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2011 Annual Review of UNDP portfolio financed by GEF Chemicals Focal Area

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Introduction and overview of the portfolio

The use of chemicals permeates modern life. Chemicals play an important role with respect to development through the production and use of agricultural chemicals, refrigerants, life-saving medicines, aerosols, purification agents for treating drinking water supplies, fire-fighting chemicals, polyurethane foam to better insulate buildings, and mercury used in medical devices, and so on. However, the choice and use of chemicals can, in absence of good management practices, pose significant risks to human health and the environment and generate hazardous waste.

Effects on human health and the environment can be calamitous, as in the case of the depletion of the ozone layer, oil spills, large accidental releases of industrial chemicals, acute pesticide poisoning, and global warming related to the use of high global warming potential (GWP) substances. 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 chemicals and hazardous waste, due to their occupations, living conditions, lack of knowledge about safe handling practices, limited access to sources of uncontaminated food and drinking water, higher exposure to harmful ultraviolet (UV) radiation and the fact that they often live in countries where regulatory, health, and education systems are weak.

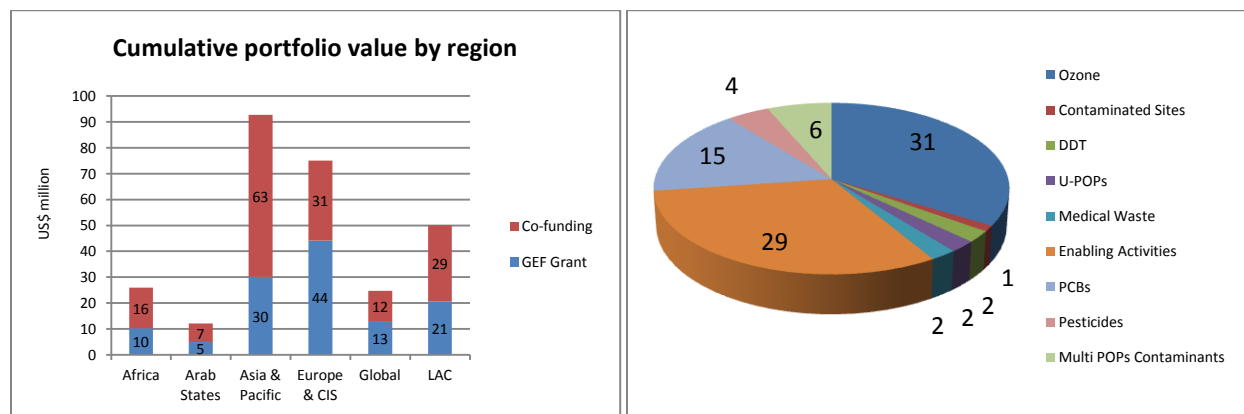
Ensuring sound management of chemicals is an important element of achieving the Millennium Development Goals. The GEF funded UNDP Chemicals project portfolio promotes the sound management of chemicals as an important aspect of our work to:

- reduce global poverty and promote human health through avoiding exposure to POPs, mercury and hazardous waste releases, and
- reduce stratospheric ozone depletion with the associated effect on global warming.

Under its chemicals program, the GEF provides incremental funding support to developing countries and countries with economies in transition for projects to phase out Persistent Organic Pollutants (POPs) and reduce POPs releases, phase out Ozone-Depleting Substances (ODS) and reduce ODS releases; and pilot sound chemicals management and mercury reduction. GEF-funded projects and activities are integrated into UNDP's programme of work on environment and energy. As of 1 November 2011, under its cumulative portfolio, financed by GEF Chemicals Focal Areas, UNDP is has been supporting 56 countries through 92 projects. The following charts provide an overall picture of the portfolio in terms of its size and target contaminants.



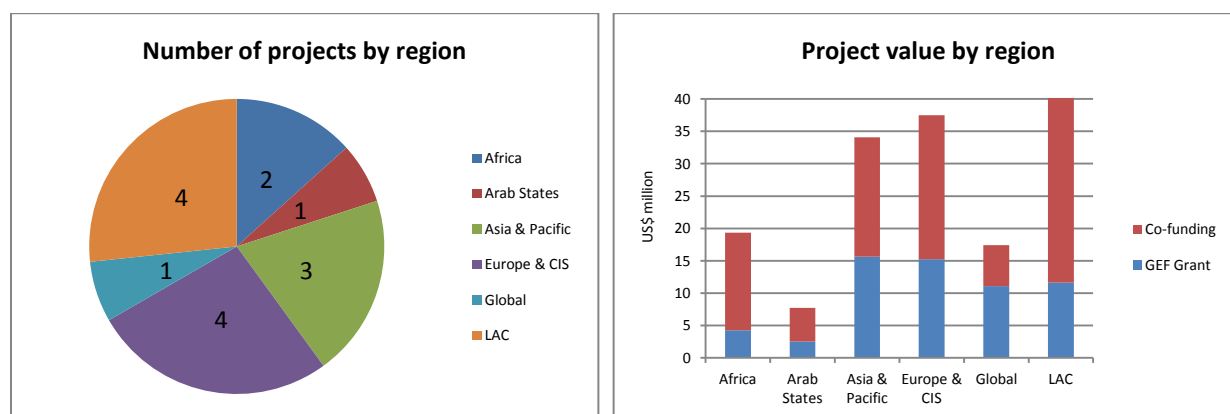
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This report assesses the performance in 2010-2011 of the portfolio of UNDP projects funded through GEF focal areas on chemicals. The report documents results, impact, lessons, and experiences emerging from the portfolio.

Portfolio results and lessons in 2010-11

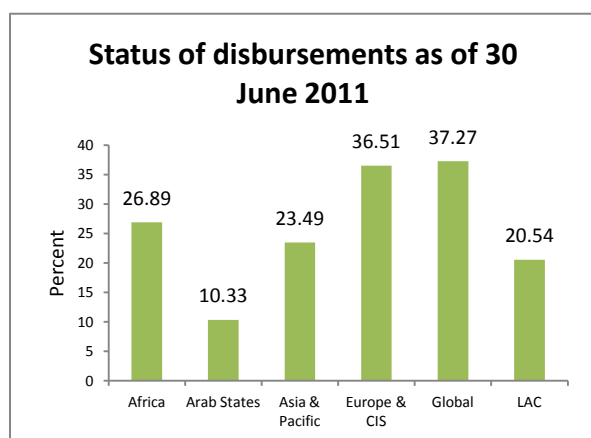
A total of 5 medium-sized (MSP) and 10 full-sized projects (FSP) were included in the 2010-2011 PIR reporting cohort under chemicals focal areas, representing \$60.8 million in GEF funding (including PDF/PPG) plus \$96.1 million in co-finance (amounts at GEF CEO endorsement). With the exception of one MSP which supports the countries in transition to phase out of hydrofluorocarbons (ozone-depleting substances), all projects in the reporting cohort belong to GEF focal area on Persistent Organic Pollutants (POPs). The charts below provide the distribution of projects and their budgets by regions.





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The overall estimated disbursements status of the 2010-2011 PIR reporting cohort as of 30 June 2011 is 28.51% of GEF grants. The status of disbursements per regions is shown in the chart below.



It is challenging to quantify the impacts of the portfolio considering the diversity of chemicals being addressed and management approaches. Several indicators have been formulated to assess the overall progress of the portfolio. The following table demonstrates the impact of the portfolio during the reporting period based on these indicators. As the table illustrates, the GEF funded UNDP projects continue to support substantial capacity strengthening thereby laying out necessary legal and regulatory frameworks as well as building

both individual and institutional preparedness for long-term POPs management in countries. Considerable attention to building specialists' capacity (the indicator captures training courses with more than 3 day curricula) should help in accelerating the progress on disposing and safeguarding POPs. Projects supporting the countries with economies in transition to phase-out the use of ODS also provided important side benefits in terms of reducing the emissions of almost 117 million tons of CO₂ equivalent.

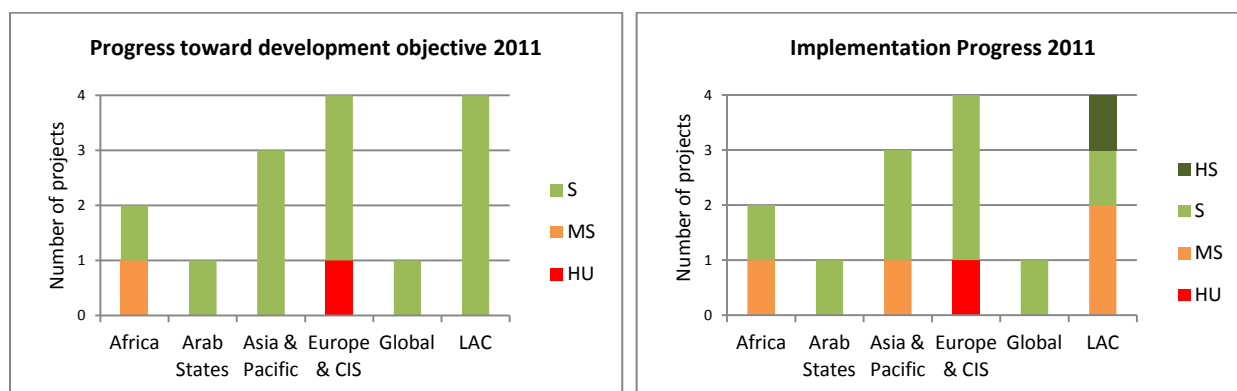
Indicator	Cumulative result
Number of national POPs regulative instruments adopted	10
Number of people trained in POPs management /alternatives	182,326
POPs disposed (metric tons)	863
POPs safeguarded (metric tons)	403
Annual reduction of un-intentionally produced POPs released (g TEQ/year)	5
Number of people for which high risk of POPs exposure reduced (annual)	2,850
Tonnes of ozone-depleting substances eliminated	1,789
Cumulative climate benefits: tonnes of CO ₂ -eq reduction ¹	116,684,847

¹ The emissions (tonnes of CO₂-eq) per project is calculated based on the cumulative phase out value (applying GWP values) subtracted by the amount that was phased in. Other factors, such as energy efficiency gains or losses, are not being taken into account in this calculation.



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The majority of the projects comprising the 2010-2011 PIR reporting cohort exhibited satisfactory implementation progress and satisfactory advance towards development objectives.



The analysis of projects results shows that the recipe of success depends on the application of holistic, including policy setting and demonstration of best practices, approach in the implementation of projects. This approach should combine activities to strengthen legal and regulatory frameworks for sustainable chemicals management with strong technical components on raising the capacity and piloting the use of safe and cost-effective approaches and alternatives as well as best available technologies for safe disposal of POPs and hazardous chemicals. This work should be accompanied targeted and extensive training all along. Project activities need to be carried out in a partnership with a wide range of stakeholders, including private sector. The absence of satisfactory progress in any of these areas may jeopardize the overall projects success.

Better chemicals management practices also provide indirect but tangible benefits in terms of improved income generation potential. For instance, in China, it has been observed that the POPs-free produce from project demonstration plots with low pesticide application can be sold at a premium price. It leads to higher incomes for farmers creating economic incentives for expanding pesticide-free plantations of vegetables.

The mechanisms of exchanging the information on best practices from similar projects in Kazakhstan, Kyrgyzstan and Mauritius helped to increase the effectiveness of project operations. Such information exchanges need to be further supported since they will also lead to time and cost savings for mobilization of technical inputs for project activities.

The following case studies provide more in-depth information about the thematic and country-specific context and achievements of selected projects in the portfolio.



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Demonstrating and Promoting Best Techniques and Practices for Reducing Health-Care Waste to Avoid Environmental Releases of Dioxins and Mercury (PIMS 2596)

The health sector is a major source of dioxin and mercury releases to the global environment, primarily as a result of low technology medical waste incineration and the breakage and improper disposal of mercury-containing devices such as thermometers and blood-pressure meters.

The Stockholm Convention gives priority to the promotion of waste treatment technologies and practices that are as effective as medical waste incineration and avoid the unintentional formation and release of POPs. However, healthcare sectors in many countries lack essential equipment and knowledge for proper waste treatment, as well as resources for training, technical assistance and policy development.

This project is a partnership between UNDP, the World Health Organization (WHO) and the international NGO Health Care Without Harm, as well as other major donors and stakeholders and is assisting seven countries – Argentina, India, Latvia, Lebanon, Philippines, Senegal and Viet Nam – in developing and sustaining best healthcare waste management practices in ways that are both locally appropriate and globally replicable.

In each participating country, the project is developing model hospitals to demonstrate best practices in healthcare waste management (HCWM). The project promotes the use of non-burn waste treatment technologies, waste minimization and segregation as well as safe mercury storage and alternatives to mercury-containing devices. An additional project in Tanzania is developing affordable and effective healthcare waste treatment technologies appropriate to conditions in much of sub-Saharan Africa.

The project has undertaken the following:

- It has filled a gap in global knowledge by developing guidance documents to help health facilities assess their HCWM situation and subsequently adopt best practices on minimizing unintentional releases of POPs and phasing out of mercury-containing devices and materials in hospital and dental clinics. The project also compiled information about non-incineration technologies commercially available around the world. These documents are found on a project website <http://www.gefmedwaste.org/>.
- Introducing best practices in the participating countries at facilities ranging from a large 3000-bed hospital in a low-income area to public and private hospitals with 50 to 500 beds in both urban and rural communities, to small clinics and remote health posts. The project is supporting centralized waste treatment facilities in Latvia, Lebanon and India that process from 300 to 2300 tonnes of healthcare waste per year, helping them optimize operating procedures of already installed non-incineration technologies.



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- A variety of state-of-the-art in-house non-incineration treatment technologies are being demonstrated. These include autoclave-shredder systems, rotating autoclaves, advanced steam treatment systems, microwave technologies, and specialized technologies for anatomical waste. To demonstrate the concept, the project modified and installed a low-cost autoclave and shredder at one district hospital in Tanzania. Based on technical specifications developed by the project, bidding processes are underway for non-incineration technologies intended for health facilities in the Philippines and Senegal. In India the project supported a reduction in dioxin emission from an incinerator at a central treatment facility through the installation of emission control devices, future stack test will demonstrate the amount of dioxins reduced and encourage replication of such practices across India.
- The project is working on low-cost appropriate non-incineration technologies for low-income areas with the University of Dar es Salaam to meet Sub-Saharan needs. An international advisory committee has reviewed the designs and prototype building and testing are underway.
- National policies and regulations pertaining to HCWM and the management and phase-out of mercury-containing devices have been reviewed and are being improved in India, Latvia, Lebanon, Philippines and Viet Nam. Some project countries and cities, such as the Philippines, Argentina, and New Delhi, have already established policies for the phase-out of mercury-containing medical devices.
- The project has developed a range of training materials to ensure the sustainability of results.

The project's ultimate goal is protection of public health and the global environment from the impacts of dioxin and mercury releases. If replicated nationally and sustained, best practices and techniques initiated during the project are expected to substantially reduce annual releases of dioxins (by 187 g I-TEQ) and mercury (by 2,910 kg) to the environment from the participating countries' healthcare sectors.

Alternatives to DDT Usage in the Production of Antifouling Paint in China (PIMS 3664)

Anti-fouling paint is applied to the underwater hulls of boats to prevent the accumulation of slime, algae, weeds, barnacles and tube worms, which can cause structural damage, corrosion, and increased friction resulting in higher fuel consumption and lower navigational efficiency and profitability. China is still applying DDT-based anti-fouling paint on fishing vessels, and with a significant number of vessels operating along its extensive coast line, is very keen to end the use of DDT as an additive in the production of anti-fouling paints. This would reduce the release of DDT from Chinese fishing vessels into the marine environment by an estimated 250 metric tons annually.

The project's objective is to find technically feasible, economically viable, and environmentally friendly non-toxic alternatives to DDT-based anti-fouling paints. In addition, the project aims to establish a long-



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term mechanism for protecting the marine environment and human health from chemical pollution originating from anti-fouling systems. Finding non-toxic alternatives is of the utmost importance in China, because it has a large and growing ship-making and shipping industry. In addition to phasing out DDT in marine paints, the project will also provide alternatives for other hazardous biocides used in anti-fouling applications, particularly tributyltin (TBT).

The project is financed in part by the GEF, with co-financing contributions from China's central and local governments, and the Chinese private sector.

To date, the project has:

- Introduced an international environmental risk management system for marine paints adapted to the situation in China.
- Created an enabling policy environment for the phase-out of DDT-based anti-fouling paint, by facilitating the revision and/or establishment of applicable regulations and standards.
- Established a voluntary certification and labeling programme for marine paints.
- Facilitated the closure of the Tianjin Chemical Plant, the supplier of DDT for antifouling paint production.
- Tested 58 alternative anti-fouling paints free of DDT or other POPs and selected viable environment friendly alternatives for three pilot areas and started promoting the DDT-free alternatives among end users.
- Developed an incentive programme to promote the alternative products in market.
- Improved knowledge of POPs-free alternatives through public awareness and advocacy.

The project conducts pilots in three coastal areas of China, selecting alternatives by rounds of panel and ship experiments to test the anti-fouling efficacy and sequential environmental risk analysis and environmental impact assessment to ensure the environmental soundness. The voluntary certification and labeling programme, newly developed incentives programme and enabling policies environment established with the support of the project will coherently work for the promotion of alternatives free of DDT in China's market.

Environmental Sound Management and Destruction of PCBs in Mexico (PIMS 3692)

The Federal Ministry of Environment of Mexico (SEMARNAT), with support from GEF and UNDP, is working towards eliminating the threat from PCB to human health by instituting necessary legal framework, building capacity, raising awareness and piloting innovative schemes to cost-effectively manage and destroy PCBs.



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In Mexico, originally estimated national inventory of about 31 thousand tons of PCB containing materials above the norms indicated that the whole country is affected by PCBs. As some of the sources of PCBs are located in populated areas and sensitive sites such as hospitals, water supply wells, education establishments, etc. the PCBs have a potential to adversely affect society, especially children and workers, if left unchecked and unmanaged. Considering the extent of the PCB issue and the potential risks to human health and the environment the Government of Mexico and UNDP initiated in 2009 a project, co-funded by GEF, for addressing the situation.

The project, executed in partnership with SEMARNAT, aims at strengthening the capacity for sound management of PCBs, materials and equipment which may contain or may be contaminated by PCBs. To achieve these goals, the project is implementing various activities from legal review and inventory of PCBs to piloting innovative schemes for PCB management and destruction to awareness raising on the health and environmental consequences of poor PCB management. The project is also expected to destroy 3,215 tons of PCBs which constitute about 10.6% of total estimated remaining national inventory.

The first stage of the national PCB inventory verification undertaken by the project has found PCB containing oils (over 50 ppm and most of it under 600 ppm) in approximately 5.7% of the transformers when sampling and analyzing oils in 1,900 transformers in 618 sites located in 19 (out of the 32) states in the country. Inventory verification shows that there could still be more than 45,000 tons of PCB containing materials in the country. Moreover, half of the samples with PCBs come from sensitive sites: hospitals, water supply wells for agriculture and cities, food processing facilities and education centers. Out of 105 transformers sampled in 39 hospitals, PCBs have been determined in 9; 8 out of 109 transformers sampled in water wells had traces of PCBs. Additionally, transformers at airports and railroad installations were sampled. Transformers in water wells and hospitals in rural communities have yet to be sampled in detail.

Based on the analysis of the current management practices and a regulatory gap assessment, the project has proposed a revised technical Standard for PCB management. The proposed Standard, as a federal regulation, will emphasize control of electrical maintenance workshops at municipal and provincial levels in order to assure proper management of PCBs containing oils by avoiding poor management practices resulting in further PCB cross contamination of transformers in Mexico. This revised Standard has been presented to federal authorities for review and adoption.

Project activities in pilot areas allowed determining that the cross contamination caused by bad practices of electrical maintenance workshops is the main source of PCB containing materials. The project has developed a general recommendations document for small and medium-size enterprises (SME) on how to manage their electrical transformers, particularly urging them to select for servicing



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those maintenance workshops which assume responsibility and undertake necessary correction measures in case PCB contamination is detected.

Since concentration of PCBs in oils is mostly below 600 ppm and thirty percent of samples in the inventory contain PCB between 5 and 50 ppm, which indicate cross contamination related to electrical maintenance workshops, the project analyzed the hazardous waste management practices at 7 maintenance facilities. Based on the findings the project put forward recommendations to lower exposure risks for employees handling PCB containing materials and to ensure overall environmentally sound management of PCBs and other hazardous waste at these facilities. These recommendations were further refined on the basis of the experience during the training of over 40 workers of these facilities and a “Best practices technical guide for electrical maintenance workshops” has been developed.

The project is supporting the strengthening of government and private entities capacities regarding inspection and chemical analytical techniques. For example, targeted two-day training sessions for over 350 participants from authorities at federal, state and municipal levels, SMEs, chemical laboratories and even fire and civil protection services have been organized; a Guide on best practices for PCBs inspection at local level authorities has been prepared. In order to stimulate the responsible PCB waste management and increase awareness among SMEs, the project has handed the acknowledgements of non-existence of PCBs to about 500 enterprises and sensitive sites operators during public events with representation of local authorities and press coverage for awareness rising.

SEMARNAT’s earlier study in the community of San Felipe Nuevo Mercurio (300 inhabitants) in the state of Zacatecas found above limits PCBs content in blood level of the population. As a particular case, during the inventory of PCB in the country, the project confirmed SEMARNAT’s information that people in a poor community used barrels, which formerly stored illegally imported PCB contaminated oils, as building materials and water containers. As part of the awareness and outreach efforts, the project has disposed and replaced 252 tons of PCB contaminated materials in this small community.

The high cost of destroying small quantities of PCBs is a barrier for small and medium-sized enterprises and operators of sensitive sites, since they cannot take advantage of the economies of scale with respect to costs of transport, interim storage and decontamination and/or destruction. Therefore, the project has devised a PCB management system that envisages different actions, from identification of PCBs, their safe storage and transport through to their destruction and appropriate reporting to government. This Integrated Services Management System (ISMS) also includes capacity building of inspection authorities and analytical laboratories as well as an awareness raising and communication strategy.



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Among the benefits, this will allow a large number of PCB possessors to pool their waste and achieve environmentally sound disposal of PCBs at a reasonable cost. The ISMS was developed and tested as a pilot in a State of Guanajuato (5.5 million inhabitants) and in Cuautitlán Izcalli (a municipality with 600,000 inhabitants). The ISMS is being further tested and refined in 3 other states of the country: Nuevo Leon, Chiapas and Distrito Federal (Mexico City). The ISMS will be later expanded to the whole country. Through ISMS 33 tons of contaminated transformers and oils have been destroyed directly, another 30 tons by enterprises, 252 tons of contaminated materials in the small community and 337 tons incorporated at the official register. Results so far demonstrate that the unit cost of destruction for pooled PCB waste (where companies can bring as little as one piece of equipment) is already 25% lower than before the project and starting to approach the cost for large possessors of PCB containing equipment like Mexico's Federal Electricity Commission (CFE).

The experience of the project so far demonstrates that, in order to sustainably manage PCBs use and destruction without harm to human health and environment, it is essential to adopt a comprehensive approach to the issues, particularly considering size of the country and dispersion of contaminated equipment. It is important that the destruction activities are economically feasible and have an enabling regulatory environment. Active involvement and increased awareness of SMEs and sensitive sites operators will help to ensure the absence of illegal and improper use of PCB containing materials as well as control of maintenance activities to prevent further cross contamination. The results of the project will assist SEMARNAT in implementing the sound management of PCBs at national scale.

Sustainable management of POPs in Mauritius (PIMS 3779)

The overall objective of the project is to address the first two national priorities related to the reduction and elimination of POPs as identified by the Republic of Mauritius in its 2005 National Implementation Plan (NIP): i) disposal of obsolete POPs chemicals and clean-up of POPs-contaminated areas; and ii) development of alternative strategies for malaria vector management with reduced—or no—reliance on DDT.

Among the main achievements is the re-packaging of DDT flakes into plastic bags and identification of a sub-contractor for the safe POPs waste disposal. It is expected that virtually all POPs wastes found in Mauritius (100 tons have been identified so far which consist of DDT, other POPs pesticides in small quantities and PCBs materials) will be exported for safe disposal in late 2011.

Based on a risk assessment ("Risk analysis of the (re-)introduction of vector-borne diseases into Mauritius with emphasis on the role of vector control") undertaken as part of the project, it was recommended that DDT should not be used for residual spraying at airports and seaports and that instead of DDT, pyrethroids (specifically, lambda-cyhalothrin 10CS) and insecticide treated bed nets (ITN) should be made available for emergency malaria purposes. Since the project's launch no malaria



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outbreak occurred, only imported cases of malaria have been observed. As a result of the project's awareness building activities and the risks assessment report, DDT spraying will be discontinued in the future while to date, as a result of awareness raising and trainings, during the first half of 2010 the annual use of DDT in the amount of 600 kg was already reduced to 300 kg.

As part of efforts to reduce the dependence on DDT for controlling the spread of malaria, the project is helping Mauritius to develop an Integrated Vector Management (IVM) strategy. IVM is being piloted at village level to cross-check the effectiveness of the implementation of IVM strategy and efficacy of the identified IVM elements, such as the local surveillance of mosquito breeding places, safe use of chosen pyrethroids alternative.

Several project activities and the development of guidance documents have been important contributing factors in further developing the capacity of project stakeholders in safeguarding the existing obsolete stockpiles. First and foremost, the backstopping of project activities by a Project Steering Committee involving several line Ministries, private and non-governmental stakeholders provides for a continuous platform for inter-disciplinary discussion, information exchange and project improvement. In addition, the development of guidance documents on the safe management of POPs stockpiles "Safeguarding of the POPs wastes", "Identification of POPs chemicals and certified containers", "Legal Review of regulations and laws governing the storage, handling, and disposal of POPs, and the potential remediation of highly contaminated POPs sites on Mauritius" have led towards adoption of good practices.

Conclusions and recommendations

UNDP-GEF Chemicals portfolio helps countries in meeting obligations under relevant multilateral environmental agreements in the context of advancing the country towards meeting the Millennium Development Goals.

The review for 2010-11 shows that more than 90 % of the portfolio of UNDP projects funded through GEF chemicals focal areas performed from marginally satisfactory to highly satisfactory in meeting their respective Development Objective (DO) and Implementation Progress (IP). Only one project has performed highly unsatisfactory in meeting both DO and IP.

In addition to substantial capacity strengthening work, the portfolio has also demonstrated considerable progress in helping the countries to safely dispose and safeguard persistent organic pollutants.

In general, the 15 projects yielded the following good practices and lessons learned during the reporting period:



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- To be successful, the projects need to adopt and apply holistic multi-pronged strategies combining the work on legal and regulatory frameworks with piloting best ways of safeguarding with contaminants and extensive capacity building.
- Better chemicals management practices also provide indirect but tangible benefits in terms of improved income generation potential for farmers. In one project it has been observed that the produce from project demonstration plots with low pesticide application can be sold at a premium. It leads to higher incomes for farmers creating economic incentives for expanding pesticide-free plantations of vegetables.
- The mechanisms of exchanging the information on best practices from similar projects helped to increase the effectiveness of project operations. Such information exchanges need to be further supported since they will also lead to time and cost savings for mobilization of technical inputs for project activities. It is important to join networks for information and knowledge exchange, specifically the PCBs Elimination Network (PEN) to take advantage of international experience and best practices in safe PCB management and disposal and share experiences of UNDP-GEF projects particularly in terms of national PCB inventory, communication and capacity building.
- The issuance of permits for transboundary shipment of hazardous waste follows stringent international and national regulations and consequently requires a lot of time.
- The innovative approaches to project implementation such as application of performance based payment mechanisms serve as effective incentives for project implementers resulting in timely and successful implementation of project components.
- A thorough understanding and analysis of the market conditions and trends are of utmost importance when devising technology demonstration projects for safe disposal of POPs.
- The work of projects at the country and government level may bring positive spill-over effects at the local level and for vulnerable part of population. For instance, in Mexico UNDP-GEF project increased awareness of local population about potential negative impact of PCB contaminated material led to safe disposal and replacement.

Project websites

Project Title	Website
Demonstrating and Promoting Best Techniques and Practices for Reducing Health-Care Waste to Avoid Environmental Releases of Dioxins and Mercury	http://www.gefmedwaste.org/ (Global) http://www.progedime.sn/ (Senegal) http://www.lvif.gov.lv/?object_id=19168 (Latvia)
Improvement of DDT-based production of Dicofol from DDT and Introduction Technology for Leaf Mites Control in China	http://www.china-pops.org/xmwz/sismc/ http://bit.ly/uphgo9
Design and Execution of a Comprehensive PCB Management Plan for Kazakhstan	http://www.undp.kz/projects/center_view.html?id=213
Development of the National Capacities for the Environmental Sound Management of PCBs in Uruguay	http://www.dinama.gub.uy/
Alternatives to DDT Usage in the Production of Antifouling Paint in China	http://www.china-pops.org/ http://bit.ly/ssFHRJ
Safe PCB Management Programme in Morocco, Pillar	http://www.popmaroc.gov.ma/



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Sustainable management of POPs in Mauritius	http://bit.ly/vt7KP2
Establishment of PCB Waste Management and Disposal System in Brazil	http://bit.ly/rPN111
Environmentally sound management and phase-out of PCBs in Kyrgyzstan	http://bit.ly/sdZS1Z

Abbreviations and acronyms

BAT	Best Available Technologies
BEP	Best Environmental Practices
CEIT	Countries with Economies in Transition
CEO	Chief Executive Officer
CFE	The Comisión Federal de Electricidad (Federal Electricity Commission of Mexico)
CIS	Commonwealth of Independent States
COP	Conference of Parties
DDT	Dichlorodiphenyltrichloroethane
DO	Development Objectives
EU	European Union
FSP	Full-sized Project
GEF	Global Environment Facility
GWP	Global Warming Potential
HCFC	Hydrochlorofluorocarbons
HCWM	Healthcare Waste Management
HS	Highly Satisfactory
HU	Highly Unsatisfactory
IMO	International Maritime Organization
IP	Implementation Progress
IPM	Integrated Pest Management
ITN	Insecticide Treated Bed Nets
IVM	Integrated Vector Management
LAC	Latin America and the Caribbean
MOP	Meeting of Parties
MS	Marginally Satisfactory
MSP	Medium-sized Project
NIP	National Implementation Plan for the Stockholm Convention
PCB	Polychlorinated biphenyls
PDF	Project Development Facility
PEN	PCBs Elimination Network
PIR	Project Implementation Report
POP	Persistent Organic Pollutants
PPG	Project Preparation Grant
PPM	Parts Per Million
S	Satisfactory
TBT	Tributyltin



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TEQ	Toxic Equivalent
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
UNITAR	United Nations Institute for Training and Research
UTE	Usinas y Terminales Eléctricas (Uruguay's government-owned power company)
WHO	World Health Organization



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Annex 1: Short summary of all projects included in the 2010-2011 PIR reporting cohort under chemicals focal areas

Africa

Capacity Building for PCB Elimination in Ghana (PIMS 3527)

Budget: US\$ 3,295,700 (GEF Grant) and US\$ 14,170,000 (Co-financing)

Rating: **Marginally Satisfactory** towards DO and **Marginally Satisfactory** for IP

Project objectives: The objective of the project is to strengthen the capacities and capabilities of government officials and stakeholders outside of government to address PCB identification, and manage existing sources of PCBs as well as their elimination/destruction, as identified as a priority in the National Implementation Plan for Persistent Organic Pollutants for the Republic of Ghana.

The project develops and implements a strategy, and the required steps, from the current unsustainable management of PCB-containing equipment to sound management and disposal practices. The strategy commences by strengthening the legal framework and the management capacity both within government institutions and among PCB holders. The project will also eliminate, as a first step, the PCB-containing equipment, mainly transformers, and in a second step start phasing out PCB-contaminated equipment. The project is expected to safely dispose of 40 tons of pure PCB oil and 120 tons of PCB contaminated oil. The project is the first major step to meet the obligations of Ghana under the Stockholm Convention.

Achievements so far: The project forged a strong partnership with the national private sector the (Electricity Company of Ghana, The Volta River Authority and the Ghana Grid Company) which is actively engaged and is providing inputs in the project through their substantive participation in the technical groups that have been established under the project. UNITAR is the executing agency under this project and provides its technical expertise while delivering the project inputs. Progress through June 2011 has been made in legislation, training activities and the localization of a PCB-storage place. Awareness campaign materials have been produced and publicized.

Lessons Learnt: The budget revision is a necessary and crucial process and should be initiated early before the close of the final quarter of the year.

Sustainable management of POPs in Mauritius (PIMS 3779)

Budget: US\$ 950,250 (GEF Grant) and US\$ 930,000 (Co-financing)

Rating: **Satisfactory** towards DO and **Satisfactory** for IP

Project objectives: The overall objective of the projects is the implementation of the first two priorities of the NIP. The project will provide assistance to Mauritius in the management of obsolete POPs chemicals and sites that are significantly contaminated by POPs. The safe disposal of POPs waste from Mauritius, besides the local benefits, serves the global purposes of eliminating POPs sources in the environment. Further, the project will also deal with cleaning up POPs contaminated sites in Mauritius on a pilot basis. The specific outcomes of the project are: i) A suitable legal and enforcement structure



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to sustain the outcomes of the project in the future; ii) A comprehensive awareness and responsible care program to make importers, distributors, users and the general public aware of the risks involved in the use of chemicals in general and POPs specifically; iii) An effective non-DDT based vector control program that will limit the chance of importing malaria and outbreaks of malaria; iv) Removal and disposal of all obsolete POPs chemicals; v) Removal and disposal of the few remaining transformers that have PCB containing oils that exceed international standards; vi) Remediation of all POPs contaminated sites that exceed internationally acceptable standards; and vii) To enhance the ability to develop and implement alternative strategies for malaria vector management with the ultimate aim to eliminate future use of DDT.

Achievements so far: The project has ensured regular coordination of stakeholders during this reporting period. The feedback received from stakeholders on particular issues related to the project implementation and the overall project strategy have been essential for joint decision-making across several Governmental parties. Among the main achievements is the re-packaging of DDT flakes into plastic bags and identification of a sub-contractor (EPE) for the safe POPs waste disposal. It is expected that virtually all POPs wastes found in Mauritius (100 tons have been identified so far which consist of DDT, other POPs pesticides in small quantities and PCBs materials) will be exported for safe disposal in late 2011. The disposal operation will be done in France at Tredi plant.

Further, the project facilitated an analysis and selection of effective DDT alternative chemicals such as pyrethroids (specifically, lambda-cyhalothrin 10CS). The availability of new alternatives further helped in reducing the annual use of DDT for preventive spraying in the airport and seaport areas (from 600 kg/annum to less than 300 kg/annum). These alternatives will be also used in urgent cases for in-door spraying, while the IVM strategy will recommend the use of bed nets as a normal measure against mosquitoes.

The IVM strategy has been almost formulated. Efforts on its decentralization are in place, and the project has succeeded in forming one local Committee on the strategy implementation in one participating village. An additional pilot village has expressed interest and will be implementing it soon in 2011. The project will also plan to involve some additional villages in piloting the decentralization of the IVM strategy. The work on piloting the new IVM strategy should be properly documented with evidence and recommendations on decentralization approaches, and submitted to the Government. It is important to note that all stakeholders agreed to establish a progress monitoring system to cross-check the effectiveness of the implementation of IVM strategy and efficacy of the identified IVM elements, such as the local surveillance of mosquito breeding places, safe of pyrethroids instead of DDT (which will be more suitable for in-door spraying), and protection with bed nets.

Finally, the project has facilitated an interest from the Government side to cover all three sites contaminated with in one contract for the soil clean-up which may increase the level of co-finance by approximately US\$ 600,000 from Government's resources. In the end, it is expected that the project will ensure cleaning of 18 m³ of DDT contaminated soil (at one site), and the Government will cover 270 m³ of soil (at two other sites).



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Lesson Learnt: It is important to carefully plan the project supported disposal activities since the issuance of permits for transboundary shipment of hazardous waste requires a lot of time and follows stringent international and national regulations.

Arab States

Safe PCB Management Programme in Morocco, Pillar II (PIMS 3714)

Budget: US\$ 2,532,900 (GEF Grant) and US\$ 5,173,200 (Co-financing)

Rating: **Satisfactory** towards DO and **Satisfactory** for IP

Project objectives: Management and environmentally sound disposal of polychlorinated biphenyls (PCBs), is one of the priority actions of Morocco's National Implementation Plan of the Stockholm Convention on Persistent Organic Pollutants (POPs).

In this context, the Government of Morocco, via its Department of Environment, is executing with the financial support of the Global Environment Facility (GEF) in joint collaboration with the United Nations Development Programme (UNDP) and United Nations Industrial Development Organization (UNIDO), a nation-wide programme to manage and dispose of PCBs in an environmentally sound manner. The joint UN collaboration in this programme is a best practice in the country.

The UNDP implemented part of the program "Safe PCB Management Programme in Morocco, Pillar I" will provide technical assistance to public and private sector actors for increasing the in-country capacity for sustainable management of PCBs. It aims to result in 3 outcomes: i) strengthened legal, policy and administrative framework for PCB management and disposal; ii) safe PCB management at PCB holder level introduced and further PCB sources identified; and iii) disposal of pure PCB containing equipment in participating industries.

The project will emphasize on capacity building to develop the legal and administrative systems as well as managing and disposing of industrial-sized equipment with pure or high concentrations of PCBs. In addition, safe management of all PCB contaminated material at holder and handler level will be increased. The approach of targeting pure PCB sources initially is in-line with priorities of Part II of Annex A of the Stockholm Convention. The overall tonnage of pure PCB to be destroyed within the framework of the project is 205 tons. This will, with equipment casings, total a disposal of 685 tons of PCB waste.

Achievements so far: Since its implementation, the programme has organized nation-wide training sessions to a diverse audience consisting of governmental personnel, customs officials, PCB-holders, public and private industries and entities, NGOs. These training sessions presented PCBs, their function and the dangers and risks they present, protection and prevention measures from contamination, as well as best practices in maintenance, dismantling and elimination of contaminated equipment. The programme has also completed strategic studies and assessments that are currently pending approval and will lead to the adoption of a PCB regulatory framework, with technical guidelines to PCB management and threshold values of PCB contamination in the environment and food products. Finally, during the 5th Conference of Parties (COP) of the Stockholm Convention, Morocco was a winner at the 2011 Stockholm Convention's PCB Elimination Network (PEN) Awards for its outstanding contribution to the PEN Magazine.



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Lesson Learnt: It is important to join networks for information and knowledge exchange, specifically the PCBs Elimination Network (PEN) to take advantage of international experience and best practices in safe PCB management and disposal and share experience particularly in terms of national PCB inventory, communication and capacity building.

Asia and Pacific

Improvement of DDT-based production of Dicofol from DDT and Introduction Technology for Leaf Mites Control in China (PIMS 3345)

Budget: US\$ 6,295,000 (GEF Grant) and US\$ 11,650,000 (Co-financing)

Rating: **Satisfactory** towards DO and **Satisfactory** for IP

Project objectives: This Dicofol project (PIMS 3345), together with the Antifouling Paint project (PIMS 3664) form a comprehensive strategy for China to eliminate the consumption of DDT in the production of dicofol and use of DDT as additive for antifouling paints production. DDT as one of the POPs with longest history of production and use is capable of trans-border long-range transport, bioaccumulate in human and animal tissue, biomagnify in food chains, and to have potential significant threats in human health and the environment far from its sources. Therefore, China is keen to phase out DDT production and use and ensure the sound disposal of its waste so as to minimize its release to the environment which will not only benefit the environment of China but also contribute to global environment as well as human health. The objectives of the project are: 1) to motivate the improvement of alternatives production and promote their usages, in particular, assess and demonstrate a suite of IPM-based interventions in pilot areas covering the major crops and ecological conditions; 2) to close down all non-closed dicofol production systems to eliminate the use of about 2,800 tonnes of DDT per year as intermediate in the production of dicofol, clean-up of waste facilities, wastes and contaminated sites as appropriate; 3) to enforce the optimization, supervision and monitoring on the closed-system dicofol production plants to minimize DDT residue and control the release of POPs wastes and other pollutants during dicofol production; 4) to develop national program for disseminating the project achievements.

Achievements so far: The project achievements include, firstly, the closure of the two dicofol production enterprises that has been successfully achieved as a result of the early imposition of ban by China on DDT production, distribution, use, import and export, thus eliminating the consumption of 2,800 tonnes of DDT per year for dicofol production in non-closed system, and reduced DDT released from the production residue, impurity and waste. In addition, timely and significant progress was made on implementing a large amount of activities to ensure a successful implementation of the IPM demonstration program in subsequent periods. Activities were carried out to ensure smooth and successful implementation: capacity building, development of operational rules, operational manuals, detailed annual work plan and IPM implementation plan, assessment approach, training workshops for trainers and farmers etc. Through strengthened infrastructure support and training, project management skills of the national and county level teams were enhanced though further improvements will be required to better the efficiency and effectiveness of project management.

Pilots demonstrated that the adoption of IPM approaches for food crops like apple and citrus can greatly improve the quality of products resulting in increased income for the farmers. So the impact of the



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project is comprehensive in terms of economic, environmental and social benefits, and is well accepted by local people and easily replicated in China. So the project has the sustainable impacts on protection of agricultural and countryside environment and farmers' health in a long term, with the achieved results during the reporting period: (1) 6 key IPM techniques and 5 alternative miticides were selected and verified for controlling citrus, apple and cotton mites in the 3 IPM demonstration counties; (2) Over 12,000 hectares of IPM demonstration fields were established in the three counties, focusing on biological, mechanical and ecological controlling techniques to substitute Dicofol and reduce the application of chemical pesticides. Farmer conferences were organized and the IPM demonstration fields were used as the education bases for local leaders and farmers; (3) 370 IPM-Farmer Field Schools (IPM-FFS) were carried out in the three IPM demonstration counties, over 11,100 farmers were trained in the season-long IPM FFS. The IPM trained farmers improved their IPM knowledge significantly, and build up their confidences on controlling mites by using alternative IPM techniques.

Lessons Learnt: Performance based payment mechanisms serve as effective incentives for project implementers resulting in timely and successful implementation of project components. Effective and timely communications between relevant stakeholders is a prerequisite for successful implementation of the project.

Building capacity to eliminate POPs pesticides stockpiles in Vietnam (PIMS 3578)

Budget: US\$ 4,307,580 (GEF Grant) and US\$ 6,540,109 (Co-financing)

Rating: **Satisfactory** towards DO and **Marginally Satisfactory** for IP

Project objectives: The Government of Vietnam has faced serious constraints in dealing with stockpiles of POPs pesticides, including constraints due to funding, access to appropriate technologies, and coordination among multiple ministries and agencies. While some stockpiles are housed in sheds or other buildings, in some communities with particularly large stockpiles, the lack of suitable infrastructure resulted in the burial of POPs pesticides stockpiles. An estimated 1140 tonnes of POPs pesticides have been located in five such sites, with a high probability that there are more such sites in the country. The buried stockpiles are of far greater concern than above-ground stockpiles because of their size and because there is far less control over storage conditions, resulting in much larger potential human exposure and actual health problems. This project will eliminate all known stockpiles of POPs pesticides in Vietnam. However, the destruction of known stockpiles is an incomplete response for two reasons. Firstly, it is clear that there are a potentially large number of additional, as yet unknown stockpiles, meaning that a one-off destruction process will be inadequate in dealing with additional stockpiles as they are discovered. Secondly, there is a major continuing problem of illegal importation of pesticides which may contain substantial amounts of POPs. Consequently, as important as the destruction of known stockpiles, is the need to build capacity both to destroy additional stockpiles as they are discovered, and to eliminate continued importation of illegal POPs pesticides. Capacity to eliminate continued importation is needed on both the demand side, to reduce and ultimately eliminate demand for such pesticides, and on the supply side, to eliminate the source of the pesticides. Supply-side management will require bilateral cooperation with neighboring states, China, Lao People's Democratic Republic and Cambodia.



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Achievements so far: The project supported the government in updating national database on POP pesticide contaminated/stockpile sites and development of the national programme on "Treatment and Prevention of environmental pollution caused by Pesticides' Stockpiles". This programme requires provinces to have plans in place to eliminate/remediate all POP contaminated sites by 2025; the presence of such plans allows provinces to request the central government to provide up to 50% of costs of remediation/elimination of their POP contaminated sites; encourages ministries/government agencies working together to address pesticides related issues. Project also helped to raise the awareness of government agencies, local authorities and communities in the project areas. Government finds the need of having technical and managerial guidelines, regulations to support better management of POP pesticide contaminated sites.

Lesson Learnt: Objective risk assessments of contaminated sites are an effective tool to prioritize sites for immediate remediation by the project.

Alternatives to DDT Usage in the Production of Antifouling Paint (PIMS 3664)

Budget: US\$ 5,008,902 (GEF Grant) and US\$ 270,000 (Co-financing)

Rating: **Satisfactory** towards DO and **Satisfactory** for IP

Project objectives: The project goal is to substitute DDT based antifouling paint by technically feasible, economically viable, and environmentally friendly alternatives. The binding objective of the project is to eliminate the use of 250 tonnes of DDT per year used as additives in the production of antifouling paint by conversion to non-toxic and environmentally friendly alternatives. In addition, the prospective objective of the project is to establish a long-term mechanism to protect marine environment and human health from pollution of harmful antifouling systems based on the technologies, experience and instruments obtained from phase out of DDT based antifouling paint.

To ensure sustainability of the elimination and conversion, related regulations and standards will be established or revised, and supported by capacity building, to create an enabling policy environment for the phase out of DDT based antifouling paint and promote sustainable alternatives. In addition, the successful experience in DDT phase out will contribute to support China to accede to relevant IMO conventions and elimination of TBT based antifouling paint, in order to establish a long-term mechanism to protect marine environment and human health from pollution of harmful antifouling systems.

Achievements so far: The project has worked successfully in understanding the complex socio-economic situation both among production and user stakeholders. Furthermore the recent project developments have shown that the alternatives are there and with initial support for manufacture and distribution barriers of market entry can be overcome. The decisive DDT production control put in place has given a clear market signal of that difficulty of returning back to old practices using DDT as active ingredient in antifouling paints. Overall the supply side barriers are being properly addressed; further action is still needed on the demand side (actual users, shipyards) both in getting the alternatives widely introduced as well as supporting their operations (waste, etc.) to avoid release of DDT as switch to new products is done.



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The project finally selected environmentally friendly alternatives for three pilot areas and shifted to promote the DDT-free alternatives among end users during this reporting period. The selection of alternatives much relied on the results of efficacy test in addition to risk assessment. The project successfully managed and organized the risky, intensive, and large-scale efficacy tests on ships by taking the advantages of the local infrastructure coordination. An incentive programme to provide subsidy to the manufacturers of alternatives was launched in June 2011 and will motivate the upstream of market to promote the commercialization and popularity of alternatives.

Europe and CIS

Global Programme to Demonstrate the Viability and Removal of Barriers that Impede Adoption and Successful Implementation of Available, Non-Combustion Technologies for Destroying Persistent Organic Pollutants (PIMS 2115)

Budget: US\$ 10,612,160 (GEF Grant) and US\$ 10,056,000 (Co-financing)

Rating: **Highly Unsatisfactory** towards DO and **Highly Unsatisfactory** for IP

Project objectives: The objective of the Global Programme, in line with the strategic priorities of GEF Business Plan FY04-06, is to demonstrate the viability and removal of barriers that impede adoption and successful implementation of available non-combustion technologies for use in the destruction of obsolete Persistent Organic Pollutants (POPs) stockpiles and wastes, more specifically PCBs wastes in developing countries and countries with economies in transition. This specific Project (Slovakia Project), part of the Global Programme, will introduce and apply such technologies to destroy significant obsolete PCBs wastes in Slovakia, and will help remove barriers to the further adoption and effective implementation of available non-combustion technologies and meet the Stockholm Convention requirement to ensure the use of Best Available Techniques (BAT) and Best Environmental Practices (BEP). The following barriers are to be addressed by the project: 1) Lack of Information/Technical Knowledge of Non-combustion Alternatives at country level; 2) Limited Number of Equipment Vendors; 3) Lack of Sufficient Infrastructure and the Need for Capacity Building; 4) Nature of Existing Regulations and Standards/Markets; 5) Presence of Non-Technological/Non-Market Barriers; and 6) Lack of a Regime for Public Policy and Institutional Infrastructure.

Achievements so far: Some of initial barriers have been addressed, e.g. on acceptance of non-combustion technologies, in various project activities. However, the actual demonstration aspect and technology transfer has met several problems over the years. These problems have their roots in changed economic and disposal market parameters between the initial project idea and the time that the project started, making it difficult, if not impossible, to ensure a sustainability with the planned approach/technology. It was finally decided by the Government to cancel the project. UNIDO is currently issuing the final budget revision and after that an official notification will be sent to the GEF Secretariat. In spite of this bad news, one should remember that Slovakia is now part of the EU, and as such it will eventually implement the objectives related to PCB-disposal through other means.

Lessons Learnt: Due to the changes in project environment the project was not progressing as expected. Due to frequent changes on the responsible ministry and lack of real interest there was impossible to implement the effective management for the project implementation.



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The amounts of PCB waste in Slovak Republic confirmed by the inventory in 2006 appeared to be much lower than it was estimated in the project document. The Strazske region public reluctance to accept PCB waste from other parts of the country also became an issue.

Another lesson learnt is that for technology demonstration projects, a thorough understanding of the market conditions and trends are of utmost importance. Much of the issues confronted by this project, resulting in its cancellation, are due to the inability to provide cost-effective services to other waste holders after the main source at Chemko Stratzcke was set for financial liquidation and would not be able to cover the costs of disposing its waste. A better understanding of the existing European disposal possibilities, prices and trends at design stage would have possibly helped to avoid the destiny of this project.

Design and Execution of a Comprehensive PCB Management Plan for Kazakhstan (PIMS 3477)

Budget: US\$ 3,395,000 (GEF Grant) and US\$ 10,600,000 (Co-financing)

Rating: **Satisfactory** towards DO and **Marginally Satisfactory** for IP

Project objectives: The overall objective of the project is to ensure minimization of PCB releases and subsequent health and environmental impacts through systematic capacity development for sound PCB management in the country. The activities will consist of (1) regulatory and administrative institution strengthening; (2) capacity building for sound PCB management, identification of additional PCB sources; (3) replacement, setting-up safe dismantling of 850 tons of PCB transformers and their safe disposal; (4) regionally organized secure storages and disposal of PCB capacitors (through co-finance from the Government); and (5) monitoring, learning, adaptive feedback, outreach and evaluation. The barriers for addressing the problem are related to the lack of national level PCB control legislation (with associated sub-laws, guidelines and instructions for mandatory implementation by PCB holders), insufficiently coordinated Government's function in the area of hazardous waste management, lack of awareness on the risks posed by PCB containing equipment and leaks, and lack of capacities and technical skills (in line with international safety requirements) to practically implement such legislation in the field.

Achievements so far: The first two components of the project (on legislation and capacity building) have progressed very well and resulted in the formulation of several amendments to the existing national laws and technical regulations on safe PCB management, as well as generating interest from major project partners in the private sector (PCB holders) to safely handle and dispose of PCB waste and equipment. New legislation will help define PCB inventory procedures (inclusive mandatory laboratory tests of the equipment and accurate reporting to the PCB register), PCB handling procedures at enterprise level, and PCB storage and transport procedures. This will pave ground for achieving sustainability of the project's results over longer terms, and establish grounds for wider hazardous chemical management in the country. The project prepares for pilot disposal of first batch of 24 PCB transformers (64 tons of PCB oils) to demonstrate best practices in safe management of hazardous wastes. This fully meets the requirements of the GEF and the Stockholm Convention in the area of continued capacity building in partner countries on safe handling and management of POPs. Additional



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element that deserves commendation is the establishment of information exchange on best practices and coordination of PCB handling activities with a similar project in the neighboring Kyrgyzstan (and in Mauritius). Finally, the project team has managed to win the Czech Republic international development assistance in improving national standards and approaches to environmental monitoring of POPs in environment, which, upon transfer of the developed country's expertise, will improve the national level data on priority actions in POPs sites clean-up operations.

Lesson Learnt: It is urgent and important to establish a legal framework for safe handling of PCBs so there is a strong signal to enterprises.

Environmentally sound management and phase-out of PCBs in Kyrgyzstan (PIMS 4101)

Budget: US\$ 990,000 (GEF Grant) and US\$ 1,150,000 (Co-financing)

Rating: **Satisfactory** towards DO and **Satisfactory** for IP

Project objectives: The project will provide Kyrgyzstan with the tools to achieve effective compliance with respect its Stockholm Convention obligations and the objective of substantively minimizing the environmental and health risks, both local and global. It has been developed to specifically address the principal barriers identified during project preparation through (1) Component One: Identification of PCBs and Enhancing Awareness, (2) Component Two: Strengthening Legislative and Regulatory Measures, and Supporting Institutions, (3) Component Three: Development of Technical Capacity for Sustainable PCB Management, (4) Component Four: Securing PCB Stockpiles and Wastes, and (5) Component Five: Monitoring, learning, adaptive feedback, outreach and evaluation. The project will aim at safe management and final environmentally sound disposal of available PCB equipment and materials, as well as establish technical capacities in the country to manage additional amounts of PCBs as they become available after the closure of the current project. The capacity strengthening will evolve around the introduction of missing PCB control legislation, the support to public institutions responsible for the hazardous waste management control in aligning their tasks and responsibilities to avoid institutional overlaps, the identification of accurate numbers of PCB stockpiles and PCB contaminated areas, the improvement of local temporary storages for PCB waste in line with international safety requirements, and the disposal of secured PCB materials and wastes by means of export to technically qualified POPs destruction facilities to eliminate the source of this hazardous waste in Kyrgyzstan.

Achievements so far: The overall level of progress achieved by the project is impressive for the first year of operation in changing and unstable political circumstances. The following achievements could be highlighted: (1) the stakeholder centered implementation process, (2) the involvement of key NGOs in discussions over proposed amendments to existing hazardous waste control measures, and (3) the ability of project team to build capacity of related parties and receive positive feedbacks on required PCB inventory information and willingness for future cooperation with the disposal of PCBs. The initial step on aligning institutional responsibilities for the technical implementation of the project and coordination of activities at the Government's level has been successful and two main ministries (State Agency for Environment and Ministry of Industry) have practiced joint partnership in implementing cross-cutting PCB related issues.



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The awareness raising campaigns have been successful and the work with the Ministry of Education on training modules for universities is a very welcome move that will help sustain the information flow on general PCBs (POPs) issues after the closure of the project. The success in securing additional co-finance from the Czech Trust Fund and future cooperation with officially recognized, Stockholm Convention's regional POPs resource center in the Czech Republic (RECETOX Toxic Chemicals Monitoring Laboratory) should be highly commended as one of the important achievements of the reporting period. Experience exchange on POPs monitoring and PCB control measures and policies with specialist in the EU country will be of great benefit to the project and its objectives.

Lesson Learnt: At the project start-up, there were 10,000 industrial enterprises that were potential holders of PCB containing equipment and material. Therefore, the issues on existing needs in time, financial and human resources for undertaking of inventory of all such objects have been brought for discussion. As a result, an expert consultative meeting of responsible governmental and private project partners was called upon. The combined knowledge helped to limit the list of enterprises, subject to inventory, from 10,000 to 167 objects, thus saving project resources.

Preparing for HCFC phase out in CEITs: needs, benefits and potential synergies with other MEAs (PIMS 3597)

Budget: US\$ 745,000 (GEF Grant, US\$ 255,000 through UNDP) and US\$ 450,000 (Co-financing)

Rating: **Satisfactory** towards DO and **Satisfactory** for IP

Project objectives: The project's primary goal is to develop country strategies for hydrochlorofluorocarbons (HCFC) phase out based on in-depth surveys of HCFC consumption and where applicable production, in eligible Article 2 countries with economies in transition (CEITs) in Europe and Central Asia (specifically Azerbaijan, Belarus, Bulgaria, Kazakhstan, the Russian Federation, Tajikistan, Uzbekistan and Ukraine), and which will identify needs for further activities to assist these countries to remain in or attain compliance with their Montreal Protocol obligations, particularly noting the accelerated HCFC phase out requirements adopted by MOP-19 of the Montreal Protocol on Substances That Deplete the Ozone Layer. The project will also make a global macro-economic analysis about directions in HCFC use, production and trade worldwide, including a more focused analysis on the impact of these global factors on the CEIT countries in particular. Industries and Governments in developing countries will also benefit from a better understanding of the potential implications of the global HCFC demand and supply scenario. Inter-linkages with other conventions will also be looked particularly in relation to HCFC's having a comparatively high global warming potential. The project will also assess the potential for synergies in the management of HCFC phase out and the management of other chemicals (i.e. related to other ozone depleting substances, HFCs, POPs etc).

Achievements so far: The project has achieved its primary goal on collecting of detailed HCFC consumption data in all participating countries and formulating draft HCFC phase-out strategies. While the original goal was to prepare outlines of such strategies, the project resulted in full-fledged action plans aimed at gradual reduction of HCFC consumption in the countries. The action plans contain detailed information on HCFC consumption profiles by economic sector, the trends in growing HCFC



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imports along with HCFC consumption forecasts, previous assistance provided by the GEF to the countries to phase-out CFCs (initial group of ozone-depleting chemicals controlled by Montreal Protocol), and strategies on how to reduce the consumption of HCFCs through strengthening regulatory and import controls, capacity building for refrigeration servicing sector, environmental inspectors and Customs (trainings in best equipment servicing practices, detection of illegal trade and HCFC import controls), and technology transfer to main industrial counterparts which consume HCFCs in product manufacturing processes (such as foam products - insulating sandwich panels, or assembly of refrigeration equipment). The strategies establish grounds for enhanced cooperation between State Environmental Inspectorates and Customs departments to control the use of HCFCs, as well as build capacity in private sector on the use HCFC alternatives with minimization of atmospheric emissions of these gases. The technology transfer that is proposed to be a part of these strategies will strictly based on moving towards low-GWP alternatives to reduce impact on climate change (where technological developments allow)

Lesson Learnt: Among issues and barriers identified during the implementation of the project are the frequent changes in institutional structures and responsibilities over Montreal Protocol issues, and uneven progress in collecting HCFC consumption data across countries. Regional approaches should be minimized in future with reduction of a number of participating countries, or such initiatives should be supported by additional funds to ensure sufficient funding for more effective coordination of activities in several countries.

Global Projects

Demonstrating and Promoting Best Techniques and Practices for Reducing Health-Care Waste to Avoid Environmental Releases of Dioxins and Mercury (PIMS 2596)

Budget: US\$ 11,051,403 (GEF Grant) and US\$ 6,350,507 (Co-financing)

Rating: **Satisfactory** towards DO and **Satisfactory** for IP

Project objectives: The objective of the project is to demonstrate and promote best environmental practices (BEP) and best available techniques (BAT) for health-care waste management (HCWM) in order to minimize or eliminate releases of persistent organic pollutants (POPs) and mercury to the environment by demonstrating the effectiveness of non-burn health-care waste treatment technologies, waste management practices and other techniques in seven countries (Argentina, India, Latvia, Lebanon, the Philippines, Senegal and Vietnam). To show applicability to a diverse range of conditions, the project will develop in each participating country a best practice HCW model, through collaboration with at least one large hospital, a combination of smaller clinics, rural health and/or injection programs and pre-existing central treatment facilities. If replicated nationally, BEP and BAT initiated during the project's implementation are expected to reduce the release of 187 g TEQ/yr of dioxins and 2,910 kg/yr of mercury to the environment. In addition, the project will support the establishment/enhancement of national training programs, pursue policy reform, develop replication toolkits and awareness-raising materials, and disseminate these materials nationally and globally. An additional component aimed at developing locally-produced, affordable, non-burn health-care waste treatment technologies will be executed in Tanzania.



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Achievements so far: General progress made so far by the projects includes:

1. A set of guidance documents and tools (in English, French and Spanish) has been developed to help health-care facilities assess their HCWM situation and subsequently adopt best practices and techniques with respect to HCWM and the phase-out of mercury containing devices.
2. A needs assessment of health-facilities in Africa was undertaken by NGO partner AGENDA, which informed the design of new non-incineration technologies by the University of Dar-es-Salaam to meet Sub-Saharan needs. An international advisory committee has reviewed the designs and prototype building is underway.
3. To date, the installation and operations of non-incineration technologies has been demonstrated in Tanzania (3.8 g-TEQ/yr avoided). The project is supporting centralized waste treatment facilities in Latvia, Lebanon and India to help them improve and optimize operating procedures of already installed non-incineration technologies. Based on technology specifications developed by the project, bidding processes are underway for non-incineration technologies intended for health-care facilities in the Philippines and Senegal. In India the project supported a reduction in dioxin emission from an incinerator at a central treatment facility through the installation of emission control devices, future stack test will demonstrated the amount of dioxins reduced and encourage replication of such practices across India.
4. National policies and regulations pertaining to HCWM and the management and phase-out of Mercury containing devices have been reviewed and are being improved in India, Latvia, Lebanon, Philippines and Viet Nam.
5. A draft “gold standard” curriculum for training healthcare waste management coordinators and master trainers was developed based on a compilation of existing training materials from around the world. At national level training manuals/kits, curricula, modules, etc. are under development and tailored to different training recipients within the healthcare sector. Training is being instituted at model health-care facilities as well as health care waste treatment facilities.
6. Lessons-learned and experiences from project activities are disseminated through the project's website (www.gefmedwaste.org), as well as project partners University of Illinois at Chicago and Health Care Without Harm (HCWH) through their respective websites (www.geolibrary.org, www.noharm.org). Global project team members participate in international meetings (related to e.g. HCWM, POPs and Mercury), during which they share experiences and lessons-learned from the project.

Prototypes of the new non-incineration technologies - which do not produce any dioxins and/or furans and have low operating and maintenance costs - have been developed and prototype tests have indicated a very efficient sterilization process. The system consists of pedal operated containers, an autoclave based treatment system, compactors and optional shredder and sharp destroyers. The system has the potential to recycle a considerable amount of the materials after sterilization and can make use of different electricity sources, depending on the energy source available at the medical facility.

To date, the installation and operations of non-incineration technologies was demonstrated in Tanzania. Installation and commissioning of non-incineration technologies is underway in Senegal and the



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Philippines. The project is supporting facilities in Argentina, Latvia, Lebanon and India to improve operations of already installed non-incineration technologies, while at the same time improving facilities' storage facilities and waste flows. In India the project has reduced dioxin emissions by installing emission control devices.

National policies and regulations pertaining to HCWM and the management and phase-out of Mercury containing devices have been reviewed and improved in Argentina, India, Lebanon and Philippines. The Global project team, in close collaboration with the University of Illinois in Chicago - School of Public Health, has completed about a dozen training modules and a trainers guide to provide comprehensive Health Care Waste Management training that can be adapted to local circumstances in project and non-project countries and is being used to inform national training programmes in all seven (7) project countries

Lessons Learnt: There are a number of lessons learnt during the implementation of this project in each country. All the details of lessons learnt can be found in the annual review submitted to GEF. Here is the list of most recurring lessons: i) the quality assurance in the project management is important for producing lasting results; ii) there is a need to know and follow rules of different partners in such a global multi-stakeholder project; iii) detailed context specific baseline assessments are prerequisite in each country; iv) a full waste management cycle cost analysis (reviewing capital, operational and maintenance costs, as well as costs and availability of any needed supplies) of the technology should be carried out prior to the selection of (in particular) small-scale on-site pathological waste treatment technologies; and v) sustainability of the project results needs to be strengthened by follow-up monitoring and trainings.

Latin America and the Caribbean

Establishment of PCB Waste Management and Disposal System in Brazil (PIMS 3863)

Budget: US\$ 4,862,000 (GEF Grant) and US\$ 11,553,000 (Co-financing)

Rating: **Satisfactory** towards DO and **Marginally Satisfactory** for IP

Project objectives: The broad objective of Brazil with respect to PCBs is to achieve sustainable PCB management and strengthening of the regulatory and institutional arrangements for long term control and phase-out of PCBs in line with the requirements of the Stockholm Convention and other related conventions and protocols ratified by Brazil. Brazil, as signatory to the Stockholm Convention, is committed to the complete phase-out and destruction of PCBs by 2025 or earlier. The main objective of this 5 year project would be to fully develop Brazil's capability to manage and dispose of PCB oils, PCB containing equipment and other PCB waste in a sustainable manner in order to achieve timely compliance with the Stockholm Convention requirements for PCB management, and to minimize risk of PCB exposure to the population and the environment. As outlined in the Stockholm Convention, priority will be given to higher concentration PCB materials and sensitive sites. The project is aligned with the strategic priorities for the GEF-4 POPS focal area and comprises the following components:

- Outcome 1 - Strengthening of the legal, administrative and standardized procedures framework for PCB management and disposal,



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- Outcome 2 - Management of identified PCB oils and PCB contaminated waste in a manner that that minimizes human and environmental exposure to PCB
- Outcome 3 - Environmentally sound disposal of identified PCB by means of demonstration projects.

Achievements so far: The focus of the first year has been on the development of proper regulatory frameworks, support to re-align the responsibilities between federal and state levels, and improving access to storage facilities for obsolete PCB equipment. The project has assisted the Ministry of Environment to develop a draft legislation that is currently being discussed among the stakeholders in the country. This is normally a time consuming process, but it is of utmost importance to have this aspect dealt with from the beginning to assure the long term success and sustainability of the PCB project.

The project has also initiated work on final disposal of PCBs by assessing the current PCB destruction capacity. Two incinerators and two decontamination facilities have all the environmental licenses to comply with current legislation and deal with PCBs. Two demonstration projects, in Sao Paulo and Amazonas, have been identified.

Lessons Learnt: It is important to widely and properly communicate project goals and progress to stakeholders. This will assist in empowering and involving the stakeholders to ensure the project results are according to planned schedule and at required quality level.

Environmental Sound Management and Destruction of PCBs in Mexico (PIMS 3692)

Budget: US\$ 4,825,000 (GEF Grant) and US\$ 14,000,000 (Co-financing)

Rating: **Satisfactory** towards DO and **Highly Satisfactory** for IP

Project objectives: The central objective of this four-year project (2009-2013) is to minimize risks of exposure from PCBs to Mexicans, including vulnerable populations, and to the environment, while promoting Mexico's compliance with Stockholm Convention requirements for PCB management and destruction. The project, led by Mexico's Secretariat of Environment and Natural Resources, would achieve this objective through creation of an enabling environment for decommissioning and destruction of Mexico's remaining estimated inventory of 30,639 tons of PCB wastes. PCB wastes to be destroyed during the project period would include Mexico's official (reported) inventory of 3,215 tons and part of those wastes identified and decommissioned within three industrialized states and one municipality. The enabling environment would be established via four project components:

Outcome (1) development and implementation of strategies and activities for strengthening Mexico's institutional capacity within central and state governments for environmentally sound management and destruction of PCBs, including legislation and enforcement

Outcome (2) facilitation of expansion and/or upgrading of interim storage so that Mexico has adequate safe central and regional interim PCB storage facilities for its national PCB inventory, with particular emphasis on access to facilities by small- and medium-size enterprises (SMEs)



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Outcome (3) establishment and demonstration of a nationally-coordinated, comprehensive servicing system for PCB management, and

Outcome (4) raising awareness of legal obligations and best practices for PCB management and destruction in the private and public sectors through outreach and training. The project components would be tested in one state and one municipal pilot, refined and applied in these jurisdictions and replicated in three other states during the project to provide a sound basis for continued implementation beyond the project life.

Achievements so far: The project implementation has been successful in the last year, and there are many important achievements that could be mentioned. The project has submitted a proposal for a revised technical standard for PCB management which includes control of electrical maintenance workshops. It also incorporates retrofilling process as decontamination.

Project trained 267 federal and state inspectors in the past year in 5 states. Actual inspections are expected to go up in the future. The Inspection and Analysis training guide developed by the project was used in the trainings.

The first stage of the national PCB inventory has been completed. Through the pilot pilots and via direct interaction with the CFE and thorough effort has been made to assess the central and regional interim storage facilities and to provide solutions for the sensitive sites and SMEs that possesses PCB containing equipment.

The Integrated Service Management System for PCB (from generator to final destruction) was implemented in the two pilot projects of Guanajuato and Cuautitlán Izcalli. Three additional state pilots have been developed and activities have started in those states.

PCBs from sensitive sites have in 2 occasions been destroyed and the total destruction is 268 tonnes of PCBs and contaminated material. 813 people were training in awareness raising workshops about the risk of exposure the PCBs.

Lessons Learnt: It is important to allocate for longer time frame in conducting negotiations with local governments. Also the proper procurement process is a lengthy procedure.

Improved Management and release containment of POPs Pesticides in Nicaragua (PIMS 3645)

Budget: US\$ 945,000 (GEF Grant) and US\$ 2,142,900 (Co-financing)

Rating: **Satisfactory** towards DO and **Satisfactory** for IP

Project objectives: The project seeks to minimize the risk to human health and the environment of exposure to POPs pesticides. Through building institutional and technical capacity for management of POPs Pesticides, the project will enhance Nicaragua's ability to meet its Stockholm Convention obligations, while also contributing to several NIP priorities and realization of provisions within Nicaragua's National Policy for Integrated Management of Hazardous Substances and Wastes. The project will also contribute substantially with the GEF Strategy to implement Sound Management of Chemicals in Nicaragua.



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The barriers to environmentally sound management POPs Pesticides in Nicaragua relate to

- i) Institutional capacity for life-cycle management of POPs in Nicaragua. There is a need to strengthen the legal and regulatory framework for POPs and capacity for enforcement.
- ii) An important barrier in Nicaragua is lack of investment in activities that will reduce the risk of exposure to people and the environment to POPs Pesticides including exposure from contaminated sites.
- iii) Capacity constraints for soil remediation planning and execution.

To overcome the barriers, the project has been designed to achieve the following outcomes that are organized in 3 components.

The first component will enhance the institutional capacity for life-cycle management of POPs to enable Nicaragua to meet its Stockholm Convention obligations, and achieve the following outcomes:

- A. Strengthened legal and regulatory framework for POPs
- B. POPs / chemicals legislation enforcement capacity Strengthened
- C. Sustainability of chemical management in public institutions increased

The second component will reduce the risk of exposure to people and the environment to POPs Pesticides including exposure from contaminated sites, and achieve the following outcomes:

- D. Improved management and disposal of obsolete pesticide stocks
- E. Improved Planning and Remediation of Contaminated sites
- F. Food security pilot project at Lake Managua implemented.

The third component will enhance the awareness of stakeholders and civil society

- G. Enhanced awareness by stakeholders and civil society.

Achievements so far: The project has in the past year made a good progress in achieving the expected results. A procedures manual on chemical safety and guidelines for handling of POPs and non-POPs alternatives have been developed (outcomes A & B), and 17 workshops with 1,178 participants were conducted (outcome A, B, & C). A training plan for the use of personal protective equipment was developed and 71 people received training (Outcome D). The national POPs pesticides inventory is in the process of being updated (80 % done). Three Environmental Management Plans are being developed for the contaminated sites in Picacho Airport, Fonar Urraz airport, and ENIA-IMSA warehouse (Outcome D & E). Sampling and laboratory testing of fishes from Lake Managua has taken place, and the project is developing nutrition plans and other relevant material for the people living by the lake in order to reduce the risk of exposure to POPs pesticide contamination (Outcome G). Finally 8 awareness raising workshops with 560 participants from civil society took place in the last year (Outcome G).



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Lesson Learnt: It is important to allocate sufficient time in planning the project activities considering the need to take into account all stakeholders in the implementation of activities towards the goals and objectives.

Development of the National Capacities for the Environmental Sound Management of PCBs in Uruguay (PIMS 3563)

Budget: US\$ 999,550 (GEF Grant) and US\$ 1,098,850 (Co-financing)

Rating: **Satisfactory** towards DO and **Marginally Satisfactory** for IP

Project objectives: This Project will strengthen the capacities for the environmentally sound management and elimination of equipment and waste containing PCB, according to the obligations arising from the Stockholm Convention. The Project will contribute to strengthen the legal framework, to the development of technical guidelines for the implementation of measures adapted to the country reality and their inclusion in the legal framework. Finally their expansion at a national level will allow the reduction of PCB in Uruguay by means of more efficient and economically feasible alternatives for PCB elimination.

The objective of the project is to overcome the current barriers, which impede implementation of the PCB-related obligations of the Stockholm Convention in Uruguay. The Project foresees the strengthening of an environmentally sound management system of PCBs based on a consensus between relevant government authorities, the private and public sectors and NGOs. The aim is that all activities should be undertaken in a controlled and coordinated manner by protecting human health and the environment from the harmful effects of PCBs. The ESM system developed will include action and responsibilities both for the authorities and holders of PCB containing equipment and wastes. At the end of the project, Uruguay will:

- a) increase safety and minimization PCB releases exposure during the operation of PCB containing equipment,
- b) have a PCB inventory,
- c) have the capacity to analyze PCBs in oils, soil and other matrices,
- d) upgrades of existing storages in UTE,
- e) reduce risks for environmental pollution via phase-out and disposal about 100 ton of PCB existences, and
- g) have an evaluation of local treatment for oil with PCB.

Achievements so far: The project implementation has in the previous year advanced with the implementation of several activities. An important element is the improved coordination and collaboration between Ministries and other stakeholders that have occurred as a part of the project. This is important for the long term sustainability of the project.



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Important activities have taken place in the past year. 8 workshops where 150 have been training in sampling procedures and how to handle PCBs safely have been conducted. The sampling procedures have been distributed to relevant national entities. As of today, more than 3,000 transformers have been sampled and labeled and the process to upgrade the PCB inventory is on-going. The responsibility for the upgrade of existing interim storage facilities is in the process of being transferred to the Ministry of Transport, as they are seen as a more suitable candidate to ensure the long term sustainability of that operation. The project has finalized the process to export 125 tonnes of PCBs for destruction outside of Uruguay. The signing of the contract is still pending. The two contaminated sites that will be used for the demonstration projects have been selected.

Lessons Learnt: As the project is entering its final phases some preliminary lessons learnt have been gathered. These include:

1. Procurement process for complex services takes more time than expected. Therefore it is important to start preparing these from the outset of the project. Some services have to be divided into smaller, more straightforward tasks in order to have viable offers.
2. Better cooperation among similar projects in the region would increase understanding of technical, regulatory and implementation options available. This widened understanding in the project team would have increased certainty in the steps taken lowered and facilitated an expedited implementation.

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