest fund for protecting the environment, as well as the Multilateral Fund for the Implementation of the Montreal Protocol (MLF). In line with the Global Partnership, UNDP and UNEP work closely together on implementation of the Montreal Protocol and Sound Management of Chemicals activities. Through the joint Poverty-Environment Initiative (PEI), UNDP and UNEP are also working together to help countries integrate environment issues into their poverty reduction strategies.

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