Independent evaluation

CHINA

Project Number: GF/CPR/04/002

BUILDING THE CAPACITY OF THE PEOPLE'S REPUBLIC OF CHINA TO IMPLEMENT THE STOCKHOLM CONVENTION ON POPS AND DEVELOP A NATIONAL IMPLEMENTATION PLAN

UNITED NATIONS
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UNIDO EVALUATION GROUP

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List of acronyms and abbreviations

BAT	Best Available Technology
BEP	Best Environmental Practice
CIO	Convention Implementation Office
CISA	Chinese Iron & Steel Association
COP	Conference of Parties
CP	Cleaner Production
DDT	Dichlorodiphenyltrichloroethane
EPB	Environmental Protection Bureau
FAO	Food and Agricultural Organisation
FECO	Foreign Economic Cooperation Office
GEF	Global Environment Facility
GMP	Global Monitoring Plan
HCB	Hexachlorobenzene
NCG	National Coordination Group
NDLG	NIP Development Leading Group
NGO	Non-governmental Organisation
NIP	National Implementation Plan
NTCC	National Termite Control Center
PCB	Polychlorinated Biphenyls
PIR	Project Implementation Reviews
PM	Project Manager
POPs	Persistent Organic Pollutants
SEPA	State Environmental Protection Agency
TEQ	Toxicity Equivalent
TCG	Technical Coordinating Group
TOR	Terms of Reference
UNDP	United Nation Development Programme
UNEP	United Nation Environmental Programme
UNIDO	United Nation Industrial Development Organization
UNITAR	United Nations Institute for Training and Research
USEPA	United States Environmental Protection Agency
WB	World Bank
WHO	World Health Organization

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The evaluation team would like to thank all those who contributed to the preparation and realization of the mission. We hope that this report, covering our findings, conclusions and recommendations, will be considered by respective stakeholders during discussions with regard to NIP implementation and follow-up.

1

Executive summary

Overall assessment

In summary, it can be stated that this GEF-funded project was a highly relevant, effective and very efficiently run project. A high quality National Implementation Plan (NIP) on Persistent Organic Pollutants (POPs) has been developed involving leading international agencies and key national stakeholders. Ownership of the project was very high since China is fully committed to implement the NIP and has invested considerably since the start of the project. The implementation approach that combined UNIDO's agency execution of international expertise components with FECO's national execution of national expertise components contributed significantly to the overall good performance of the project.

However, given the size of the country and the complexity of POPs issues, the continuation of the Convention's support to funding and technology transfer will continue to be essential for China in the future.

Finally, the Chinese NIP project provides useful experiences for the GEF, the international agencies and for countries (especially large ones), which have not yet started the process of NIP development but intend to do so.

Project background

The People's Republic of China signed the Stockholm Convention on Persistent Organic Pollutants when it opened for signature in May 2001 and ratified it in August 2004. Parties to the Convention must transmit a National Implementation Plan (NIP) to the Conference of Parties within two years after the Convention enters into force. Thus, China was committed to completing and delivering its NIP in 2006.

China invited the United Nations Industrial Development Organization (UNIDO) under the regime of "Expanded Opportunities"[1] to support the development of the NIP and opted to undertake a comprehensive technical assistance project. This included capacity development and demonstration projects, thus going beyond the so-called "Enabling Activities". During the project preparation phase (PDF-B), China was successful in attracting considerable co-financing to support NIP development and to undertake capacity building, case studies and demonstrations of possible approaches in priority areas. The Governments of Italy and Canada committed themselves to support a number of work packages contributing to the NIP.

Evaluation background

The evaluation has been carried out in accordance with UNIDO evaluation policy and followed the GEF guidelines for independent evaluations of full sized projects. It was realized as a terminal evaluation by a team of three evaluators: Mr. Nee Sun Choong Kwet Yive (Team Leader), Mr. Chen Yang (National Evaluator), and Mr. Johannes Dobinger (UNIDO Evaluation Officer). After a review of project documentation, a two weeks evaluation mission was undertaken to China and several institutions and project sites were visited (see program of evaluation mission in the annex). UNIDO as well as counterpart staffs were interviewed.

Project design, formulation and implementation approach

The project was well designed, and the combination of the NIP with demonstration projects, pilot studies and capacity building is considered a very good approach. The stated objectives in the project document were developed according to the Articles, Paragraphs and Annexes of the Convention. These objectives addressed adequately the real needs (capacity building, international expertise and guidance, technical know-how, awareness, etc.) of China to meet its obligations towards the Convention. Moreover, the guidelines of the GEF/UNEP document for NIP development[2] were closely followed while planning the activities of the project. However, the purpose of some of the demonstration projects and studies were not clearly defined.

The development of the project proposal was done in a participatory approach that involved key national stakeholders and international agencies. The project was very successful in gaining substantial co-financing from bilateral donors, mainly Italy and Canada.

[1] Under "Expanded Opportunities" a number of international agencies was granted direct access to GEF Funds, without going through one of the three GEF Implementing Agencies (World Bank, UNDP, UNEP).

[2] Initial Guidelines for Enabling Activities for the Stockholm Convention on Persistent Organic Pollutants. GEF/C.17/4, April 6 2001

The implementation approach was "mixed execution", i.e. while part of the project was implemented directly by UNIDO (agency execution), the bulk of activities was executed through a subcontract by the project counterpart, the Foreign Economic Cooperation Office of the State Environmental Protection Agency (FECO/SEPA), a long term partner of UNIDO for the implementation of environmental projects in China. This approach is considered effective and efficient and contributed to the successful implementation of the project. Finally, the adopted methodology and the building on continuity and on existing capacity ensured successful completion of the project, producing a high quality NIP.

Relevance

The NIP is highly relevant given the documented high incidence of POPs in China. It is in line with the environmental policies of the country, set to protect its population and the environment against the hazardous effects of toxic chemicals. The country ownership of the project is very high as the NIP has been approved and endorsed at the highest level. The institutions and groups at both central and provincial levels confirmed the relevance for capacity building and for strengthening of existing capacities.

The project is also regarded highly relevant given the socio-economic context of the country. Many of the economic activities in China are directly related to the use or release of chemicals listed in the Annexes of the Convention, in particular chlordane, mirex, DDT and dioxins. Chlordane and mirex, both Annex A POP chemicals, are mainly used for termite prevention and control. DDT, an Annex B POPs chemical, is also still being produced and used in China for malaria vector control. Also, all significant sources of unintentionally produced POPs (Annex C, Parts II and III) identified in the Stockholm Convention and listed in the UNEP *Standardized Toolkit for Identification and Quantification of Dioxin Releases*[3], are found in China. Industrial activity in many of these sectors has contributed significantly to China's impressive economic growth in recent years.

The management & information system put in place is also highly relevant given the need for national level monitoring of progress and need for awareness raising through information dissemination. The relevance and the effectiveness of the demonstration projects (BAT/BEP and health study) are less clear as to their objectives and expected outcomes, in particular regarding upscaling and uptake of demonstrated technologies by industry.

[3] UNEP. 2001. Standardized toolkit for the identification and quantification of Dioxin and Furan releases. *Draft report*.

Overall, the continued relevance will depend on implementation and enforcement of corresponding policies and legal framework (e.g. CP standards, enforcement of production phase out chlordane/mirex, BAT/BEP, etc.) as planned in the NIP. It is therefore highly recommended that the implementation and enforcement of policies related to POPs should be explicitly monitored (using indicators) by the Convention Implementation Office (CIO) of FECO/SEPA.

Effectiveness

Presently, awareness regarding POPs and the Convention is high at stakeholder level. Before the NIP project including the PDF-B phase, almost all central/provincial government officials involved in hazardous chemicals management knew little or nothing about POPs. Due to numerous training and awareness raising activities and consultations on NIP development at both central and provincial levels, most of the government officials are now familiar with POPs, the basic convention requirements, country strategies and country progress. In recent years, the Chinese government has made comprehensive efforts and engaged in regulatory strengthening, scientific research and POPs reduction engineering demonstration. Those efforts were triggered by NIP development and other convention activities in China.

NIP activities also promoted the environmental management of other hazardous chemicals and wastes beyond POPs. Thanks to the awareness that has been raised at the highest level in the country, much more funds are available for institutions to undertake research on POPs. According to interviews, more than 100 million RMB (yuans) have already been disbursed by the central government for research on POPs or for up-grading of laboratories.

There is anecdotal evidence of increased awareness among key industrial sectors of the country. For instance, the steel industry, the sector responsible for the highest release of dioxins in the country according to the 2004 inventory, has proclaimed through its association, the China Iron Steel Association, that they will reduce dioxin emissions by applying best environmental practices (BEP).

Through the project, SEPA/FECO became stronger and cooperation with key ministries that was weak at the initial stages became more effective. This project has also created opportunities for collaboration between academia and industrial sector, with the authorities through CIO or Environmental Protection Bureaus (EPBs) acting as link (e.g. Dioxin laboratory of the Research Center for Eco-environment of the Chinese Academy of Sciences and the Baosteel Company in the case of the dioxin demonstration project).

In general, the stated objectives of the project have been satisfactorily achieved and a high quality NIP has been developed, endorsed by the country, and submitted to the Conference of Parties.

The inventories on the production, use, trade, stockpiles and wastes of and sites contaminated by chemicals listed in the Annexes of the Convention and existing in China have been satisfactorily carried out. For Polychlorinated Biphenyls (PCBs), strategies to carry out inventories have been established and a capacity building programme on PCB management has been developed. Based on the outputs of these two activities, PCB inventories have been successfully carried out in two provinces. The findings are reported in the NIP.

As planned, strategies and action plans for the reduction and elimination of all identified existing POPs in China have been developed involving leading research institutes and key stakeholders with very useful international guidance. These are clearly reflected in the Chapter 3 of the NIP.

The infrastructure and management systems including institutional arrangements at both central level and in some provinces already exist and are fully operational. Components of the NIP are already being implemented. To ensure the effective and sustainable implementation of the proposed strategies and action plans the regulatory framework has been fully assessed, the gaps identified, and measures to strengthen it have been proposed. Sustainable capacity to implement the NIP across the country, to update or refine the component inventories, and to fulfil ongoing reporting requirements of the Convention is being built through the on-going GEF-funded long-term capacity building project.

The priority areas and sectors have been identified and activities planned accordingly in the NIP. The calculations of estimated total costs and the incremental costs likely to be incurred for the implementation of these activities have been done with the appropriate guidance of international experts.

The development and demonstration of methodologies regarding promotion of Best Available Technologies (BAT) and Best Environmental Practices (BEP) in key sectors of the country was however not successful. Follow up actions are required to ensure effectiveness.

Efficiency

The participatory approach adopted during the preparatory phase was successful in the mobilisation of a high level of co-funding (Italy, Canada, and others). Significant local (central and provincial) in-kind and in cash co-financing was also available. These contributed to the efficiency of GEF

funding. The timely implementation of activities and good quality of inputs as discussed in the previous sections contributed to high efficiency. A total of 19 subcontracts were funded by the contribution of the GEF. The sample reviewed by the evaluation team produced tangible outputs of good quality.

Overall, the project applied a mixed form of agency execution and national execution, which has proved to be an efficient approach (as compared to full agency execution). The contribution of the international experts recruited by UNIDO to the development of the NIP was significant, however, there is potential to improve the efficiency. For example with a significant POPs portfolio in the country, UNIDO could increase efficiency of its supervisory and management functions by installing relevant capacity at the regional office in Beijing.

Sustainability

For a number of reasons chances for sustainability and impact are much higher in China than in many other countries that have also developed their NIPs:

- China has a strong central government that has confirmed its determination amongst others to comprehensively take legal, economic, technical and necessary administrative measures to solve POPs issues.
- The implementation capacity in terms of human resources (FECO/SEPA, CIO) and related infrastructure and in terms of adequate administrative systems (bidding, auditing, financial, etc.) and management structure (FECO/SEPA, NCG, MIS) already exists and is fully operational.
- The implementation of the NIP is on-going and is being monitored by the National Coordination Group (NCG) with CIO as executing agency. This appears to be an effective monitoring system that significantly increases the likelihood of sustainability and impact of the NIP.
- High technical capacity exists in the country for monitoring, research and development (e.g. leading research institutions equipped with very adequately equipped laboratories).
- The project is highly relevant to key stakeholders including the private sector and high ownership has been observed.
- A high level of co-funding and a number of GEF follow up projects are already underway (in the field of chlordane and mirex, DDT, PCBs, medical waste, capacity building, iron and steel, and paper making).

Main strengths and weaknesses of the project

Strengths	Weaknesses
• Strong central government and other stakeholders' commitment and high ownership • A good participatory approach involving key stakeholders and partners at national and international level was used during the preparatory phases • High level of co-financing from China and bilateral donors • Well designed project: incorporating case studies and demonstration projects; taking into consideration the real needs of the country; built along the lines of the Convention • Competent and adequately staffed national implementer (CIO/FECO/SEPA)	• Objectives and outcomes of demonstration projects and case study not clearly defined • Poor reporting to UNIDO and no reporting to GEF (PIR) • Independent national expert review group not functioning as planned • No involvement of UNIDO country office in execution or monitoring of project

Main recommendations (more details and context provided in chapter 6)

Recommendation	Follow up by
It is recommended that the GEF and partner agencies continue to support projects that are designed to create capacity in China for NIP implementation.	GEF, UNIDO, other GEF agencies.
UNIDO should increase efficiency of its supervisory and management functions by installing relevant capacity (i.e. technically specialized staff) at the regional office in Beijing.	UNIDO PTC and PCF
UNIDO should explore possibilities to include specific Cleaner Production initiatives in the further implementation of NIP.	UNIDO EMB/CPU
The national monitoring system should be replicated at the provincial level to ensure sustainability across the country.	CIO
It is recommended that implementation and enforcement of policies be explicitly monitored (using adequate indicators) by CIO.	CIO
In the case of medical waste incineration more should be done to minimize waste before it is incinerated. It is recommended to explore possible CP initiatives for medical waste management and disposal, and also lifecycle initiatives should be developed to contribute to reduction of UP POPs.	CIO, UNIDO

As no proper records were kept, there is an urgent need to interview appropriate retired employees (due to failing memory or persons passing away) of relevant companies in order to get information on sites where PCB-contaminated equipment were land filled/disposed of in the 1970's and 1980's.	CIO
UNIDO should consider creating special provisions within the internal management framework to ensure minimization of risks for projects where the project manager has the nationality of the country where the project is implemented.	UNIDO
For ongoing and future projects the project manager should ensure that project implementation reviews (PIRs) are carried out as planned and submit them to the GEF.	UNIDO, PTC/EMB

Main lessons learned (more details and context provided in chapter 7)

A comprehensive management mechanism and sufficient involvement of a wide range of stakeholders (IA/EA, international community, government, technical entities and local authorities) in all important events, including inception, TCG, regional workshops and consultations, are the basis to achieve effective and relevant formulation of NIP.

The mixed form of agency execution and national execution (through sub-contracts to counterparts) is a very efficient implementation modality when the national capacities are sufficient (substantive competence, procurement, financial management, auditing).

Country ownership, including a dedicated counterpart organization and high level Government commitment and follow up (budgetary resources, legislation) is key to impact of a NIP.

Applying existing procedures or technologies in developed countries to other countries using different raw materials (wheat straw or bagasse instead of wood) does not necessarily meet success (reduction of dioxin formation).

Toolkit guidance was found useful for the preliminary assessment of dioxins and furans but needs adaptation to local context (China developed its own emission factors for some sources). Activities for such adaptation should be built into the design in similar projects.

2

Introduction and Evaluation Background

2.1 Project Background

The People's Republic of China signed the Stockholm Convention on Persistent Organic Pollutants when it opened for signature in May 2001 and ratified it in August 2004. Parties to the Convention must transmit a National Implementation Plan (NIP) to the Conference of Parties within two years of the date on which the Convention enters into force for them. To that end, China was committed to completing and delivering its NIP during 2006.

The project was designed to meet that objective and sets out the activities necessary to prepare the NIP. The project also provides for capacity building and for a series of case studies and demonstrations of methods that may represent suitable, practical and feasible approaches to meet the obligations of the Convention.

The overall objective of the project was to enable the People's Republic of China to take the first steps towards implementation of the Convention. To this end, the Project had to

- Establish inventories, or otherwise develop strategies to establish inventories, on the production, use, trade, stockpiles and wastes of, and sites contaminated by, chemicals listed in the Annexes of the Convention and existing in China;
- Develop strategies and action plans for the reduction and elimination of the chemicals listed in Annexes of the Convention and existing in China;
- Assess infrastructure capacity and propose management options, including institutional arrangements, regulatory frameworks, and requirements for capacity building, raising stakeholder awareness and research and development, to ensure the effective and sustainable implementation of the proposed strategies and action plans and thus facilitate China's transition to compliance with the Convention;
- Formulate, and gain stakeholder endorsement for, a NIP, including priorities and objectives with the aim of estimating the total costs and the incremental costs likely to be incurred for introduction into development and assistance planning;

- Build sustainable capacity sufficient to prepare the NIP and its component inventories, strategies and action plans, and to fulfill ongoing reporting requirements of the Convention; and
- Develop and demonstrate methodologies representing practical and feasible approaches to priority actions required by China in meeting its Convention obligations.

Note:
The full project consisted of different components (Table 1 below) that were funded by different sources. The GEF funds, managed by the United Nations Industrial Development Organization (UNIDO), were used to develop the different chapters of China's NIP. The funds from bilateral donors were used for inventories, demonstration projects, capacity building, and studies etc. as reported in the table below. Distinction will be made between the "NIP component", the other components and the "full project".

Table 1: Different components of the full project

Project component	**Focus of component**	**Source of funding**
NIP component	To Develop different chapters of NIP	GEF
Sino-Canadian project – Health study	A Toxicity Study of POPs on Women and Children	Canada
Sino-Canadian project on PCBs	Capacity Building in PCB Management	Canada
Sino-Canadian project on POPs pesticides	A Case Study on POPs Alternatives for Termite Control in China	Canada
Sino-Italian project on POPs pesticides	Strategy and Program on Reduction and Phase-out of Pesticidal POPs in China	Canada
Sino-Italian project on PCBs	Development of PCBs Inventory Methodology and draft Strategy on PCBs Reduction and Disposal in China (WB, Italy)	Italy
Sino-Italian project on Unintentional POPs	Strategies to Reduce Unintentional Production of POPs in China (UNIDO/Italy)	Italy

Executing arrangements

The United Nations Industrial Development Organization (UNIDO) acted as GEF Executing Agency with Expanded Opportunities[4] for development of the project. The Foreign Economic Cooperation Office (FECO) of the State Environmental Protection Agency (SEPA) had managerial responsibility for national implementation. A high-level NIP Development Leading Group (NDLG) was formed to ensure that actions required for Convention implementation were taken up and coordinated at the highest levels. The Group was chaired by SEPA and comprised 11 ministries and state administrations. Based on NDLG, a National Coordination Group (NCG) comprised of the relevant division chiefs from each ministry and state administration was established to ensure the routine coordination related to NIP activities.

A Convention Implementation Office (CIO) within SEPA was formed to administer activities towards the implementation of the Stockholm Convention in China and for monitoring and coordination of the NIP development. For the full project, CIO established and chaired a Technical Coordination Group (TCG) for NIP development and implementation. In addition to SEPA and the 11 ministries involved in NDLG, the TCG comprised representatives of the following: UNIDO as Executing Agency, World Bank, UNDP, Italian Government, members of other Donor community with development partners and a National Project Director providing advice and guidance.

A UNIDO Project Manager assisted FECO/SEPA to coordinate the component work packages and to facilitate the international guidance provided by international experts.

Planned to be completed in 27 months according to the project document, the project was implemented in 30 months (October 2004 – April 2007).

[4] Under "Expanded Opportunities" a number of international agencies were granted direct access to GEF Funds, without going through one of the three GEF Implementing Agencies (World Bank, UNDP, and UNEP).

Budget Information

The overall cost and financing of the Full Project is shown in Table 2 below which was taken from the project document.

Table 2: Overall costing of the Full Project

	Summary of financing: (including GEF and other donor financing during PDF-B grant phase)	Amount (US$)	Amount (Euro)
Full Project			
	GEF	4,056,500	
	Government of Italy (pesticidal POPs)	*1,798,500*	2,115,036
	Government of Italy (PCBs)	*1,611,150*	1,500,000
	Government of Italy (Unintentional Production)	*1,074,100*	1,000,000
	Government of Canada (Impacts on human health)	180,000	
	Government of Canada (Termite Control)	250,000	
	Government of Canada (Capacity building for PCBs treatment)	170,000	
	Government of China (in-kind, full project)	870,000	
	UNIDO (in-kind, full project)	195,000	
	Sub-Total Full Project Cost	**10,205,250**	
PDF-B			
	GEF	349,500	
	Government of Canada (Capacity Building workshops – during PDF-B phase)	365,000	
	Government of China (in-kind, PDF-B)	80,000	
	UNIDO (in-kind, PDF-B)	70,000	
	Sub-Total PDF-B Cost	**864,500**	
TOTAL GEF BUDGET		**4,406,000**	
TOTAL PROJECT COST		**11,069,750**	

Source: Project document

2.2 Scope and objectives of the evaluation, main questions to be addressed

This terminal evaluation is carried out in compliance with GEF and UNIDO evaluation policies in order to promote accountability for the achievement of the project objectives through the assessment of results, effectiveness, processes and performance of partners involved during project implementation. This evaluation is also a learning process since it includes feedback and knowledge sharing on results and lessons learned among the partners involved. It serves as a basis for decision making on policies, strategies and program management, especially in similar big countries where the NIP is yet to be developed and implemented.

The evaluation followes the GEF review criteria[5], and assesses the project with emphasis on those components for which GEF funds were required. More specifically the main objectives of this evaluation, as reported in the Terms of Reference (annex 1), are to:

- Assess the relevance of project objectives with regard to the country context and priorities
- Assess the efficiency of the implementation process with regard to cost effectiveness, quality of inputs and timeliness of activities
- Assess the achievements concerning outputs and outcomes and their impact
- Draw lessons and make recommendations in view of replication and sustainability

The key issue of the evaluation is whether the project has made significant contributions to reducing the effects of POPs on human health and the environment in China.

The evaluation was undertaken from June to September 2008 by a team consisting of Dr. Nee Sun CHOONG KWET YIVE (International consultant, team leader), Dr CHEN Yang (National evaluation consultant) and Mr Johannes DOBINGER (UNIDO, evaluation office).

2.3 Information sources and availability of information

The project specific documentation such as the project document, the NIP for China, the progress reports, consultants' reports, minutes of TCG and review meetings, reports of case studies and demonstration projects and financial reports were made available to the evaluation team by UNIDO Headquarters, Vienna. On request by the team during the field mission in China (24 June – 3

[5] GEF guidelines for Implementing Agencies to Conduct Terminal Evaluations, May 2003

July 2008), CIO provided further documentation like the PDF-B proposal, financial audit report of the project, an evaluation report of one of the Sino-Italian project, progress monitoring report of NIP implementation activities and sub-contractors reports.

In general, the availability of information for evaluation purposes was good. However, it was noted that substantive reporting on project results, based on the planned objectives as stated in the project document, was not available.

2.4 Methodological remarks, limitations encountered and validity of the findings

As stated in the TORs (Annex 1) the team analyzed the substantial documentation submitted by UNIDO and CIO and also other project-related material developed during the project like the POPs information websites. Reporting on project activities was found to be extensive and provided detailed information.

Interviews with Dr. Zhenghyou PENG, the Project Manager and Dr. Mohamed EISA, Chief UNIDO POPs unit, was carried out at UNIDO Headquarters, Vienna on 29 May 2008.

During the field mission undertaken in China from 24 June – 3 July 2008, the evaluation team met with CIO/FECO/SEPA, a representative of Project Management Office of Italy in Beijing, UNIDO Country Office in Beijing, and national project partners involved in NIP development activities. An agenda of the field mission is attached as Annex 2. It should be pointed out that despite request from the evaluation team, it was not possible to meet with representatives of World Bank and United Nation Development Programme (UNDP). A presentation on the preliminary findings of the evaluation exercise was made to FECO/SEPA on 3 July 2008. The preliminary findings were also presented to the Project Management at UNIDO Headquarters, Vienna on 4 July 2008. The presentations provided opportunities for receiving feedback on the preliminary findings of the mission that have been considered and are reflected, where appropriate, in this report.

Telephone interviews were carried out with Carlo LUPI, on 15 July 2008, and Zoltan CISZER, on 17 July 2008, two international consultants involved in the project. The information and feedback received have been considered in the evaluation process.

Additional information on specific questions was also requested and obtained from Project Management at UNIDO Headquarters, Vienna, CIO and other partners through frequent email communications.

3

Country and project context

3.1. Brief description including history of POPs issues in China and previous cooperation with GEF and other international agencies

Of the intentionally produced POPs listed in the Convention, chlordane, hexachlorobenzene (HCB), mirex and DDT are still being produced and used in China. While PCB contaminated equipment and sites have been identified across the country during the preliminary phase (PDF-B), dioxin sources widely exists in the various industrial sectors of the country.

Chlordane and mirex, Annex A POP chemicals, are mainly used for termite prevention and control. Chlordane is used predominantly to prevent termite damage by limiting early stages of colonization into wood structures (*i.e.,* as a chemical barrier), while mirex is used mainly for the control of termite damage once infestations are discovered. Given the widely recognized health and environmental problems caused by the release to the environment of chlordane and mirex, "viable" alternative products for termite control would likely be widely accepted. The production and use of mirex[6] has never been officially permitted in China, however small amounts (currently less than 1 t/yr) are produced and used each year. The production and use of chlordane have been progressively controlled since the 1980's, culminating with its registration for use being cancelled in 1996 and its production banned in 1999 under Regulations on the Management of Pesticides in China. Since 1999, other products and practices have been explored and the annual production and use of chlordane have been declining. However, the Chinese government continues to require that applied termiticides must have a period of efficacy of at least 15 years, while the effective periods of alternative chemicals tend to be less than 10 years and these alternatives are more expensive. The physical and chemical characteristics of soil in China are different from western countries, where alternative termiticides have been used, and it is not known whether these alternatives would be suitable for use in China. While there are no formal annual production estimates for chlordane in China, total production is assumed to be less than 1,000 tons per year. The Department of Pollution Control of SEPA estimated chlordane production for 1998 at 160 tons and a separate estimate from industry

[6] There is some uncertainty over the chemical composition of the termiticide marketed in China as mirex and whether it conforms to mirex CAS No. 2385-85-5

indicates a usage of 130 tons per annum[7]. Production statistics for mirex are not available but usage in the construction industry is estimated at 300 kg per annum[8].

HCB, another Annex A chemical, is used principally as an intermediate in the production of pentachlorophenol (PCP, used in wood treatment and preservation) and sodium pentachlorophenate (Na-PCP, used in programmes to combat schistosomiasis in certain parts of China), and as solvent in chemicals industry. Of the 6 HCB producers in China during the 1970s-1980s, only 1 remains in production. Limited quantities of the HCB produced in China are exported and this suggests that no HCB is imported. However, detailed information on production, use and trade is unavailable.

DDT, an Annex B POPs chemical, is also still being produced and used in China. This use is very important for China, as 1999 estimates indicate that about 65% of its population is potentially at risk from malaria, especially in regions that experience flooding. Between the 1950s and 1980s, DDT was used principally in China as an agricultural pesticide. Accumulated consumption of DDT in China to 1983 accounted for more than 430,000 tonnes. In the past, large amounts of DDT used to be applied in agriculture but now it is mainly used as an intermediate in the production of dicofol, as an additive for marine antifouling paint, and for malaria prevention and control. During the 1970s-1980s, there were 11 local DDT producers but only 2 factories, the Tianjin Chemical Factory and the Yangzhou Pesticide Factory, are thought to remain in production. The total annual production of DDT of these factories is around 4,000-6,000 tons. All the DDT produced by the Yangzhou plant is used on-site for the manufacture of about 1000-1500 t/yr of dicofol. The DDT produced at the Tianjin factory is supplied to up to 20 other licensed producers that collectively produce about 1000 t/yr of dicofol. A total of 2,500 t of dicofol was produced in China in 2000. Production from the Tianjin plant is used there and in several other enterprises for the manufacture of DDT products such as mosquito-repellent incense and special paint. At least 2 factories are licensed to formulate DDT wettable powders using DDT from the Tianjin plant. A small proportion of DDT production is exported[9].

China also used to produce toxaphene and heptachlor, but as early as 1970's their production as well as the application of DDT in agriculture was banned. Wastes and contaminated sites of the aforementioned POPs were not appropriately managed and disposed of at the time due to constraints of the

[7] Association of Petroleum and Chemical Industry of China, February 2002.
[8] Jia'an Cheng. The status and strategies of termite prevention in China. *Report of seminar on POPs, March 2001*. Data excludes mirex use in agriculture, forestry and water conservancies.
[9] Customs statistics indicate total exports of 350 t of DDT & HCB (combined) in 2002. Statistics for each individually are not collected.

economy, technology, awareness and management level, and such POPs-containing wastes and contaminated sites still exist in the country.

PCBs were produced in commercial quantities in China between 1965 and 1974. The estimated total output was over 10,000 tonnes, comprising 9,000 tonnes of trichlorobiphenyls (PCB3) and 1,000 tonnes of pentachlorobiphenyls (PCB5). PCB5 oils were mostly used in a wide variety of open systems, such as in oil paints and exterior dopes. While some wastes may remain at production or formulation facilities, it is reasonable to assume that most of this material has been released into the environment. PCB3 was principally used in manufacturing capacitors that were used in the electrical supply industry. An estimated average of 12 kg of PCB3 was used in each capacitor and, based on a production of 9,000 tonnes, it is estimated that about 750,000 capacitors were produced in China. However, estimates based on the installed transmission capacity in China in 1975 indicate that 1.15 million capacitors would have been required, suggesting that as many as 400,000 capacitors were imported into China. If this estimate were correct, then an estimated 4,000-4,500 tonnes of PCB3 oils would have been imported with this equipment so that a total of 13,000-13,500 tonnes of PCB3 would have been introduced into China as a result of the domestic manufacture and import of capacitors. Transformers containing PCB oils were never produced in China but an unknown number were imported. While 30 transformers have so far been found and disposed of, there is no basis to estimate how many PCB-containing transformers may remain in China, either in service or in storage for disposal. During the 1980s, many pieces of electrical equipment were taken out of service and collected at temporary storage sites prior to disposal in accordance with the requirements proposed by relevant Ministries. A maximum storage time of 3 years was set, after which obsolete equipment was to be placed in caves or dedicated concrete-lined landfill facilities. Surveys and investigations conducted in recent years indicate that some temporary storage facilities remain with accumulations of discarded PCB-containing equipment. Furthermore, the number of sites at which PCB oils and PCB-containing equipment were discarded is presently unknown. Few of the sites were recorded on files and/or marked on site. Many of those for which file details have been found are no longer marked on the ground, their identifiers having been destroyed or lost. Identification of these sites will, therefore, be a time-consuming and costly task. In addition, there are a large number of disposal sites that have exceeded or are approaching their design lifetime of 20 years. Investigations at some of these sites indicate that they are leaking PCBs into the surrounding environment. Thus, measures to address such problems must be taken as soon as possible.

The Stockholm Convention identifies 20 source categories, listed in the UNEP *Standardized Toolkit for Identification and Quantification of Dioxin Releases*[10], which are significant sources of unintentionally produced POPs (Annex C, Parts II and III). All these sources are found in China and industrial activity in many of these sectors has contributed significantly to China's impressive economic growth in recent years. Recent investment in new technologies, combined with general measures to control air pollution, in particular of sulphur dioxide emissions, from large- and medium-scale enterprises, may already be contributing to reductions of releases of unintentionally produced POPs.

During the 1990s, many of the larger cities in China began to dispose of their ***municipal solid wastes*** by incineration and there are now more than 40 municipal incinerators with a combined capacity in excess of 132,000 t per day. A range of incineration technology has been introduced of which fluidised bed systems are perhaps the most common. Pollution control systems include electrostatic precipitation and semi-dry processes and with active carbon and fabric filters. Over 8 million tonnes of hazardous industrial waste were generated in China in 2000: about 20% was disposed of, in part by incineration.

China has a large ***pulp and paper industry*** with more than 4,000 enterprises in the sector. The raw materials and techniques used in the industry differ considerably from those in developed countries. In 2000, wood pulp represented less than 20% of total pulp production while significant quantities came from grass crop sources (grass, reeds, bagasse, etc). In addition, China typically achieves high rates of paper recycling, with almost 40% of total pulp coming from this source. As a consequence, predictions of dioxin and furan production from this source based on developed world experience may not be appropriate and the situation in China will need to be carefully evaluated.

China is the world's largest producer of ***iron and steel*** and has almost 3,000 enterprises in the sector. Of these, 3 produce in excess of 5 million tonnes per annum, 37 produce in excess of 1 million tonnes per annum and a further 13 produce in excess of 500 thousand tonnes each year. In addition, China has almost 5,000 enterprises engaged in the recycling of non-ferrous metals. Despite considerable advances and investment in recent years, there remains a considerable technological gap between the industry in China and that in the developed world. This is particularly evident in the availability of pollution control equipment and technology. Air pollution control measures imposed on large- and medium-scale producers may have served to reduce POPs emissions incidentally, but there are no measures controlling pollution from the large number of smaller enterprises.

[10] UNEP. 2001. Standardized toolkit for the identification and quantification of Dioxin and Furan releases. *Draft report*.

China has a large and important ***chloralkali*** *industry* and ranks second in the world in terms of production with an annual output in 1998 of 5,080 thousand tonnes. Of an estimated 500 chloralkali enterprises in the world, 200 are in China. Graphite anodes were commonly used in China's chloralkali industry. In those enterprises where this process is used, it is being progressively replaced by metallic channel technology. Chlorine output via the graphite anode process is now thought to be very small representing only about 3% of total production. With the technical innovation now being carried out in the caustic soda industry of China all the graphite anode cell processes will soon be replaced. The present technical innovation and the technical status wait to be investigated in detail.

According to some actual measurement and estimation, China had about 10 kilograms-TEQ dioxin release in 2004 and is one of the countries with the largest amount of dioxin releases. Due to very limited measures to control dioxin releases, the total amount of releases of POPs listed in Annex C under the Convention is on the increase in China. It is anticipated that control of dioxin releases will be the biggest challenge for China to eliminate or reduce pollution from the first group of POPs.

POPs such as DDT and PCBs still can be detected in the environment and foodstuff. As the substance with the largest output and widest application among intentionally produced POPs, DDT levels have decreased in the environment and foods in China on the whole. New DDT pollution comes from production and use of dicofol and the use of DDT in marine antifouling paint. In a few areas, there is pollution by DDT and PCBs residues in estuary and marine coastal area sediments. Although some research and monitoring data on dioxin was obtained in the process of development of the NIP, due to constraints in research and monitoring level and analysis costs,

3.2. Project specific framework conditions; situation of the country; major changes over project duration

3.2.1 Project specific framework conditions and situation of the country

China already has some management systems concerning POPs, which have regulations on each sector for the whole lifecycle of a POPs project from its establishment, production, storage and transportation, distribution, use, import and export to disposal. Management include mandatory legal systems and guiding policies encouraging enterprises to implement voluntarily as well. Involvement of social intermediaries, particularly those certified or recognized by administrative departments in charge, renders assistance and support to the implementation of the management systems.

In many sectors, China already has some regulations for the environmentally sound management of many POPs. For example, a series of specific laws, regulations and rules has been formulated to ensure the safe management of chemical products like pesticides and hazardous chemicals that include POP chemicals. Present practice requires such chemicals to be registered prior to production, sale and international trade while a review and approval system governs use, storage and transport. Some of these measures include provisions for the control of chemicals listed in the Convention. For example, aldrin, dieldrin, endrin, heptachlor and mirex were never entered into the pesticide register established in 1982 while registrations for toxaphene and chlordane were cancelled in 1996. Without a valid register entry, these chemicals cannot be legally produced, sold, traded or used as a pesticide. Similarly, the Law on Solid Waste Pollution Prevention and Control (1998) differentiates hazardous wastes into 47 classes. Waste comprising or containing organochlorine pesticides, PCBs, dioxins and furans are covered in classes 4, 10, 44 and 43 respectively of the legislation. This legislative framework is also supported by a series of national standards (environmental and health standards) and technical practices on classification, storage, transport, packaging and labelling of hazardous chemicals including some of the POPs (e.g. DDT, PCBs and dioxins).

Nevertheless, a big gap exists between China's POPs management systems and what is required for Convention implementation. Very few management objectives involve POPs with significant impacts on environmental quality, and some management regulations have not been effectively implemented. The following are major problems that exist in POPs management:

- Lack of effective communication between administrative departments

Lack of effective routine communication and coordination between departments involved in POPs management results in information communication not being conducted in a timely way and is unfavourable for the effective implementation of POPs work for Convention implementation.

- Inadequate Convention implementation capacity of administrative organs

A severe shortage of POPs management personnel in each concerned department, and their weak management capacity, cannot meet requirements of POPs management for Convention implementation.

- Technical support system for management not being well established

There is a lack of an expert support system as well as guidance on technologies concerning POPs management, and the POPs monitoring and information support systems have not yet been established.

- Management laws and regulations not being well established

There exists a gap in present environmental management laws and standards regarding POPs pollution control. Regulations on POPs management are

spread over varied laws and policies, which is unfavourable for forming an integral binding force. Among established regulations on POPs management and pollution control, some lack relevant legal liability and some are less operable.

- Inadequate law enforcement and supervision capacity and public participation

Some regions are not fully aware of environmental protection and POPs issues, still have a tendency for local protectionism, and do not fulfil their responsibilities for law enforcement. The awareness of public participation in POPs management is weak and participation channels are not clear.

- Insufficient integrated management measures

Most of the present management measures are in the form of administrative orders. There is a lack of market incentives concerning the development and application of POPs alternatives and alternative technologies, technologies for reduction of Dioxin releases and technologies for disposal of POPs wastes and contaminated sites, and diversified financial mechanisms for addressing POPs issues with participation by all parties concerned.

3.2.2 Major changes over project duration

Before the NIP project including the PDF-B phase, almost all central/provincial government officials involved in hazardous chemicals management knew little or nothing about POPs. Through numerous training, awareness raising activities and the NIP consultation process at both central and provincial levels, most of the government officials are now familiar with POPs, the basic convention requirements, country strategies and country progress. In recent years, the Chinese government has made comprehensive efforts: regulatory strengthening, scientific research, POPs reduction engineering demonstration and considerable investment[11] (like Hazardous waste/medical waste plan by SEPA). Those efforts were triggered or driven by NIP development and other convention activities in China. NIP activities also promoted the environmental management of other hazardous chemicals and wastes beyond POPs.

Through the project duration including the preparatory phases until completion, SEPA/FECO became stronger and gained the respect of key ministries. The cooperation and participation of these ministries that was weak at the initial stages became very effective as the project progressed. They recognized the importance and relevance of the project and participated more actively in the process through the NCG. From thereon, they attended more regularly the meetings, and participated very effectively

[11] See, for example, reports of the World Watch Institute on increasing Governmetn investment in environmental protection (www.worldwatch.org/node/61)

in the different activities relevant to their ministries. For example, they reviewed the NIP, reports and other related POPs documents, and provided valuable comments for improvement. The NCG is presently still meeting regularly and planning activities for NIP implementation.

As discussed previously, CIO, insufficiently staffed at the initial stages of the project, was gradually strengthened as the project progressed and the activities were better coordinated. At the start of PDF-B phase, CIO had only three officers. Presently, there are over 25 permanent officers working at CIO and coordinating activities for implementation of the NIP. Local implementation capacity is being established gradually. At provincial level where the project was run, the Environmental Protection Bureaux (EPBs) have dedicated personnel for POPs activities. So far, local implementation capacity has been established in the provinces of Chongqing, Shaanxi, Shandong, Zhejiang, Liaoning, Hunan, Anhui and Jiangsu. An adapted version of the NIP for implementation at provincial level has been developed by Peking University and many provinces have already showed great interest in getting a copy of this document.

Prior to the NIP project including the PDF-B phase, awareness regarding POPs was low. However, through development of the NIP project and the co-funded components that involved government officials at all levels from both central and provincial governments, relevant industrial partners like the China Iron and Steel association or the China Petroleum and Chemical Industry association, academia including major research institutions like the Peking University or institutes belonging to the Chinese Academy of Sciences, and other stakeholders like the NTCC, awareness regarding POPs at the stakeholder level is currently very high in China. Some stakeholders have already committed themselves to reduce POPs release. For example, the steel industry through the Iron and Steel association has proclaimed through a signed document that they are taking measures to reduce dioxin emissions mainly by applying best environmental practices (BEP). This project has also created opportunities for collaboration between academia and industrial sector with the authorities through CIO or EPBs acting as link (e.g. Dioxin laboratory of the Research Center for Eco-environment of the Chinese Academy of Sciences and the Baosteel company in the case of the dioxin demonstration project funded by Italy or between the Zhejiang University and the Huzhou Industrial and Medical Waste Treatment Center in the incineration sector). This created a favorable context for better communication and discussion on important issues like cleaner production or energy saving processes. between academia and the industrial sector.

Due to the awareness that has been raised at the highest level in the country, much more funds are available for institutions to undertake research on POPs. According to interviews, more than 100 millions RMB (yuans) have already been disbursed by the central government for research on POPs or

for up-grading of laboratories. There are indications that this will continue and even more funds will be available given the lack of research and monitoring data in China and the need for capacity building. On this issue, before the start of the project, capacity for dioxin analysis was limited. Currently several state of the art dioxin laboratories exist in different provinces of China for research and monitoring purposes. However, given the tremendous industrial activities and the huge number of incinerators existing in the country more dioxin monitoring capacity is needed for China to meet its requirements towards the Convention.

3.3 Positioning of the UNIDO project and prior cooperation initiatives

The China PDF-B preparation project for NIP was the first China POPs project supported by GEF. Prior to this PDF-B project, SEPA cooperated with the World Bank in organizing the international workshop on POPs funded by Canadian POPs trust fund. The purpose of this workshop was to raise awareness at the central level. Invited international experts and SEPA officials provided training courses on the Convention, POPs properties, POPs management in China for more than 100 central government officials from NCG member ministries and local experts from universities/scientific institutes.

The UNIDO executed NIP component of the project has played an important and central role for the development of the NIP in China. The other co-funded components of the project provided very useful and relevant information to the NIP and are essential for sustainability of the project. These other components included: the strategy for pesticidal POPs and the strategy of Unintentional Production POPs funded by Government of Italy; Impacts on human health, Termite Control and Capacity building for PCBs treatment funded by Canada. Otherwise, all the national and local partners provided co-in cash and in-kind contributions for the development of the different activities. The international participation that contributed to the good development of the NIP include international agencies like GEF, UNIDO, UNDP, WB, UNEP, FAO, UNITAR and countries like Italy, Canada, USA, Japan, German, Norway, Switzerland, which were involved in all important events such as the Technical Coordination Group (TCG).

The GEF funds supported mainly the drafting of the NIP document, which is an important contribution to overall POPs phase out efforts. But for China, the most populated country of the world which faces many difficult challenges in the POPs field, the establishment of a good mechanism for project implementation is also very important. The GEF project (including the UNIDO project and the other co-funded projects) assisted China in setting up this mechanism, and a fundamental country document on POPs management

and convention implementation. The document will direct the country in the next twenty years on POPs actions in China.

3.4 Counterpart organizations and changes in the situation of the Country

Before the implementation of Stockholm Convention responsibilities related to the POPs management and disposal in China were not clearly defined. With the project development, the responsibilities of different stakeholders have been clarified and regulated by the NIP. The responsibilities related to POPs at different management levels can be summarized as follows:

- Responsibilities of central government departments on POPs management13[12]

In the central government, apart from the State Environmental Protection Administration, departments involved in POPs management include: the Ministry of Foreign Affairs, the National Development and Reform Commission, the Ministry of Science and Technology, the Ministry of Public Security, the Ministry of Civil Administration, the Ministry of Finance, the Ministry of Construction, the Ministry of Railways, the Ministry of Communications, the Ministry of Agriculture, the Ministry of Commerce, the Ministry of Health, the General Administration of Customs, the State General Administration for Quality Supervision and Inspection and Quarantine (AQSIQ), the General Administration of Civil Aviation (CAAC), the State Administration of Work Safety (SAWS) and the State Electricity Regulatory Commission.

- Specially established convention implementation institutions[12]

In 2004, the NIP Leading Group, named National Coordination Group for Convention Implementation (NCG), led by SEPA and involving 11 commissions and departments was established. As the national coordination mechanism of the Chinese government for implementation of the Stockholm Convention, it is responsible for reviewing and implementing national guidelines and policies on POPs management and control, and coordinating important issues related to POPs management and convention implementation. The same year, SEPA established the Office of the National Coordination Group for Convention Implementation (CIO), as the office under the National Coordination Group for Convention Implementation it is acting as the focal point for China's implementation of the Stockholm Convention. It is responsible for the establishment and improvement of convention implementation management information mechanisms, as well as organization, coordination and management of convention implementation activities. In detail, it is responsible for: carrying out work assigned by the

[12] Report of the implementation of Stockholm Convention on Persistent Organic Pollutants of NCG in 2007

NCG; conducting convention policy studies and organizing convention negotiations; coordinating and organizing related departments and agencies to formulate counterpart policies, regulations and standards and promoting their implementation; coordinating and organizing related departments and local government for selection, preparation, application and execution of national convention implementation projects; providing the local government with guidance in convention implementation activities; carrying out publicity, education and training activities; and conducting evaluation of convention implementation performance.

- Local implementation capacity[13]

Local implementation capacity has been established gradually. The responsibilities of local governments are based on the NIP. Taking into consideration local needs, the local governments formulate related local policies and plans and organize their implementation; investigate into and deal with non-compliance activities; organize publicity, education and training on local convention implementation activities; and assist in preparation and implementation of national projects related to the convention implementation. So far, local implementation capacity has been established in the provinces of Chongqing, Shaanxi, Shandong, Zhejiang, Liaoning, Hunan, Anhui and Jiangsu, etc. The related mechanism and management experiences will be replicated gradually to the other provinces followed the implementation of Stockholm convention in China.

For the full project SEPA established and chaired a Technical Coordination Group (TCG) that reviewed and commented upon project outputs, provided guidance to the project at the macro-level, and helped disseminate project findings and outputs. In addition to SEPA, membership of the TCG comprised UNIDO, the World Bank, UNDP, the Italian Government, and other members of the Donor community. SEPA appointed a National Project Director (NPD) responsible for day-to-day project management and chair the PMG.

Different workshops have been held during the implementation of projects, including 11 national coordination group meetings, 5 international workshops TCG meetings, 3 regional workshops, 1 international workshop on financial mechanism, 27 trainings on investigation and thematic workshops on strategies and action plans, which have played an important role to ensure implementation of key activities and outputs.

[13] P.R. China National Implementation Plan for the Stockholm Convention on Persistent Organic

4

Planning, Design and Strategy of the Project

4.1 Project Design

As explained in Section 2.1, China's NIP development was done through the full GEF project cycle (PDF + Full Sized Project) rather than taking the so-called "Enabling Activities", which usually do not have a preparatory phase and are much smaller in terms of budget. The document of the project under review was thus the main output of the GEF funded and UNIDO executed PDF block B project entitled "*Preliminary assessment to identify the requirements for developing a National Implementation Plan in the People's Republic of China as a first step to implement the Stockholm Convention on Persistent Organic Pollutants (POPs)*".

During the PDF-B development phase, and the project identification and planning, a strategic and participatory approach was used where the major national stakeholders including key ministries, relevant national institutions and universities, and international agencies and bilateral donors were invited to participate in preparatory workshops and meetings. This approach was successful as cooperation and collaboration with key relevant international organizations (GEF, WB, UNDP, UNEP, UNITAR and FAO) and bilateral donors (Italy, Canada, USA, Japan, Germany, Norway, etc.) was envisaged. As a result, the Government of Italy financed a large proportion of the work package dealing with POPs pesticides, on PCBs and activities related to the reduction of unintentional production of POPs. The Government of Canada provided assistance for capacity building, particularly in PCBs management and for case studies and demonstration projects related to termite control and health impacts. However, it is felt that representatives of major and key provinces in China should have been invited to the inception workshop and other preparatory meetings. For example, a representative of the Environmental Provincial Bureau of the provinces selected for the PCB project, one of the capacity building project and those of the most industrialized provinces could have been invited at these preparatory workshops and meetings. This would have given due importance to these provinces in the project and their representatives would have ensured better awareness at provincial levels and favoured better communication and information exchange during the early stages of the process. The participation of NGOs in the project was also

found to be weak. The project document should have stressed the importance of the participation of NGOs in the process. Relevant environmental and nature organizations, social organizations or women's groups could have been invited as indicated in the GEF/UNEP guidelines.

In general the project document is of good quality containing relevant and concise information. It is not usual to see a project document of this size with so many appendixes (up to appendix 19) and other annexes (13 job descriptions for international experts), which give an indication of the level of detail of the document and the amount of information found therein.

The overall project design, which is a combination of NIP with case studies and capacity building, is considered relevant, especially in a big country like China. Based on the findings of the PDF-B phase and with guidance from international experts, the project document was developed by UNIDO in consultation with major National partners. The stated objectives in the project document were developed according to the Articles, Paragraphs and Annexes of the Convention. These objectives addressed adequately the real needs (capacity building, international expertise and guidance, technical know-how, awareness, etc.) of China to meet its obligations towards the Convention. Moreover in order to meet these objectives, the guidelines of the GEF/UNEP document for NIP development[14] were closely followed while planning the activities of the project. The project planning also benefited from the experience and expertise of a former Director of UNEP-Chemicals who was also a former Interim Executive Secretary of the Stockholm Convention and co-chair during the first Conference of Parties (COP). He reviewed and commented the project document. The project is highly relevant to China's main environmental policy that aims at protecting its population and the environment against the toxic effects of hazardous chemicals that include POPs. As stated in the eleventh 5-year plan for environmental protection, priority is given to issues that directly affect human health, which increases the relevance of this project to target groups.

The objectives to develop the NIP were clearly spelt out and the corresponding activities to achieve these objectives were properly described in the project document. However, it is felt that the project did not address sufficiently the issue of capacity building at provincial level. More specifically, the project did not explain clearly how the capacity built and experience gained at central level or in some provinces would be transferred/disseminated to other provinces where no component of the project was run. It is important to have a good NIP, but it is also important to build adequate capacity in all provinces, as they would be the key partners during the implementation phase.

[14] Initial Guidelines for Enabling Activities for the Stockholm Convention on Persistent Organic Pollutants. GEF/C.17/4, April 6 2001

Furthermore, the purpose of some of the components of the project is not properly explained. For example, the objective of having the demonstration projects for BAT and BEP promotion in key sectors was not clearly explained in the project document. It is understood that baseline data for dioxin emissions had to be established for China as the emission factors in the UNEP toolkit document[15] were most probably not appropriate for the Chinese industries. However, beyond determining the baseline data, the project did not properly describe how the results of these demonstration projects and the experience gained would be used to promote BAT/BEP for the whole sector in all the provinces of the country. This issue is very important in China since for each sector a huge number of enterprises exists, using very different technologies (ranging from low level to modern) and different types of raw materials.

For example, during the field mission the evaluation team visited a modern facility in the pulp and paper industry that participated in the BAT/BEP demonstration project. According to information gathered, the pulp and paper sector in China consists of around 3,000 to 10,000 of which the majority is SMEs. It is not clear how the results obtained and the experience gained at this modern enterprise would be transferred to the whole sector, especially to the smaller enterprises that are using different and less developed technologies and where less flexibility for the change of raw materials can be expected.

Similarly, the aim to incorporate a pilot study for investigating the exposure of POPs and their adverse effects on the health of children and women in the project was not clear. Unless the results are used to raise awareness in the country, to promote the use of non POP chemicals or to promote BAT/BEP, otherwise the hazardous effects of POPs on human health and to the environment is already known and is well documented in scientific publications and is one of the reasons for the existence of the Convention. The project document does not clearly explain the purpose of this pilot study and how it would help in the NIP development. This pilot study did not add value to the project.

The planning was appropriate regarding requirement of international expertise to assist in the development of the different components of the project; thirteen job descriptions, developed in consultation with FECO/SEPA, are given in the annex of the project document. These international experts, whose inputs and guidance was considered very valuable by all national partners, were recruited by UNIDO. For continuity and to build on experience already gained, many of these international experts as well as national experts recruited for the project (for preparation

[15] UNEP. 2001. Standardized toolkit for the identification and quantification of Dioxin and Furan releases. *Draft report*.

of inventories, training workshops, strategy and action plan development, etc.) were already involved in the PDF-B phase. The NIP drafting process was however somewhat difficult at the initial stages as mentioned earlier. Significant modifications and several subsequent re-draftings were required before a final version was accepted by all stakeholders. It was felt that more guidance was needed from UNIDO and the international consultant at the initial stages.

Although the provisional agendas of the Technical Coordination Group (TCG) meetings (see appendix 16 of the project document) provide for monitoring and evaluation of the outputs and progress made, the project could also have benefited from a logical framework and success indicators to better measure progress. Similarly, the reporting requirements could have been more specific (e.g. using formats) and more results oriented.

In conclusion, the building of the project based on continuity, taking advantage of the experience and achievements gained during PDF-B phase, contributed to improved coordination of POPs activities in China. Communication and information exchange between the Project Manager (PM) and the Chinese counterpart (FECO/SEPA) responsible for national execution improved over time. It followed that finding solutions to problems was easier. For example, to facilitate the task of the dioxin inventory team, the PM translated the UNEP standardized toolkit document[16] into Chinese. However, as discussed later, it was felt that more guidance should have been provided by UNIDO at the initial stages of the NIP drafting process. Overall UNIDO management and guidance was considered very effective and helpful by all partners of the project.

4.2 Implementation Approach

For implementation of the project, UNIDO adopted the following approach: a large subcontract of GEF funds (3,272,000 $) to the main partner FECO/SEPA plus a smaller component (784,500 $) that UNIDO executed directly. In this respect, a subcontract was signed between UNIDO and FECO/SEPA and the terms of reference of the subcontract contained all the activities to develop the NIP as described in the project document. Since the large subcontract was given to the national project counterpart, this part of the project can be regarded as nationally executed. The recruitment of the international experts was executed by UNIDO using the agency execution model. Overall, the project applied a “mixed execution” approach.

This approach is considered efficient as compared to full agency execution. It provided for more flexibility in the management of funds (for example for the reallocation of funds) and allowed for more efficient substantive

[16] UNEP. 2001. Standardized toolkit for the identification and quantification of Dioxin and Furan releases. *Draft report*.

backstopping or project supervision than the typical UNIDO agency execution. Some stakeholders expressed that the mixed approach was also more efficient than the national execution approaches as applied by WB and UNDP executing the co-funded components.

The implementation of the other co-financed components of the project, executed by other international agencies (World Bank (WB), UNDP), was also managed by FECO/SEPA. Depending on the components, national execution had to follow different rules so as to meet the requirements of the partners: the requirements of the international organizations (UNDP, WB and UNIDO), requirements of bilateral donors (like Italy), and requirements of the Ministry of Finance. The three different agencies for GEF implementation (UNDP, WB and UNIDO) have quite different approaches to their supervisory function. The WB is mainly controlling implementation by means of very detailed implementation agreements, which can render implementation too inflexible. For example the approval of use of funds for purposes other than stated in the subcontract (e.g. unforeseen but necessary translation of documents) was rejected by WB because it was not one of the assigned uses of the respective budget line.

The UNIDO project manager was very accessible and provided useful guidance for good implementation of the project. An email to him could solve most issues, like for example the approval of use of funds for purposes other than stated in the subcontract. The different components of the project were sub-contracted out nationally. In total 77 sub-contracts were signed, 19 thereof under the UNIDO/GEF project. The evaluation team analysed the information of a sub-set of these subcontracts and found that in these cases the allocations, payments and monitoring of sub-contracts were done in a fair and transparent manner according to the well structured procurement, bidding, finance, and audit system of FECO.

Providing international advice to the formulation of a NIP in China requires a practical solution to bridge the language barrier. UNIDO employs at headquarters a Chinese backstopping officer. This has helped to ensure flexible and continuous backstopping without the need to wait for translations of all documents before taking the next step. However, it should be noted that the assignment of project management responsibilities to staff with implementation-country nationality might imply a risk for the organisation. While in the particular case of the evaluated project no evidence has been found that would indicate any wrong doing or management problems, experiences from other projects suggest that measures should be taken to reduce such risks.

4.3. Counterpart arrangements

The infrastructure including offices, staff, committees, and other resources for implementing the project were already in place at the start of the project. A NIP Development Leading Group (NDLG) comprising the 11 major ministries with SEPA acting as lead agency was established in September 2003 prior to the start of the project. The Vice minister of SEPA was group leader with the 11 Director Generals of the eleven ministries as coordinators and the eleven directors as contacts. The NDLG met twice yearly to discuss about NIP development and important POPs issues. A National Coordination Group (NCG) based on NDLG was set up afterwards. Its role amongst others was the review and implementation of national policies and decisions on POPs management and control, and the discussion and coordination of important issues on POPs. The Convention Implementation Office (CIO), a permanent infrastructure to ensure the implementation of the Convention, established within FECO/SEPA was responsible for coordinating and monitoring of all activities (organization of workshops and meetings, organizing visits of international experts, field visits, etc.). CIO managed and coordinated 77 activities/subcontracts (not including Workshops, training, study tour and activities of individual consultants) during NIP development process. Of the 77 activities/subcontracts, 19 were supported by GEF grant, 34 by the Government of Italy, 6 by the Canada POPs fund, and finally 18 by the Chinese Central Government. According to feedback gathered during the field mission, CIO was very efficient in managing and coordinating these activities.

They were also very effective in helping national experts, who were mostly from academia, and international experts to open doors and to establish good work relations especially with industries and provincial authorities. CIO was particularly helpful in acting as translator for the international experts as many of the national partners did not communicate properly in English. CIO also acted as a link between academia and the industries where a communication gap between these two worlds existed according to one of the international experts interviewed during this assessment. This same expert felt that CIO should recruit more technical staff in order to be in a better position to fully understand the implications of the findings of the leading national research institutions.

It was noted that staffing of CIO during the initial stages of the project was not sufficient and this made the coordination of activities difficult. However, as the project progressed CIO recruited more staff and, coordination and management improved significantly. Another issue were the frequent changes of staff at the management level of FECO/SEPA (three different director generals were nominated during the PDF-B and the project phases) and of CIO officers (of the three original officers of CIO, only one is still

member of CIO). This has resulted in important losses of institutional memory.

4.4 Core elements of the project

The methodology was based on four core strategies and the corresponding action plans: (i) POPs pesticides, (ii) PCBs, (iii) Unintentional POPs (UP) and (iv) waste and contaminated sites (WCS), to develop the NIP. This can be considered a logical and good approach as these POPs chemicals are used/emitted in very distinct sectors (agricultural and health, power and industrial) that required different management/action plans and involving different stakeholders. The fourth core strategy is a cross-cutting one that dealt with contaminated sites and wastes. The building of six thematic groups (given below) to undertake the different activities planned in the project document (data survey/evaluation, capacity building evaluation, technical and economic analysis and prioritization, and NIP drafting) is also considered appropriate.

- Group 1: Pesticide group by Beijing University, China Petroleum and Chemical Industry Association, NTCC, Institute for Control of Agro-chemicals (MOA), and CDC
- Group 2: PCBs group in Beijing Normal University, China Electricity Council, and Zhejiang/Liaoning province
- Group 3: UP group in Tsinghua University and Chinese Academy of Sciences
- Group 4: WCS group in Institute of Environmental Sciences of Ministry of Environmental Protection
- Group 5: Regulation and Institution group, Environmental and Economic Policy Research Center of SEPA
- Group 6: NIP development group in Beijing University

The approach was also built on continuity and on existing capacity, as most of the sub-contractors (e.g. key stakeholders of different sectors or leading research institutes) of the different groups were also hired during the PDF-B phase to undertake similar activities. This approach ensured successful completion of the project and produced high quality outputs that are discussed in the next chapter.

The different components of the full project have been planned and developed in a timely manner. For example, high quality data and inputs generated by the co-funded components (see Table 3 below) were either incorporated directly in the NIP (e.g. POPs inventories) or have been considered for the development of strategies and action plans, and for setting priorities (e.g. identification of major dioxin releasing sectors using nationally developed emission factors). All the co-financed components, executed by different international agencies (see Table 3), started before the project and

were timely completed. The outputs of these components were effectively considered for NIP development and drafting.

Table 3: Co-financed components of Project

	Project Title	Agreement signed	Project End date
1	Strategy and Program on Reduction and Phase-out of Pesticidal POPs in China (UNDP/Italy)	10/07/2001	30/06/2004
2	Capacity Building in PCB Management (WB, Canada)	02/08/2003	28/02/2005
3	A Case Study on POPs Alternatives for Termite Control in China (WB, Canada)	02/08/2003	28/02/2005
4	A Toxicity Study of POPs on Women and Children (WB, Canada)	02/08/2003	28/02/2005
5	Development of PCBs Inventory Methodology and draft Strategy on PCBs Reduction and Disposal in China (WB, Italy)	30/09/2003	30/9/ 2005
6	Strategies to Reduce Unintentional Production of POPs in China (UNIDO/Italy)	31/03/2004	28/02/2006

Source: Table taken from Project Document

The project also benefited from the coordinating mechanism put in place during the PDF-B phase. A technical coordinating group (TCG) drawing together key National stakeholders and international partners (UNIDO, GEF, WB, Italy, etc.) was established within that period. Its role was to monitor and review the outputs, including the draft National Implementation Plan and the Project Brief for Long-Term Capacity Building, of those project components funded by the GEF and to harmonize them with co-financed or bilaterally funded activities.

The meetings, totalling five during the project period, were organized as planned and the outputs and the progress of the project was reviewed and discussed by the different stakeholders. It was at the fourth TCG meeting that the first draft of China's NIP was first circulated to the members of TCG. This first draft suffered severe critics (both on the content and the format) from international agencies and international experts during that meeting. It was mentioned that the drafting should strictly follow the format recommended by the GEF/UNEP guidance document and the second part of the draft dealing with action plan and strategy should be significantly modified. Taking into consideration these remarks and with guidance from international experts and UNIDO and help from CIO, the drafting team (Peking University) submitted a finalized version of the NIP to the State Council for endorsement

in April 2007 after four months of intensive work and consultation with all national key stakeholders.

In conclusion, the project was well designed and the building up of the NIP with demonstration projects, pilot studies and capacity building is considered a very good approach. However, the purpose of some of these projects and studies were not clearly explained. The development of the project proposal was done in a participatory approach involving key national stakeholders and international agencies. The project was very successful in gaining substantial co-financing from bilateral donors, mainly Italy and Canada. The approach to subcontract a major part of the project funds to FECO/SEPA is considered effective and contributed to the successful implementation of the project. Finally, the adopted methodology and the building on continuity and on existing capacity ensured success.

5

Assessment

5.1. Relevance and ownership

The approval and endorsement of the NIP by People's Congress and submission to the Convention Secretariat indicates the very high ownership of the project at country level. A very high ownership has also been observed during the field mission at the level of CIO/FECO/SEPA, responsible for project management at country level. There are indications that ownership is also high at the level of other stakeholders including key ministries and other institutions including research bodies and universities, and also at provincial levels (e.g. EPBs).

5.1.1. Relevance in the socio-economic context of the country

This project is regarded highly relevant given the socio-economic context of the country. As discussed in section 3.1, many of the economic activities in China are directly related to the use or release of chemicals listed in the Annexes of the Convention, in particular chlordane, mirex, DDT and dioxins.

Mirex and chlordane, still being produced in China, are mainly used for termite control in order to protect the wooden structures, tree plantations and the critical infrastructure including housing, communications and wooden dams used in watershed management. Chlordane is particularly cost effective for this purpose. As stated by NTCC to the evaluation team during the field mission, chlordane is cheaper and more effective than existing registered non-POPs alternatives like hexaflumuron, sodium tungstate and sodium molybdate. Currently, the South and South East regions of China are infested by termites and there are more than 800 termite control stations and 10,000 operators involved in termite control. The need to control pests is driven by possible direct impacts on human health and on economic well-being, as well as increased compensatory capital expenditures that are estimated at tens of millions of dollars annually. It has been estimated that termite damage in China would result in approximately US$ 200 million dollars in economic loss per year without the use of effective termite control agents. As no effective substitute is currently available to replace chlordane and mirex and due to the continuing demand for their use in the building and civil engineering sectors to control and restrict termite damage, about 10 small-scale enterprises continue to produce chlordane and mirex. The

phasing out of chlordane and mirex, and the implementation of Integrated Pest Management (IPM) strategy for termite control, as planned in the project, are highly relevant in view of the potential risk that the population living in the southern region of China and those occupationally exposed like the pesticide operators are exposed to.

As mentioned in section 3.1, HCB and DDT are also still being produced and used in China. HCB is used principally as an industrial chemical whereas DDT is used in the production of dicofol, as an additive for marine antifouling paint and for malaria vector control.

PCBs, as mentioned before, has been produced and imported in China until the 1970s when it was banned. According to official figures, more than 1 million pieces of electrical equipment (capacitors and transformers), totalling to an estimated amount of about 15,000 tons of PCBs, have been used in the electrical sector in China. During the 1980s, many pieces of electrical equipment were taken out of service and collected at temporary storage sites prior to disposal in accordance with the requirements proposed by relevant Ministries. Surveys and investigations conducted in recent years indicate that some temporary storage facilities remain with accumulations of discarded PCB-containing equipment. Furthermore, the number of sites at which PCB oils and PCB-containing equipment were discarded is presently unknown. Few of the sites were recorded on files and/or marked on site. Many of those for which file details have been found are no longer marked on the ground, since their identifiers have been destroyed or lost. Investigations at some of these sites indicate that they are leaking PCBs into the surrounding environment.

All the source categories of dioxin release listed in the UNEP *Standardized Toolkit document*[17] exist in China. Industrial activity in many of these sectors has contributed significantly to China's impressive economic growth in recent years. Despite considerable investment and improvement in technology, there remains a large gap between the performances of industry in China with that of the developed world. This is particularly evident in pollution control technology and equipment. Some advances have been made in recent years to control air pollution emissions from large- and medium-scale enterprises and these may also have served to reduce emission of unintentionally produced POPs. However, a feature of many industrial sectors in China is the prevalence of relatively small-scale enterprises and these are not yet covered systematically by environmental monitoring regimes. According to an estimation done during the PDF-B phase, China emitted about 10 kilograms-TEQ of dioxin in 2004 and is by far the country releasing the highest amount of dioxin amongst the countries having submitted their NIP to the Convention Secretariat. This figure may well be

[17] UNEP. 2001. Standardized toolkit for the identification and quantification of Dioxin and Furan releases. *Draft report*.

underestimated as the default emission factors set out in the toolkit used are based on the performance of industry in developed countries. It is highly probable that they are not valid for the Chinese context where different technologies, operating procedures and raw materials are typically being used in the different sectors of the industry. The subcategories waste incineration, sinter plants and the production of steel have been identified as being among the highest contributors to dioxin emission in China. The statement that follows gives a better understanding of the significance and magnitude of dioxin emission in China and the high relevance of the project: while only a handful of big sintering plants exist in the rest of the world, more than 300 exist in China. One can imagine the situation for the other subcategories and the magnitude of dioxin emission in China compared to other countries.

Compared to developed countries, very limited research and monitoring data exist in China regarding POPs in the environment due lack of technical capacity and costs constraints. In the few studies carried out in China, DDT and PCBs have been detected in the environment (estuaries and coastal sediments) and in food. Data was not available regarding dioxins before the NIP process started. Thanks to the development of the project, the capacity for POPs analysis including dioxin analysis exists now in China. The two dioxin laboratories visited during the field mission are state of the art and one, the Dioxin Laboratory of Research Centre for Eco-Environment is involved in the Global Monitoring Plan of POPs in the two core media (air and human breast milk) adopted at COP2 for effectiveness evaluation.

5.1.2. Relevance with regard to policies in China (national and local Government, private sector, international cooperation)

This project is highly relevant with regard to existing environmental policies in China that are set to prevent and control environmental pollution, and to safeguard public health and environmental safety amongst others. In recent years, the Chinese government has adopted the precautionary approach in its efforts to protect human health and the environment from chemicals hazards. A series of specific laws, regulations and rules has been formulated to ensure the safe management of chemical products like pesticides and hazardous chemicals that include POP chemicals. Present practice requires such chemicals to be registered prior to production, sale and international trade while a review and approval system governs use, storage and transport. Some of these measures include provisions for the control of chemicals listed in the Convention. For example, aldrin, dieldrin, endrin, heptachlor and mirex were never entered into the pesticide register established in 1982 while registrations for toxaphene and chlordane were cancelled in 1996. Without a valid register entry, these chemicals cannot be legally produced, sold, traded or used as a pesticide. Similarly, the Law on Solid Waste Pollution Prevention and Control (1998) discriminates hazardous wastes into 47 classes. Waste comprising or containing organochlorine pesticides, PCBs, dioxins and furans

are covered in classes 4, 10, 44 and 43 respectively of the legislation. This legislative framework is also supported by a series of national standards (environmental and health standards) and technical practices on classification, storage, transport, packaging and labelling of hazardous chemicals including some of the POPs (e.g. DDT, PCBs and dioxins).

The project is also highly relevant in respect to China's foreign trade. At the start of the project, China had a very limited understanding of dioxin releases and pollution. Despite the efforts made in the recent years as stated above, at present China does not have complete regulations and standards on POPs such as dioxins and PCBs contained in foods, feedstuff and electrical and mechanical equipment, which is not favorable for the protection of human health and the environment. On one hand, without adequate laws and regulations it is difficult to carry out supervision of domestic products and to prevent foreign products containing dioxin and PCBs from coming into China. On the other hand, the issue of POPs residues in products has become one of the obstacles to export of Chinese products. Cases concerning international trade obstructed by dioxin content higher than standards are increasing year by year. As European and American countries stop uses of POPs and reduce their releases, background values of POPs in the environment are gradually decreasing in the developed countries and they will take more rigorous restrictive protection measures for the trading of related commodities, especially foods. As a result, China will face even more severe challenges in foreign trade. In this respect, it is expected that the private sector will be full partners of the project during the implementation phase in order to overcome these challenges. There are signs that this is happening. Some major companies (e.g. Huatai group for pulp and paper project) participated in the BAT / BEP demonstration projects. However, given the complexity and the size of the industrial sectors in China, this is going to be another tremendous challenge for the Chinese authorities to implement fully the project.

China has also adopted a number of international treaties and agreements and is a signatory to the Convention on Safe Use of Chemicals at Work (ILO 170.177; 1990), the Montreal Protocol on Ozone Depleting Substances (1985), the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal and the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. The implementation of these conventions and protocols is reflected in the body of domestic legislation. Similarly, it is expected that the development and implementation of the project will be reflected in China's legislation at national and provincial level for the better environmentally sound management of POPs.

5.1.3. Relevance with regard to target groups

From the discussion of section 5.1.1, this project is of direct relevance for some segments of the Chinese population. This include: the pesticide operators and their families, the employees of pesticide companies, the employees of some industrial sectors like the steel industry, the employees of incinerators (e.g. municipal, medical), people living in areas where chlordane and mirex are being used for termite control, population living near incinerators, etc. These populations are potentially at risk through direct exposure to these POP chemicals that could be hazardous to their health. However, through the development of this project, the different stakeholders including industrials, workers and policy makers are now better aware about POPs and appropriate measures and policies have been planned in the NIP for the better management of these POPs.

The different institutions and enterprises visited during the field mission also confirmed the relevance of this project to strengthen their capacity. For example, the National Termite Control Centre insisted on the solid and positive basis that the project provided for new thinking on termite control and management using less harmful chemicals (alternatives) or using an integrated approach (IPM). Similarly, the Zhejiang Solid Waste Centre confirmed the capacity built in respect to the management of contaminated sites. The technical guidance provided by three groups of US EPA experts for monitoring and remediation of POP contaminated sites was considered very useful and highly relevant. Although the demonstration project, undertaken at the Huatai group, one of the 25 biggest companies in China, to reduce dioxin emission in the pulp and paper sector was not successful (discussed in section 5.2), the project was considered very useful. The Huatai group stated that the project was the starting point for cleaner production at their enterprise, and environmental protection was done on a more scientific basis. They also confirmed that the experts of the project gave suggestions and recommendations to make their company more productive and environmentally sound.

5.1.4. Relevance for UNIDO

The project can be regarded fully relevant to UNIDO, given the organization's commitment to sustainable industrial development. Chemicals management is a prominent feature of many UNIDO technical cooperation interventions and sufficient in-house expertise is available to allow for substantive backstopping of such projects. However, it was noted that the project was managed without using additional expertise available at UNIDO. In particular, the expertise of UNIDO in Cleaner Production (CP) is considered relevant, since (CP) is one of the most important strategies for NIP implementation and POPs phase out in China. Thus it is surprising that no cooperation has

been established with the Chinese Cleaner Production Centre and the UNIDO Cleaner Production Unit.

5.1.5. Conclusions on the relevance of the project (based on presentation of preliminary conclusions)

The NIP is highly relevant given the documented high incidence of POPs in China. It is in line with the environmental policies of the country set to protect its population and the environment against the hazardous effects of toxic chemicals. The country ownership of the project is very high as the NIP has been approved and endorsed at the highest level. Given their needs, the institutions and groups at both central and provincial levels confirmed the relevance for capacity building and for strengthening of existing capacities. The management & information system put in place is also highly relevant given the need for national level monitoring of progress and need for awareness raising through information dissemination. The relevance of the demonstration projects (BAT/BEP and health study) is less clear as their objectives and expected outcomes were not clearly defined. Finally, this project is in line with the GEF operational program on POPs (OP #14).

The continued relevance will however depend on implementation and enforcement of corresponding policies and legal framework (e.g. CP standards, enforcement of production phase out chlordane/mirex, BAT/BEP, etc.) as planned in the NIP. It is therefore highly recommended that the implementation and enforcement of policies related to POPs should be explicitly monitored (using indicators) by CIO.

The relevance of this project for UNIDO is high. However, especially in the field of Cleaner Production, a more comprehensive utilization of the expertise at UNIDO Headquarters and in partner institutions (such as the Chinese CP Centre) could increase this relevance further.

5.2. Efficiency

With significant co-financing from the Government of Italy and the Government of Canada, as mentioned in Section 2.1, the full project was developed based on the Articles, Paragraphs and Annexes of the Convention and the principal outputs were:

- a comprehensive National Implementation Plan incorporating:
    - an assessment of the national baseline with regard to POPs chemicals incorporating preliminary inventories of POPs chemicals currently in production and use, of PCBs and equipment containing PCBs, of unintentional production of POPs, of human burdens of POPs and health impacts, of research and development capabilities,

and of regulatory and institutional frameworks relating to POPs and chemicals management and control;
    - management strategies, action plans and investment needs required by the People's Republic of China to meet the obligations of the convention; and
    - a methodology for the identification of sites contaminated by POPs or products containing POPs;
- a Capacity Building Programme proposal to meet China's long-term institutional strengthening and capacity building needs;
- management and information systems functioning at national level and instigated at provincial levels
- a national information centre established and information dissemination and public awareness and education campaigns developed;
- a pilot study to investigate the exposure to POPs and their adverse effects with special emphasis on the health of women and children;
- a case study on non-POPs alternatives and Integrated Pest Management strategies for termite control;
- a pilot project to develop a detailed inventory methodology for PCBs;
- a pilot capacity building programme on PCB management;
- a demonstration of methodologies to promote the implementation of BAT and BEP to reduce unintentional production of POPs in key sectors of industry.

5.2.1 Activities and results at product level

The outputs have been assessed individually in the following paragraphs.

5.2.1.1 National Implementation Plan (NIP)

As discussed in section 4.1, the first draft of the NIP suffered severe critics from international agencies and from international experts as reported in the minutes of the TCG 4 meeting. It was felt that more guidance from UNIDO and the international consultant was needed at the initial stages of the drafting process. The difficulty for the Chinese drafters to adapt to the structure recommended in the GEF/UNEP guidance document[18] was also one reason for the poor first draft of the NIP. The drafting of the NIP Chinese and its translation in English before review also caused much delay to the process. Indeed, the drafting of the different components of the NIP was done in Chinese by national sub-contractors and submitted to the NIP drafting team, another sub-contractor, Peking University responsible for NIP drafting. When a draft was ready after incorporating comments and recommendations of relevant bodies and ministries, it was then translated into English. This was done by a professional translator. However, for accelerating the

[18] Initial Guidelines for Enabling Activities for the Stockholm Convention on Persistent Organic Pollutants. GEF/C.17/4, April 6 2001

procedure at times the NIP drafting team did the translation. This translation process caused delays. It took time for an English version to be ready before it could be reviewed by the non-Chinese speaking partners, in particular the international experts. The whole drafting process including consultation and review by all national and international stakeholders took one year.

After endorsement by the State Council, a very comprehensive document in line with the UNEP/GEF guidelines was submitted to the Conference of Parties on 18 April 2007. As planned in the project document, all the chapters have been drafted in a very concise and clear manner. The development process that was complex and involving many international partners (GEF, UNIDO, UNDP, World Bank, etc.), bilateral donors (Italy, Canada, etc.) and national partners (key ministries, key research institutes and universities, industrial associations, etc.) is properly described in chapter 1.

The basic situation of the country is adequately addressed in chapter 2. This chapter covers the geographic, political, economic, natural resources and environmental profiles of the country. The institutional, policy and regulatory framework has also been covered. In particular, all the agencies involved in POPs management and an assessment of all existing laws and regulations pertaining to POPs have been reviewed and reported.

An assessment of the national baseline with regard to POPs chemicals incorporating preliminary inventories of POPs chemicals currently in production and use (chlordane, mirex, DDT and HCB), of PCBs and equipment containing PCBs, and of unintentional production of POPs, some undertaken through the co-funded components (see arrangement packages in section 4.1), have been properly discussed and reported in chapter 2. For the inventories, a strategic approach of involving the key stakeholders was used to ensure success. For example, the inventory on the production of POPs pesticides was subcontracted to the China Petroleum and Chemical Industry Association, and the findings are reported in the NIP. Similarly, the power companies of the Liaoning and Zhejiang provinces were involved in the inventory of PCBs and PCB containing equipment was carried out in these two provinces. The dioxin inventory was carried out by the Research Centre for Eco-Environment of the Chinese Academy of Science, one of the leading research institutes of China. The dioxin laboratory of this centre is participating in the Global Monitoring Plan (GMP) on POPs for the first effectiveness evaluation (Article 16 of Convention). This exercise is organized by the Secretariat and assisted by UNEP, Chemicals. The inventory was carried out adequately using the approach recommended in the UNEP toolkit. Some of emission factors used, validated by UNEP Chemicals and more adapted to the Chinese context, were derived from studies, cited in the UNEP toolkit (pulp and paper results), they undertook in some sectors (e.g. pulp and paper, iron and steel production). For 2004, an estimated 10 kg-TEQ dioxin (realistic value according to UNEP Chemicals) was released in China.

However, the open burning of wastes and accidental fires were not considered, and these could contribute significantly to dioxin emission as reported in the NIP of many other countries.

The same chapter also assesses the human burdens and health impacts of POPs, and the research, monitoring and development capabilities relating to POPs that exist in China. This chapter also highlights the big gap that exists between China's POPs management systems and what are required for Convention implementation (Pp 78-79 of the NIP).

The management strategies, action plans and investment needs required by the People's Republic of China to meet the obligations of the convention as planned in the project document are described in details in chapter 3. Priority areas identified during the project are also clearly and concisely laid out in this chapter. Gaps have been identified and specific actions have been proposed to adequately address them. The different actions and activities have been properly planned and a realistic timeframe proposed (by 2010, 2015 or long term).

Assessment of chapter 3 clearly indicates that the actions have been planned by taking into consideration the findings and recommendations of the different studies and co-funded components of the project. For example, for the phasing out of POPs pesticides, the main recommendation of the Sino-Canadian Joint project – Case Study on POPs Alternatives for Termite Control in China – which states that IPM is the only effective method for completely phasing out chlordane and mirex has been promoted in the NIP. Similarly, most of the activities and actions proposed in the study "UP-POPs Strategy-Action Plan" undertaken by the POPs Research Centre, Tsinghua University are reflected in the NIP. On PCBs management however, the action promoting sound management of currently used PCBs equipment (Section 3.3.4, Action 2, Specific action 2) could have stressed on the need to put in place a proper system to prevent cross-contamination. Indeed as PCBs is no longer produced in China and knowing that PCBs cannot be imported in China, this is the only way that "clean" electrical fluid and equipment could become PCB-contaminated (during repair and maintenance).

5.2.1.2 Capacity Building Programme proposal to meet China's long-term institutional strengthening and capacity building needs

Through the huge number of activities (workshops, training, inventories, reporting, etc.) undertaken to implement the project, it is clear that capacity has been built at all levels in China. The guidance and assistance provided by the international agencies, bilateral donors and international consultants also contributed to this capacity building. However, more assistance is needed for China to meet its requirement towards to the Convention. Thus, as planned in the project document, an international consultant was hired to assist China in

the development of a Long-Term Capacity Building project proposal to implement the Convention in the country. The expert viewed the approach in the NIP proposal stating explicitly that additional separate funding will be sought to support long-term capacity building needs as excellent. The proposal was built on existing capacity involving key national stakeholders, UNIDO, and potential donors/partners like GEF, USEPA, and UNITAR that obtained an expression of interest from the Swiss Government for financial support. The proposal was submitted to GEF and approved, and it is at present an on-going project executed by UNIDO and implemented by FECO/SEPA/CIO at national level.

5.2.1.3 Management and information systems functioning at national level and instigated at provincial levels

The infrastructure for NIP implementation, discussed lengthily in sections 3.2 and 4., was put in place during the PDF-B phase and was strengthened during the project phase. It includes the managerial body at FECO/SEPA, CIO the implementation office, the NCG, TCG, etc. Some provinces already have dedicated personnel at EPBs for POPs activities. A few provinces like Zhejiang have even put in place a local CIO.

A draft of the overall framework for Management Information System (MIS) for POPs Convention Implementation in China was prepared by MIS sub-group (within FECO/SEPA) and was ready as early as July 2004; 4 months before the start of the project. This framework was presented to the international consultant hired by UNIDO to assist China, during his first mission. He was impressed by the logical clarity and completeness of the framework and provided comments and advice for improvement and for the system to work successfully. According to reports of his subsequent visits, there are indications that the system was working adequately and information was exchanged appropriately between the different partners of the NIP project. It should be pointed out here however that at some stage of the project, one of the numerous international consultants stated that the report of one of the co-funded component was available in Chinese but not in English. The English version was however available later on. But given the time constraint of the project and the short working periods of the consultants, it would have been appropriate if a translator were hired for the whole project duration as this would have avoided such delays.

5.2.1.4 A national information centre established and information dissemination and public awareness and education campaigns developed

A national information centre has been established for information dissemination, public awareness and education campaigns. To this end, a website (Chinese version) http://www.china-pops.net accessible to the

general public was created (by Tsinghua University) and it contains information on POPs, the Convention, the Chinese NIP and related activities. The appropriate mechanism for its regular up-dating is already in place. The English version of the website (http://www.china-pops.net/English) is under construction. It is anticipated that this version will be ready soon and so that other parties to the Convention could benefit from it. This website could for example serve as a platform to discuss the Chinese experience or for information exchange. For information dissemination and public awareness, some activities of the project (inception workshop, launching of NIP and others) have benefited from media coverage (national newspapers and TV-CCTV5). Similarly, since 2006 an annual national forum on POPs is organized to disseminate information on POPs and a website promoting this event has been created POPs (http://www.popsforum.cn). This website is in Chinese, only a brief explaining the background is in English.

5.2.1.5 Pilot study to investigate the exposure to POPs and their adverse effects with special emphasis on the health of women and children

The pilot study undertaken near contaminated sites under the Sino-Canadian Cooperation and successfully completed in July 2005 produced the expected results. Indeed, the levels of DDT and PCBs in the analysed samples were generally higher than national or international recommended standards / limits. As mentioned previously, the purpose of this pilot study is not clear. Unless the results are used for awareness raising or for the promotion of alternatives, otherwise it is already known POPs persist in the environment once released and bio-accumulate once it enters the food chain.

5.2.1.6 Case study on non-POPs alternatives and Integrated Pest Management strategies for termite control

The study was successfully completed by August 2005 and the recommendations and conclusions are reflected in the NIP document. In particular, Integrated Pest Management (IPM) that the study considered as the only effective method for completely phasing out chlordane and mirex in termite control in China has been promoted in the NIP**.**

5.2.1.7 Pilot project to develop a detailed inventory methodology for PCBs

This pilot project was developed under the Sino-Italian cooperation and had different components that were undertaken by various partners. The different components were successfully completed with the following outputs:

- Initial guideline for inventory investigation (developed by Tsinghua University)
- Training report on inventory investigation (Tsinghua University)
- Inventory reports in two provinces (Liaoning and Zhejiang)
- A MIS incorporating data collected from two inventories (MIS sub group)

The inventories carried out in the two provinces involved the major stakeholders like the power companies to ensure success. During interview, it was found that for the successful completion inventory exercise carried out in Zhejiang, the wealthy local government provided significant funding. It was also reported that the Zhejiang experience was used to review and improve the initial inventory guidelines and the questionnaires. As no proper records were kept, interviews of older employees or retired ones had to be carried out to locate sites where PCB contaminated equipment were disposed of. Finally, the major findings of the inventories are reflected in the NIP.

During NIP implementation there is a need to take into consideration the specific mechanisms and dynamics of how replication will be achieved in other provinces. More specifically, the issue of transferability of experiences from economically more developed to the less developed provinces needs to be addressed properly. Moreover, for the other provinces where no proper records were kept, there is urgent need to interview appropriate retired employees (due to failing memory or persons passing away) of relevant companies in order to get information on sites where PCB-contaminated equipment were land filled / disposed of in the 1970's and 1980's.

5.2.1.8 Pilot capacity building programme on PCB management

This pilot capacity building programme on PCB management was complex; it involved activities that started during the PDF-B phase (before the project) and others that were run during the project phase. Some of the activities were funded by the Canadian Trust Fund and others by the Italian Government. However, the approach was good and produced outputs of good quality (very comprehensive PCB management training manuals, inventory guidelines, assessment report for PCB disposal technologies) that were useful for training courses, inventories, or to develop strategies and action plans that are incorporated in the NIP.

5.2.1.9 Demonstration of methodologies to promote the implementation of BAT and BEP to reduce unintentional production of POPs in key sectors of industry

As discussed in section 4.1, the purpose of the demonstration projects was not clearly explained in the project document. Furthermore, while the selection of the iron & steel and waste incineration sectors in the BAT/BEP

demonstration projects is justified and relevant as these sectors contribute significantly to dioxin emission in China. According to the dioxin inventory for 2004, the release from these two sectors represented about 26% and 17% respectively of the total dioxin emission for China. However, the reasons for including the pulp and paper sector in the project are not explicitly given. According to the 2004 inventory, this sector released about 161 g-TEQ dioxin, which is high (for example much higher than the annual dioxin emission for some countries), but it represents only 1.6% of the total dioxin emission for China much less than other sectors like the secondary copper production (11%) or the cement production (3.6 %).

The results of the demonstration projects were mitigated. For the pulp and paper sector, the project failed in reducing the production of dioxins. The modifications proposed by the international consultant at the Huatai Paper enterprise did not produce the expected outcome. Instead, the dioxin release increased. Applying existing procedures or technologies in developed countries to other countries using different raw materials (wheat straw or bagasse instead of wood) does not necessarily meet success. However, awareness has been raised regarding dioxin formation during paper production at the sector level. The experts gave suggestions and recommendations that made the company more productive and environmentally sound. Furthermore, the approach of the company is more scientific for the promotion of cleaner production and environmental protection. The Huatai group (among the top 25 enterprises in China) has already invested in a more expensive process, using chlorine dioxide as in developed countries, to reduce dioxin formation. The key point is that the project does not explicitly explain how the experience gained at the Huatai enterprise would be disseminated or used in the other much smaller enterprises of the sector.

For the waste incineration sector, the project undertaken at the Huzhou Industrial and Medical Waste Treatment Centre in the Zhejiang province produced interesting results but the Stockholm Convention requirements were still not met. The successive technological modifications that the Zhejiang University made to the incineration process at the Waste Centre improved the dioxin emission values considerably. Indeed, thanks to these modifications a 99% reduction of dioxin release was possible as compared to performance of the incinerator when it was first in operation in 2006. However, the 0.1 ng-TEQ /Nm^3 air emission limit for incineration facilities as recommended by the BAT / BET UNEP document was still not achieved, the incinerator performance of the Waste Centre is still at 0.5 ng-TEQ /Nm^3 air level. One has to recognize however that although the convention requirement is still not met, the project intervention has had a direct and dramatic impact on dioxin emission at this Center (reduction by 99%). An outcome of this project is that presently, the technology exists in China to reduce dioxin in the hazardous waste incineration sector by 99%. The project

has also contributed for awareness raising, capacity building, for information exchange and sharing with developed countries (Germany) in the sector and for waste separation in the medical sector to reduce the volume of hazardous. In this respect, the Waste Center has established a system to evaluate each hospital or medical center of the province and the evaluation is sent to local authorities. This approach has proved to be successful as the volume of waste has decreased.

The demonstration project in the iron and steel sector also had limited success. Due to limited funds, no technological improvement was possible only some Best Environmental Practices (BEP) were promoted. For example, separation of plastics from scrap, pretreatment of oil and paint contaminated scrap (spray water or do not use those scrap if too contaminated), or stop returning the fly ash and waste into the process were applied with some success, 10% reduction in dioxin emission. However, some achievements have been made like the established cooperation with Italian experts, Chinese academia, and relevant departments. The thorough comprehension of the international iron & steel industry site monitoring, which tracks and recognizes the new progress of iron & steel sector in developed countries on POPs prevention requirements, the development of dioxin emission standards and factors, and the preliminary analysis of the dioxin control technology impact on the production cost. The Chinese Iron Steel Association (CISA) is fully committed, through a signed document that was shown to the evaluation team during field mission, to reduce dioxin emission in China.

5.2.2 Monitoring and evaluation

The overall monitoring of the project was adequately done by UNIDO through the project manager (PM) in numerous meetings and discussions of different draft versions of NIP. The good progress of the project was also monitored through informal email or telephone communication. As mentioned previously, the PM being a Chinese national communication with the Chinese counter part was much easier as compared to the PDF-B phase. Appropriate monitoring and evaluation of different activities was also provided by the international experts through discussions in different missions or through review of NIP and reports of sub-contractors.

Appropriate monitoring and evaluation of the NIP development process as planned in the project document was done through the TCG meetings. Progress reports or other related documents were timely prepared and submitted by CIO/FECO/SEPA to the TCG. These were reviewed by the international partners who provided useful comments for improvement. For example, as lengthily discussed previously, it was at the fourth meeting of TCG that the first NIP draft was severely commented by the different international partners.

Monitoring of progress at national level was appropriately done by NCG. Adequate monitoring of different activities sub-contracted out nationally was properly done by CIO through request of progress reports, discussions and field visits. Although communication with the PM (Chinese national) was excellent, written reporting to UNIDO however could be improved. This difficulty of communication in English of many of the Chinese interviewees was also observed by the evaluation team during the field mission. The agreed annual Project Implementation Reviews (PIR), supposedly prepared by FECO/SEPA and based on progress reports submitted to TCG, were not submitted to GEF.

As planned a national expert review group was set up to undertake independent technical reviews at key milestone of the project. However, this group met only once as many members of this group were part of institutions that became sub-contractors of the project. A mechanism could have been put in place to replace these members.

A terminal evaluation was done for the Sino-Italian cooperation project and it was highly satisfactorily rated (copy of evaluation report was given to evaluation team). As planned, this document is the terminal evaluation of the project.

5.2.3 Project management

The implementation of the project followed the approach originally agreed upon by the stakeholders and was completed without significant delays. The infrastructure and most of the different bodies and committees were already established during the PDF-B phase, prior to the start of the project.

The guidance from UNIDO, the PM and international consultants was mainly on the drafting of NIP document and on technical aspects of the case studies and demonstration projects. This guidance was considered very useful and helpful by all national partners. However, according to proceedings meetings UNIDO guidance was limited during initial stages of NIP drafting. The PM adapted to the situation by staying two weeks longer in China to help in the drafting process. No involvement of UNIDO regional office was however noted in project implementation or monitoring.

At national level, the activities have been properly planned by NCG. CIO coordinated all the in-country activities (workshops, meetings, training courses, inventories, missions of international experts, etc.) effectively as recognized by all partners of the project. In particular, given the high number of activities run in the six thematic groups, CIO was very efficient in pulling all efforts together to facilitate the task of the NIP drafting team. As the NIP would determine their future, CIO participated actively in the drafting process by thoroughly revising and reviewing the NIP draft.

As discussed in details in section 4.2, CIO applied FECO existing procedures for sub-contracting and managing these activities. The rigidity of the World Bank (see section 4.0) however caused delay to the process. For a certain job only one bidder submitted a proposal. After revision through FECO´s own bidding committee the bidder was approved and the approval was sent to the World Bank which asked for a market survey to determine the price level. After that had been done, a commercial condition of at least 5 million $ registered capital was claimed by WB. The latter was rejected by the bidder, claiming that this was confidential information and not international practice. So the bidding had to be repeated and caused much delay.

5.2.4 Financial management

UNIDO financial management

The project funds were managed by UNIDO. Table 4 gives a summary of the financial statement, which indicates that as at April 2008 99% of GEF funds have been spent for project implementation.

Table 4: UNIDO Budget in $ (GEF funding excluding agency support cost)

	Budget line	Allotment	Expenditure	% Implemented
International consultants	11-50	562,881	535,197	95%
Admin. Support Personnel	13-99	37,839	37,839	100%
Project Travel	15-99	42,685	40,149	94%
Subcontracts	21-00	3,192,000	3,192,000	100%
Training	39-99	202,200	202,200	100%
Miscellaneous cost	59-99	18,897	16,673	88%
Total		4,056,502	4,024,058	99%

Source: UNIDO Infobase, April 2008

Financial management at FECO/SEPA level

As stated in the contract between UNIDO and FECO, a total of five payments was planned to be paid by UNIDO to FECO. According to the agreement, the

different payments by UNIDO to FECO would be done after submission of an invoice and a financial statement by FECO. The payments of funds were not done in a timely manner (see Table 5). The due dates and the payment dates reported in the Table 5 are according to agreed terms (e.g. submission of TCG meeting reports) and according to dates reported in the financial statement (submitted by CIO to the evaluation team). The reason for the considerable delay of the fourth payment was due to FECO's late submission of invoice to UNIDO. After the fifth TCG meeting in June 2006, it took much time to improve and polish the NIP both in Chinese and English versions. FECO submitted the invoices for the last two payments to UNIDO together in September 2007, after the NIP Launching Workshop held in July 2007. For these reasons, payments to the sub-contractors were delayed accordingly. However, the delays in fund transfers did not impair on the progress of the project. The delay for the submission of NIP, due by Nov 2006 but submitted in April 2007, was because of problems discussed previously (more guidance at initial stages and difficulty of NIP drafting team to adapt to NIP guidelines) rather than due to fund transfer delays.

Table 5: Payment schedule by UNIDO to FECO / SEPA

Description	**Due date***	**Payment date****	**Amount (US$)**
Initial payment : upon signature of contract, 25% of subcontract	Nov 2004	Feb 2005	818,000
2nd payment : upon delivery of the formal report of the 2nd meeting of the TCG, equivalent to 25% of subcontract	April 2005	July 2006	818,000
3rd payment : upon delivery of the formal report of the 3rd meeting of the TCG, 20% of subcontract	Sept 2005	July 2006	654,400
4th payment : upon delivery of the formal report of the 4th meeting of the TCG, 20% of subcontract	June 2006 Sept 2007***	Feb 2008	654,400
Final payment : upon delivery of the completed NIP to the Government of China for endorsement, 10% of subcontract	April 2007	March 2008	327,200
TOTAL SUBCONTRACT BUDGET			**3,272,000**

* Due dates according to agreed terms (e.g. submission of formal TCG reports)
** Payment dates according reported dates in the financial statement submitted by FECO
*** Late submission of invoice by FECO to UNIDO in Sept 2007

Table 6: Financial Statement prepared by FECO/SEPA: Revenue and Expenditure (funds in $)

No	Item	2004	2005	2006	2007	Up to 16 June 2008	**Total**	%***
1	Payment received from UNIDO		818,000	1,472,400	37,465*	981,600	**3,309,465****	
2	Cumulative payment received from UNIDO		818,000	2,290,400	2,327,865	3,309,465	**3,309,465****	
3	Total payment made	15,813	812,989	1,495,324	580,616	212,212	**3,116,954**	
4	Cumulative total payment by FECO	15,813	828,802	2,324,126	2,904,742	3,116,954	**3,116,954**	
5	Payment to individual consultants		43,200	123,973	104,672	12,000	**283,845**	**9.1**
6	Payment to sub-contractors	1,889	587,150	902,214	116,841	98,600	**1,706,694**	**54.8**
7	Workshops and seminars	7,923	47,275	422,902	277,951	3,712	**759,763**	**24.4**
8	Equipment		16,617		4,761	43,535	**73,853**	**2.4**
9	Administrative support	2,756	274	3,573	3,381	19,202	**20,246**	**0.6**
10	Local travel	291	22,102	5,203	16,520		**44,116**	**1.4**
11	Miscellaneous	2,954	56,371	21,459	56,490	11,163	**148,437**	**4.8**
12	Management fee of FECO / SEPA		40,000	16,000		24.000	**80,000**	**2.6**

* Amount paid by UNIDO but not from the Contract
** 3,272,000.00 from the Contract (GEF funds) and 37,464.95 not from the contract
*** % of funds spent for each item with respect to total expenses

Table 6 gives a breakdown of payment according to a financial statement prepared by FECO/SEPA. Up to 2006, the timely transfer of funds from UNIDO to FECO/SEPA could cover the expenses of different items of the project as reported in Table 6 (compare row 2: cumulative payment received from UNIDO and row 4: cumulative total payment by UNIDO). However, due to the late submission of the fourth invoice by FECO/SEPA to UNIDO, the total expenditure (row 4) as at 2007 exceeded the total payment received from UNIDO (row 4). This did not affect the process as a high quality NIP document was ready by April 2007, which was endorsed by the Chinese government and then submitted to the Conference of Parties.

As at 16 June 2008, 95.5% of total GEF funds were spent. The funds were managed in a fair and transparent manner according to the well structured procurement, bidding, finance, and audit system of FECO. Payments to sub-contractors including individual consultants (63.9%) and organization of workshops and seminars (24.4%) represented more than 80% of total

expenses (Table 6). The financial revenue and expenditure statement of the project funds were audited and approved by a certified National Public Accountants Company (a copy of report was submitted to the evaluation team).

Co-financing

The project document establishes a total project budget of USD 10,202,250 (excluding PDF-B Phase) with the GEF funding ascending to USD 4,056,500 or 40% and the co-funding to USD 6,148,750 or 60% of the total budget. The sources of co-funding were mainly (83% of co-funding) international donors (Governments of Italy and Canada). The rest was to be provided in-kind by the Government of China (14%) and by UNIDO (3%). An overview of the co-financing performance of the project is given in Annex

Overall, the evaluation team found that the co-financing materialized as planned. Contributions from donors were invested in the planned projects, all of which were executed in close co-ordination with the implementation of GEF funds by FECO/SEPA. While no hard data was made available to the evaluation team with regard to the in-kind contributions from the Government of China and UNIDO, the evaluation team concluded that also these planned contributions to the management, infrastructure and technical advice materialized largely as planned.

5.2.5 Quality of inputs

The NIP development for China greatly benefited from the assistance and expertise of leading international agencies including GEF, UNIDO, UNDP, UNITAR, UNEP, WB and FAO. In particular, the project proposal and the NIP were reviewed by a former Director of UNEP (Chemicals) who was also a former Interim Executive Secretary of the Stockholm Convention and co-chair during the first Conference of Parties (COP). The bilateral cooperation with various countries (Italy, Canada, Japan, Germany, Norway, Switzerland and Sweden) involving some leading agencies like the USEPA contributed to the successful completion of the project. The technical guidance provided by international experts (recruited by UNIDO) was also highly appreciated by the national partners (see previous sections e.g. section 5.1.3). However, given the complexity of the project and the high number of activities where international guidance was needed, provision for an international CTA could have improved the process. In particular, this would have greatly helped during the initial stages of the NIP drafting process.

At national level, NIP development was done on a very solid scientific basis involving leading research entities and key stakeholders at both central and provincial levels. For example, Peking University and the RCEES of the Chinese Academy of Sciences at central level and Tsinghua University at provincial level, among the leading research entities in China, were sub-

contractors of some of the components of the project. The dioxin laboratory of the RCEES that successfully participated in an inter-laboratory calibration exercise is currently involved in the GMP on POPs. The involvement of key industrial partners like the Chinese Iron Steel Association (CISA) or the China Petroleum and Chemical Industry association also ensured success.

5.2.6 Conclusions on the efficiency of the project

The participatory approach adopted during the preparatory phase was successful in the mobilisation of a high level of co-funding (Italy, Canada, and others). Significant local (central and provincial) in-kind and in cash co-financing was also available. These contributed to the efficiency of GEF funding. The timely implementation of activities and good quality of inputs as discussed in the previous sections contributed to high efficiency. A total of 19 subcontracts were funded by the contribution of the GEF. The sample reviewed by the evaluation team produced tangible outputs of good quality.

Overall, the project applied a mixed form of agency execution and national execution, which has proved to be an efficient approach (as compared to full agency execution). The contribution of the international experts recruited by UNIDO to the development of the NIP was significant, however, there is potential to improve the efficiency for example by making provision for a CTA.

With a significant POPs portfolio in the country, UNIDO could increase efficiency of its supervisory and management functions by installing relevant capacity at the regional office in Beijing.

5.3 Effectiveness and Impact

5.3.1 Are the objectives of the project being met?

In general, the stated objectives of the project have been satisfactorily achieved and a high quality NIP has been developed, endorsed by the country, and submitted to the Conference of Parties.

The inventories on the production, use, trade, stockpiles and wastes of, and sites contaminated by, chemicals listed in the Annexes have of the Convention and existing in China have been satisfactorily carried out. For PCBs, strategies to carry out inventories have been established and a capacity building programme on PCB management has been developed. Based on the outputs of these two activities, PCB inventories have been successfully carried out in two provinces. The findings are reported in the NIP.

As planned, strategies and action plans for the reduction and elimination of all identified existing POPs in China have been developed involving leading research institutes and key stakeholders with very useful international guidance. These are clearly reflected in the Chapter 3 of the NIP.

The infrastructure and management systems including institutional arrangements at both central level and in some provinces already exist and are fully operational. Components of the NIP are already being implemented. To ensure the effective and sustainable implementation of the proposed strategies and action plans and thus facilitate China's transition to compliance with the Convention, the regulatory framework has been fully assessed, the gaps identified, and measures have been proposed to strengthen it. Sustainable capacity sufficient to implement the NIP across the country, to update or refine the component inventories, and to fulfil ongoing reporting requirements of the Convention is being built through the on-going GEF-funded long term capacity building project.

The priority areas and sectors have been identified and activities planned accordingly in the NIP. The estimated total costs and the incremental costs likely to be incurred for the implementation of these activities have been done with the appropriate guidance of international experts.

The development and demonstration of methodologies regarding promotion BAT / BEP in key sectors of the country was however not successful. Follow up actions are required to ensure effectiveness.

5.3.2 Outcomes and Impact

- A high quality NIP has been developed; it has been endorsed and adopted at the highest level, and submitted to the Conference of Parties.
- FECO/SEPA is presently a more respected institution.
- The establishment of CIO within FECO/SEPA, a permanent office with the appropriate human resources, is viewed as important outcome in view of sustainable implementation of NIP in the country.
- Awareness regarding POPs is high at key stakeholder levels including key ministries, leading research institutions, key industrial sectors, electric power companies, and also at provincial level. Cleaner production and best environmental practices are being promoted in the enterprises that participated in the BAT/BEP demonstration projects.
- The hazardous waste/medical waste plan funded by the central government including considerable investment and executed by SEPA was driven by Convention activities in China.

- Through the BAT/BEP demonstration project, the capacity exists presently in China to reduce dioxin release from hazardous / medical waste incineration sector by 99%.
- NIP activities also promoted the environmental management of other hazardous chemical and wastes beyond POPs
- Much more funds coming from the central government are available for research on POPs.

5.3.3 Conclusions on effectiveness of the project

Most of the project objectives stated in the project document have been satisfactorily achieved thanks not only to the good infrastructure and system in place, and the hard work of the dedicated CIO team but also due to the good strategic approach that involved the key stakeholders (e.g. industrial associations, Electrical Power Corporation, etc.) and leading research institutions of the country. The high level of local in cash and in kind contribution also helped to achieve these goals.

Overall, the effectiveness of the project was high, since the major outcome, the adoption of the NIP by Chinese Government, was achieved. The combination of the NIP development with the other projects (co-funding) significantly increased the effectiveness of the NIP project, since follow up on the different lines of actions of the NIP was ensured.

However, the demonstration projects for BAT/BEP promotion have not yet produced the expected outcomes. To ensure their effectiveness follow up actions are required.

5.4 Sustainability

For a number of reasons, chances for sustainability and impact are much higher in China than in many other countries that have also developed their NIPs:-

- China has a strong central government that has confirmed its determination amongst others to comprehensively take legal, economic, technical and necessary administrative measures to solve POPs issues.
- The implementation capacity in terms of human resources (CIO), offices and related infrastructure (FECO/SEPA), administrative system (bidding, auditing, financial, etc..), management structure (FECO/SEPA, NCG, MIS) already exist and is fully operational.
- The implementation of the NIP is on-going and is being monitored by the National Coordination Group (NCG) with CIO as executing agency. This appears to be an effective monitoring system that significantly increases the likelihood of sustainability and impact of the NIP.

- High technical capacity exists in the country for monitoring, research and development (e.g. leading research institutions equipped with very adequately equipped laboratories).
- The project is highly relevant to key stakeholders including private sector and high ownership has been seen.
- A high level of co-funding and a number of GEF follow up projects are already underway (in the field of chlordane and mirex, DDT, PCBs, medical waste, capacity building, iron and steel, and paper making).

However, there are a number of issues that need to be addressed or possibilities to be explored to ensure sustainability. For example, advanced Cleaner Production (CP) and pollution prevention are possible solutions to the problems highlighted. This is a potential for increased value added by UNIDO, which just recently joined the POPs and the CP departments at HQ levels.

Enforcement of existing policies (like the CP policy and BAT/BEP) as well as lack of inclusion of specific UP BAT/BEP measures in such policies has been identified as a problem area. There is need to develop strategies to enhance enforcement of policies, regulations and standards as planned in the NIP to ensure impact of NIP.

Demonstration projects have not been used extensively yet for dissemination and replication. There were discussions on trainings in the pulp & paper and waste incinerator sectors, but apparently they have not yet been conducted. The experience of demonstration projects should be disseminated through establishing a proper training system.

The overall emphasis of the NIP implementation in China appears to be on improvement of processes. Not much is being done for the improvement of products. In the case of medical waste incineration more could be done to minimize waste before it is incinerated. For example, explore possible CP initiatives for medical waste management and disposal or lifecycle initiatives could be developed to contribute to reduction of UP POPs.

5.5 Summary: strength and weaknesses of the project

A review of the implementation of the project in general leads to the following main observations reported in the box below

Strength	Weaknesses
• Strong central government and other stakeholders' commitment and high ownership • A good participatory approach	• No logical framework and success indicators in project document • Objectives and outcomes of

involving key stakeholders and partners at national and international level was used during the preparatory phases • High level of co-financing from China and bilateral donors • Well designed project: incorporating case studies and demonstration projects taking into consideration the real needs of the country; built along the lines of the Convention • Competent and adequately staffed national implementer (CIO/FECO/SEPA) • Dedication and high commitment of CIO officers • Good implementation approach built on six thematic groups • High quality input involving leading international agencies, well qualified and experienced international experts and most prestigious national research institutes • Continuity, taking advantage of experience of PDF-B phase as source of expertise. • Good cooperation between central and provincial governments	demonstration projects and case study not clearly defined • Delays in disbursement of funds from UNIDO to FECO • Poor reporting to UNIDO and no reporting to GEF (PIR) • Independent national expert review group not functioning as planned • No involvement of UNIDO country office in execution or monitoring of project • Low participation of NGOs

6

Recommendations

Conclusion/Context	Recommendation	Follow up by
China is fully committed to implement the Convention and has invested considerably since the start of the project. However for full implementation, given the size of the country and the complexity of POPs issues in the country, it will be essential that China continue to benefit from the Convention's financial support mechanism, and the initiated technology transfer mechanisms (especially for BAT / BEP).	It is recommended that the GEF and partner agencies continue to support projects that are designed to create capacity in China for NIP implementation.	GEF, UNIDO, other GEF agencies.
During recent years UNIDO has built up a significant POPs portfolio in the country. However, so far there is no involvement of UNIDO regional office in project implementation or monitoring.	UNIDO should increase efficiency of its supervisory and management functions by installing relevant capacity (i.e. technically specialized staff) at the regional office in Beijing.	UNIDO PTC and PCF
The NIP identifies Cleaner Production and pollution prevention as important instruments for POPs phase out. Given UNIDO's expertise in this area, there is potential for increased value added by UNIDO in this field.	UNIDO should explore possibilities to include specific Cleaner Production initiatives in the further implementation of NIP.	UNIDO EMB/CPU
While the project is highly relevant, the relevance and the effectiveness of the demonstration projects (BAT/BEP) and case studies (health study) are less clear, since the objectives and expected outcomes, in particular regarding upscaling and uptake of demonstrated technologies by industry, were not clearly defined.	It is recommended to provide follow up support to the demonstrations initiated during project implementation. It is recommended to define the expected outcomes for the demonstrations in terms of mechanisms to be established (including incentives, regulations and dissemination) to ensure widest possible industry uptake of demonstrated technologies.	CIO, UNIDO CIO, UNIDO
The implementation of the NIP is on-going and is being monitored by the National Coordination Group (NCG) with CIO coordinating all activities. This appears to be an effective	This national monitoring system should be replicated at the provincial level to ensure sustainability across the country.	CIO

monitoring system that significantly increases the likelihood of sustainability and impact of the NIP.		
Enforcement of existing policies (like the CP policy and BAT/BEP or those related to POPs) as well as lack of inclusion of specific UP BAT/BEP measures or standards in such policies has been identified as a problem area. There is need to develop strategies to enhance enforcement of policies, regulations and standards as planned in the NIP to ensure impact.	It is recommended that implementation and enforcement of such policies be explicitly monitored (using adequate indicators) by CIO.	CIO
The results of the demonstration projects have not been used extensively yet for dissemination and replication.	A proper training system should be set up and experience of these demonstration projects, especially the one on medical waste that has produced substantial results (99% dioxin reduction), should be disseminated across the country.	CIO
The overall emphasis of the NIP implementation in China appears to be on improvement of processes or methodologies.	In the case of medical waste incineration more should be done to minimize waste before it is incinerated. It is recommended to explore possible CP initiatives for medical waste management and disposal, and also lifecycle initiatives should be developed to contribute to reduction of UP POPs.	CIO, UNIDO
The Huzhou Hazardous Waste Treatment Centre has put in place a system to monitor and evaluate the medical waste management of clinics and hospitals. Each health center is evaluated by the Center regarding management of medical waste and the evaluation is sent to local authorities.	While not a CP initiative, it would be a good starting point to monitor also CP indicators and implement an incentive scheme for reduced amounts of medical waste and this initiative could be replicated across the country. It is recommended to draw on existing experience of CP project in hospitals (e.g. NCPC Colombia).	CIO, UNIDO CIO, UNIDO
As planned in the NIP, PCB inventories will be carried out in provinces across the country except Liaoning and Zhejiang.	As no proper records were kept, there is an urgent need to interview appropriate retired employees (due to failing memory or persons passing away) of relevant companies in order to get information on sites where PCB-contaminated equipment were land filled /	CIO

	disposed of in the 1970's and 1980's.	
Providing international advice to the formulation of a NIP in China requires a practical solution to bridge the language barrier. UNIDO employs at headquarters a Chinese backstopping officer. This has helped to ensure flexible and continuous backstopping without the need to wait for translations of all documents before taking the next step. However, it should be noted that the assignment of project management responsibilities to staff with implementation-country nationality might imply a risk for the organisation. While in the particular case of the evaluated project no evidence has been found that would indicate any wrong doing or management problems, experiences from other projects suggest that measures should be taken to reduce such risks.	UNIDO should consider creating special provisios within the internal management framework to ensure minimisation of risks for projects where the project manager has the nationality of the country where the project is implemented.	UNIDO PTC/MD
The agreed annual Project Implementation Reviews (PIR), supposedly prepared by FECO/SEPA and based on progress reports submitted to TCG, were not submitted to GEF.	For ongoing and future projects the project manager should ensure that project implementation reviews (PIRs) are carried out as planned and submit them to the GEF.	UNIDO, PTC/EMB

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Lessons learned

Conclusion/Context	Lesson Learned
For the full project SEPA established and chaired a Technical Coordination Group (TCG) that reviewed and commented upon project outputs, provided guidance to the project at the macro-level, and helped disseminate project findings and outputs. In addition to SEPA, membership of the TCG comprised UNIDO, as Executing Agency with Expanded Opportunities, the World Bank, UNDP, Italian government, and members of other Donor community with development partners and the National Project Director providing advice and guidance. SEPA appointed a National Project Director (NPD) responsible for day-to-day project management and chair the PMG. Different workshops have been held during the implementation of projects, including 11 national coordination group meetings, 5 international workshops TCG meetings, 3 regional workshops, 1 international workshop on financial mechanism, 27 training on investigation and thematic workshops on strategies and action plans, which have played important role to push the key activities and output in different level in China.	A comprehensive management mechanism and sufficient involvement of a wide range of stakeholders (IA/EA, international community, government, technical entities and local authorities) in all important events, including inception, TCG, regional workshops and consultations are the basis to achieve effective and relevant formulation of NIP.
For implementation of the project, UNIDO adopted the following approach: a large subcontract of GEF funds to the main partner FECO/SEPA plus a smaller component directly UNIDO executed. The terms of reference of the	The mixed form of agency execution and national execution (through sub-contracts to counterparts) is a very efficient implementation modality when the national

subcontract contained all the activities to develop the NIP and to be implemented at national level. The international guidance through international experts was executed directly by UNIDO. This approach is considered effective as it provided for flexibility in the management of funds and allowed for better substantive backstopping than other national execution approaches.	capacities are sufficient (substantive competence, procurement, financial management, auditing).
The approval and endorsement of the NIP by People's Congress and submission to the Convention Secretariat indicates the very high ownership of the project at country level. A very high ownership has also been observed during the field mission at the level of CIO / FECO / SEPA, responsible for project management at country level. There are indications that ownership is also high at the level of other stakeholders including key ministries and other institutions including research bodies and universities, and also at provincial levels (e.g. EPBs). At national level, the activities have been properly planned by NCG. CIO coordinated all the in-country activities (workshops, meetings, training courses, inventories, missions of international experts, etc.) effectively as recognized by all partners of the project. In particular, given the high number of activities run in the six thematic groups, CIO was very efficient in pulling all efforts together to facilitate the task of the NIP drafting team. As the NIP would determine their future, CIO participated actively in the drafting process by thoroughly revising and reviewing the NIP draft.	Country ownership, including a dedicated counterpart organisation and high level Government commitment and follow up (budgetary resources, legislation) is key to impact of a NIP.

In 2004, the State organized NIP Leading Group, named National Coordination Group for Convention Implementation (NCG), involving 11 commissions and departments and led by SEPA was established. As the national coordination mechanism of the Chinese government for implementation of the Stockholm Convention, it is responsible for reviewing and implementing national guidelines and policies on POPs management and control, and coordinating important issues related to POPs management and convention implementation.	Clearly defined and agreed roles of ministries and other stakeholders and their involvement in NCG and TCG helps the process of collaboration and ensures good coordination.
In the context of the demonstration project for pulp and paper industry, the modifications proposed by the international consultant at the Huatai Paper enterprise did not produce the expected outcome. Instead, the dioxin release increased.	Applying existing procedures or technologies in developed countries to other countries using different raw materials (wheat straw or bagasse instead of wood) does not necessarily meet success (reduction of dioxin formation).
It is understood that baseline data for dioxin emissions had to be established for China as the emission factors in the UNEP toolkit document were most probably not appropriate for the Chinese industries.	Toolkit guidance was found useful for the preliminary assessment of dioxins and furans but needs adaptation to local context (China developed its own emission factors for some sources). Activities for such adaptation should be built into the design in similar projects.

8

Overall Assessment

According to the TOR of this evaluation (annex), it is required to assess and rate the different categories of the project from Highly Satisfactory (HS) to Highly Unsatisfactory (HU). The rating for sustainability sub-criteria ranges from Likely (L) through Moderately Likely (ML) through Moderately Unlikely(MU) to Unlikely (U). The table below gives this assessment and brief comments on points already discussed in the report.

Criterion	**Evaluator's summary comments**	**Evaluator's Rating**
Attainment of project objectives and results (overall rating) Sub criteria (below)	Most of project objectives satisfactorily achieved	S
Effectiveness	Effectiveness high - NIP adopted and endorsed by central government	HS
Achievement of outputs and activities	High quality outputs produced	HS
Relevance	Project highly relevant given incidence POPs in the country	HS
Efficiency	High level of co-financing mobilised from bilateral donors, however demonstration projects not successful	S
Sustainability of project outcomes (overall rating) Sub criteria (below)	Chances are high for sustainability given the strong central government and high level of funds already secured	L
Financial	GEF funds for follow up projects already secured, high level of bilateral and local co-financing	L
Socio Political	Strong central government and strong commitment to meet Convention requirements	L
Institutional framework and governance	Appropriate infrastructure in place (FECO/SEPA – CIO) with	L

	appropriate monitoring from NCG	
Ecological	The Stockholm Convention is about the sound management of toxic chemicals	L
Monitoring and Evaluation (overall rating) Sub criteria (below)	Monitoring and evaluation appropriate, however CIO reporting to UNIDO could improve	S
M & E Design	Adequately planned, but the independent national expert review group did not function properly	S
M & E Plan Implementation (use of adaptive management)	UNIDO adapted to situations e.g. PM stayed longer in China to assist in improving NIP draft – CIO / FECO followed appropriate rules so as to meet requirements of international executing agency (WB, UNIDO, UNDP) or bilateral donors (Italy, Canada)	HS
Budgeting and Funding for M & E activities	Appropriately planned - International experts recruited to provide very useful technical guidance	HS
Catalytic Role	Provinces where project was not run showed interest	S
Quality at entry and implementation approach	Leading international agencies and leading research institutes involved, implementation approach based on continuity (PDF-B phase)	HS
Country ownership / driveness	High ownership	HS
Stakeholders involvement	Involvement of key stakeholders at central and provincial level	HS
Financial planning	Disbursement of funds could be improved	S
UNIDO Supervision and backstopping	Adequate, however more guidance could have been provided at initial stages of NIP drafting	S
Overall Rating	Highly relevant, effective and very efficiently run project – High quality NIP developed	HS

Annexes

Annex 1 - Terms of Reference

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Terms of Reference

Independent Terminal Evaluation of the UNIDO Project:

Project Number: GF/CPR/04/002

BUILDING THE CAPACITY OF THE PEOPLE'S REPUBLIC OF CHINA TO IMPLEMENT THE STOCKHOLM CONVENTION ON POPS AND DEVELOP A NATIONAL IMPLEMENTATION PLAN

MAY 2008

I. Project Background and overview

Project origin and objectives

The People's Republic of China signed the Stockholm Convention on Persistent Organic Pollutants when it opened for signature and expects to complete the ratification procedures during 2004. Parties to the Convention must transmit a National Implementation Plan (NIP) to the Conference of Parties within two years of the date on which the Convention enters into force for them. To that end, China is committed to completing and delivering its NIP during 2006.

The project was designed to meet that objective and sets out the activities necessary to prepare the NIP. The project also provides for capacity building and for a series of case studies and demonstrations of methods that may represent suitable, practical and feasible approaches to meet the obligations of the Convention.

China invited UNIDO to act as GEF Executing Agency with Expanded Opportunities for the development of the NIP and opted to undertake this work in two phases through the full GEF project cycle rather than by taking up the so-called 'Enabling Activities'.

The goal of the project is to protect human health and the environment from persistent organic pollutants – the principal objective of the Convention. The purpose of the project is to enable the People's Republic of China to take the first steps towards implementation of the Convention. According to the project document its principal outputs are:

- a comprehensive National Implementation Plan incorporating:

    - an assessment of the national baseline with regard to POPs chemicals incorporating preliminary inventories of POPs chemicals currently in production and use, of PCBs and equipment containing PCBs, of unintentional production of POPs, of human burdens of POPs and health impacts, of research and development capabilities, and of regulatory and institutional frameworks relating to POPs and chemicals management and control;
    - management strategies, action plans and investment needs required by the People's Republic of China to meet the obligations of the convention; and
    - a methodology for the identification of sites contaminated by POPs or products containing POPs;
- a Capacity Building Programme proposal to meet China's long-term institutional strengthening and capacity building needs;
- management and information systems functioning at national level and instigated at provincial levels
- a national information centre established and information dissemination and public awareness and education campaigns developed;
- a pilot study to investigate the exposure to POPs and their adverse effects with special emphasis on the health of women and children;
- a case study on non-POPs alternatives and Integrated Pest Management strategies for termite control;
- a pilot project to develop a detailed inventory methodology for PCBs;
- a pilot capacity building programme on PCB management;
- a demonstration of methodologies to promote the implementation of BAT and BEP to reduce unintentional production of POPs in key sectors of industry

The projects grouped its activities into 7 components ("specific objectives"). Implementation of activities was planned to follow the guidance provided by the GEF[19] and by a guide produced jointly by UNEP and World Bank[20].

Relevance to GEF programmes

The project was approved under GEF Operational Programme 14 (OP#14): Persistant Organic Pollutants (POPs). The objective of the operational program on POPs is to provide assistance, on the basis of incremental costs, to developing countries and countries with economies in transition to reduce and eliminate releases of POPs into the environment. This objective is consistent with that of the Stockholm Convention which is aimed at protecting human health and the environment from POPs.

The expected outcomes of GEF-supported interventions on POPs include the following:

- The institutional and human resource capacity for the management of POPs is strengthened.
- The policy and regulatory framework is strengthened to facilitate environmentally sound management of POPs and other chemicals.

[19] Initial Guidelines for Enabling Activities for the Stockholm Convention on Persistent Organic Pollutants. GEF/C.17/4, April 6 2001

[20] Guidance on Planning and Developing National Implementation Plans under the Stockholm Convention.

- There is significant improvement in the reduction of the use of POPs for disease vector control, termite control and agricultural production.
- Safe and cost-effective alternatives to POPs are available to developing countries and countries with economies in transition.
- Stockpiles of POPs are managed, and wastes that contain POPs are managed and contained or disposed of, in an environmentally safe manner.

Implementation arragements

The project document was submitted to the GEF by the United Nations Industrial Development Organization (UNIDO) as Executing Agency with Expanded Opportunities. The Foreign Economic Cooperation Office of the State Environmental Protection Administration (FECO/SEPA) has managerial responsibility for national implementation of the project. A Project Management Group (PMG) is established within FECO/SEPA for project management. During the full project proposed here, UNIDO would continue to assist FECO/SEPA to coordinate the component work packages in its capacity as Executing Agency.

During the PDF-B phase a coordinating mechanism drawing together China's international development partners was established to ensure that NIP development can take full advantage of the findings and experience of associated projects and programmes executed by intergovernmental organisations and bilateral donors. This will continue with UNIDO providing advice and guidance.

China is establishing a permanent infrastructure to ensure that the Convention is implemented and its obligations met. This infrastructure comprises a high-level Leading Group for Stockholm Convention, chaired by the Deputy Ministers of SEPA, a Convention Implementation Office, within SEPA, and within FECO/SEPA, a supporting Project Management Group.

For the full project SEPA will establish and chair a Technical Coordination Group (TCG) to review and comment upon project outputs, provide guidance to the project at the macro-level, and help disseminate project findings and outputs. In addition to SEPA, membership of the TCG will comprise UNIDO, as Executing Agency with Expanded Opportunities, the World Bank, UNDP, Italian government, and members of other Donor community with development partners and the National Project Director providing advice and guidance. SEPA will appoint a National Project Director (NPD) responsible for day-to-day project management and chair the PMG.

Budget Information

A) Overall Cost and Financing (including co-financing):

	Summary of financing: (including GEF and other donor financing during PDF-B grant phase)	**Amount (US$)**	**Amount (Euro)**
Full Project			
	GEF	4,056,500	

	Government of Italy (pesticidal POPs)*	*1,798,500*	2,115,036
	Government of Italy (PCBs)**	*1,611,150*	1,500,000
	Government of Italy (Unintentional Production)***	*1,074,100*	1,000,000
	Government of Canada (Impacts on human health)	180,000	
	Government of Canada (Termite Control)	250,000	
	Government of Canada (Capacity building for PCBs treatment)	170,000	
	Government of China (in-kind, full project)	870,000	
	UNIDO (in-kind, full project)	195,000	
	Sub-Total Full Project Cost	**10,205,250**	
PDF-B			
	GEF	349,500	
	Government of Canada (Capacity Building workshops – during PDF-B phase)	365,000	
	Government of China (in-kind, PDF-B)	80,000	
	UNIDO (in-kind, PDF-B)	70,000	
	Sub-Total PDF-B Cost	**864,500**	
TOTAL GEF BUDGET		**4,406,000**	
TOTAL PROJECT COST		**11,069,750**	

Source: project document

B) UNIDO budget (GEF funding excluding agency support cost):

	Budget Line	Allotment	Expenditure	% Implemented
International Consultants	11-50	562,881	535,197	95%
Admin. Support Pers.	13-99	37,839	37,839	100%
Project Travel	15-99	42,685	40,149	94%
Subcontracts	21-00	3,192,000	3,192,000	100%
Training	39-99	202,200	202,200	100%
Miscellanneous cost	59-99	18,897	16,673	88%

Total	4,056,502	4,024,058	99%

Source and date of information: UNIDO Infobase, April 2008

II. Objectives and scope of the evaluation

The purpose of the terminal evaluation is to enable the Government, counterparts, the GEF, UNIDO and other stakeholders and donors to:

verify prospects for development impact and sustainability, providing an analysis of the attainment of global environmental objectives, project objectives, delivery and completion of project outputs/activities, and outcomes/impacts based on indicators. The assessment includes re-examination of the relevance of the objectives and other elements of project design according to GEF Project Review Criteria (annex 3)[21]:

- Implementation approach
- Country ownership/Driveness
- Stakeholder participation
- Sustainability
- Replication approach
- Financial planning
- Cost-effectiveness
- Monitoring and evaluation

Enhance project relevance, effectiveness, efficiency and sustainability by proposing a set of recommendations with a view to ongoing and future activities.

Draw lessons of wider applicability for the replication of the experience gained in this project in other projects/countries.

The key question of the evalaution is whether the project has made a significant contribution to reducing the effects of POPs on human health and the environment.

III. METHODOLOGY

The evaluation will follow UNIDO and GEF evaluation guidelines and policies. It will be carried out as as an independent in-depth evaluation using a participatory approach whereby the UNIDO staff associated with the project are kept informed and regularly consulted throughout the evaluation. The evaluaton team leader will liaise with the UNIDO Evaluation Group (EVA) on any logistic and/or methodological issues to properly conduct the review. The draft report will be delivered to UNIDO EVA and circulated to UNIDO staff associated with the project, including the UNIDO office in China. Any comments or responses to the draft report will be sent to UNIDO EVA for collation and onward transmission to the evaluation team leader; he/she will be advised of any necessary revisions.

[21] see "Guidelines for Implementing Agencies to Conduct Terminal Evaluations, May 2003)

The findings of the evaluation will be based on the following:

1. A desk review of project documents including, but not limited to:
   (a) The original project document, monitoring reports (such as progress and financial reports to UNIDO and GEF annual Project Implementation Review reports), output reports (NIP, Inventories, action plans, sub-regional strategies, etc.) and relevant correspondence.
   (b) Notes from the Technical Coordination Group (TCG) meetings.
   (c) Other project-related material produced by the project staff or partners.

2. Interviews with project management and technical support including Mr. Zenghyou Peng, UNIDO Project Manager, Mr. Mohamed Eisa, Chief UNIDO POPs Unit, project staff in China and administrative staff associated with the project's financial administration if necessary.

3. Interviews with project partners, in particular UNDP, Italy, Canada, World Bank as shown in Appendix 7 of the project document.

4. Interviews and telephone interviews with intended users for the project outputs and other stakeholders involved with this project. The evaluator shall determine whether to seek additional information and opinions from representatives of any donor agencies or other organisations.

5. Interviews with the UNIDO Country Office in China that will be visited by the evaluation team, the project's management group (FECO/SEPA), and the various national and sub-regional authorities dealing with project activities as necessary. The evaluator shall also gain broader perspectives from discussions with relevant GEF Secretariat staff.

6. Other interviews, surveys or document reviews as deemed necessary by the evaluator and/or UNIDO EVA.

Project Evaluation Parameters

Project Relevance

Country ownership/drivenness. This is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements. Examples of possible evaluative questions include: Was the project design in-line with the national sectoral and development priorities and plans and regional agreements (such as the Abidjan Convention etc.)? Are project outcomes contributing to national and regional development priorities and plans? Were the relevant country representatives, from government and civil society, involved in the project? Did the recipient government maintain its financial commitment to the project?

Relevance to target groups: relevance of the project's objectives, outcomes and outputs to the different target groups of the interventions (e.g. companies, civil society, beneficiaries of capacity building and training, etc.).

Relevance to the GEF and UNIDO: In retrospect, were the project's outcomes consistent with the focal areas/operational program strategies of GEF? Were they in line with the UNIDO mandate, corporate strategy and core competencies? Ascertain the likely nature and significance of the contribution of the project outcomes to the wider portfolio of the GEF Operational Programme (OP) #14.

Effectiveness: attainment of objectives and planned results (progress to date):

The assessment of project results seeks to determine the extent to which the project objectives were achieved, or are expected to be achieved, and assess if the project has led to any other positive or negative consequences. While assessing a project's outcomes the evaluation will seek to determine the extent of achievement and shortcomings in reaching the project's objectives as stated in the project document and also indicate if there were any changes and whether those changes were approved. If the project did not establish a baseline (initial conditions), the evaluator should seek to estimate the baseline condition so that achievements and results can be properly established (or state simplifying assumptions used). Assessment of project outcomes should be a priority. Outcomes are the likely or achieved short-term and medium-term effects of an intervention's outputs. Examples of outcomes could include but are not restricted to stronger institutional capacities, higher public awareness (when leading to changes of behaviour), and transformed policy frameworks or markets. The evaluation should assess the extent to which the project's objectives were effectively and efficiently achieved or are expected to be achieved and their relevance.

Evaluate how, and to what extent, the stated project objectives have been met, taking into account the "achievement indicators" specified in the project document and logical framework. Assess the project's success in producing each of the programmed outputs and activities to date, both in quantity and quality as well as usefulness and timeliness.

- Identify the potential longer-term impacts considering that the project is the first phase of a longer proccess, including the successor project GF/CPR/07/009 (Title: STRENGTHENING INSTITUTIONS, REGULATIONS AND ENFORCEMENT CAPACITIES FOR EFFECTIVE AND EFFICIENT IMPLEMENTATION OF THE NATIONAL IMPLEMENTATION PLAN (NIP) IN CHINA) and that longer-term impact is expected to be seen in a few years time.
- Describe any catalytic or replication effect of the project, both within the project (such as the replication of demonstrations) and outside of the project. What examples are there of replication and catalytic outcomes that suggest increased likelihood of sustainability? Replication approach, in the context of GEF projects, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects, or replication within the projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in

different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). Does the project have a strategy for replication?

Assessment of sustainability of project outcomes:
Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts after the GEF project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends.

Four aspects of sustainability should be addressed: financial, socio-political, institutional frameworks and governance, and environmental (if applicable). The following questions provide guidance on the assessment of these aspects:

- *Financial resources.* To what extent are the outcomes of the project dependent on continued financial support? What is the likelihood that any required financial resources will be available to sustain the project outcomes/benefits once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and market trends that support the project's objectives)? Was the project was successful in identifying and leveraging co-financing?
- *Socio-political:* To what extent are the outcomes of the project dependent on socio-political factors? What is the likelihood that the level of stakeholder ownership will allow for the project outcomes/benefits to be sustained? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?
- *Institutional framework and governance.* To what extent are the outcomes of the project dependent on issues relating to institutional frameworks and governance? What is the likelihood that institutional and technical achievements, legal frameworks, policies and governance structures and processes will allow for, the project outcomes/benefits to be sustained?
- *Environmental.* Are there any environmental risks that can undermine the future flow of project environmental benefits?

Efficiency
*A*ssesses the achievement of the environmental and developmental objectives as well as the project's outputs in relation to the inputs, costs, and implementing time. Include an assessment of outcomes in relation to inputs, costs, and implementation times based on the following questions: Was the project cost-effective? Was the project the least cost option? Was the project implementation delayed and if it was then did that affect cost-effectiveness? The evaluation should assess the contribution of cash and in-kind co-financing to project implementation and to what extent the project leveraged additional resources.

Assessment of Monitoring and Evaluation Systems:

- **M&E design.** Does the project have a sound M&E plan to monitor results and track progress towards achieving project objectives? The Evaluation will assess whether the project met the minimum requirements for the application of the Project M&E plan (see Annex 4).
- **M&E implemenation.** The evaluation shall include an assessment of the quality, application and effectiveness of project monitoring and evaluation

plans and tools, including an assessment of risk management based on the assumptions and risks identified in the project document. Are Annual project reports complete, accurate and with well justified ratings? Has the information provided by the M&E system bee used during the project to improve project performance and to adapt to changing needs?

- **Budgeting and Funding for M&E activities.** Have adequate budget provisions been made for M&E made and have such resources made available in a timely fashion during implementation?

Assessment of processes that affected attainment of project results.
The evaluation will consider, but need not be limited to, consideration of the following issues that may have affected project implementation and attainment of project results:

- **Quality at entry and implementation approach.** Were the project's objectives and components clear, practicable and feasible within its timeframe? The evaluation should also assess whether outcomes specified in the project document and/or logical framework are actually outcomes and not outputs or activities.

  Were capacities of the executing institutions and counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to implementation? Was availability of counterpart resources (funding, staff, and facilities), passage of enabling legislation, and adequate project management arrangements in place at project entry?

  Ascertain to what extent the project implementation mechanisms outlined in the project document have been closely followed. In particular, assess the role of the various committees established and whether the project document was clear and realistic to enable effective and efficient implementation, whether the project was executed according to the plan and how well the management was able to adapt to changes during the life of the project to enable the implementation of the project.

  Evaluate the quality and adaptability of project management and the supervision of project activities / project execution arrangements. Did UNIDO staff identify problems in a timely fashion and accurately estimate their seriousness? Did UNIDO staff provide quality support and advice to the project, approved modifications in time and restructure the project when needed? Did UNIDO provide the right staffing levels, continuity, skill mix, frequency of field visits?

- **Stakeholder involvement.** Did the project involve the relevant stakeholders through information sharing, consultation and by seeking their participation in project's design, implementation, and monitoring and evaluation? For example, did the project implement appropriate outreach and public awareness campaigns? Did the project consult and make use of the skills, experience and knowledge of the appropriate government entities, NGOs, community groups,

private sector, local governments and academic institutions in the design, implementation and evaluation of project activities? Were perspectives of those that would be affected by decisions, those that could affect the outcomes and those that could contribute information or other resources to the process taken into account while taking decisions? Were the relevant vulnerable groups and the powerful, the supporters and the opponents, of the processes properly involved? Specifically the evaluation will:

- Assess the mechanisms put in place by the project for identification and engagement of stakeholders in each participating country and establish, in consultation with the stakeholders, whether this mechanism was successful, and identify its strengths and weaknesses.
- Assess the degree and effectiveness of collaboration/interactions between the various project partners and institutions during the course of implementation of the project.
- Assess the degree and effectiveness of any various public awareness activities that were undertaken during the course of implementation of the project.

Financial planning. Did the project have the appropriate financial controls, including reporting and planning, that allowed management to make informed decisions regarding the budget and allowed for timely flow of funds. Specifically, the evaluation should:

Assess the strength and utility of financial controls, including reporting, and planning to allow the project management to make informed decisions regarding the budget and allow for a proper and timely flow of funds for the payment of satisfactory project deliverables throughout the project's lifetime.

Present the major findings from the financial audit if one has been conducted.

Did promised co-financing materialize? Identify and verify the sources of co- financing as well as leveraged and associated financing. If there was a difference in the level of expected co-financing and actual co-financing secured, then what are the reasons for this? Will the extent of materialization of co-financing affect the project's outcomes and/or sustainability, and if it might affect outcomes and sustainability then in what ways and through what causal linkages?

The evaluation should also include a breakdown of final actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co- financing. This information will be prepared by the relevant UNIDO Project Manager for scrutiny by the evaluator (table attached in Annex 6 Co-financing and leveraged resources).

Assess whether the project has applied appropriate standards of due diligence in the management of funds and financial audits.

The ***ratings will be presented in the form of a table*** with each of the categories rated separately and with **brief justifications for the rating** based on the findings of the main analysis. An overall rating for the project should also be given. The rating system to be applied is specified in Annex 5.

Evaluation report format and review procedures
The report should be brief, to the point and easy to understand. It must explain; the purpose of the evaluation, exactly what was evaluated and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should provide information on when the evaluation took place, the places visited, who was involved and be presented in a way that makes the information accessible and comprehensible. The report should include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

Evidence, findings, conclusions and recommendations should be presented in a complete and balanced manner. The evaluation report shall be written in English and follow the outline given in annex 1.

IV. Evaluation Team and Timing

The evaluation team will be composed of a one international evaluation consultant acting as team leader, one staff member of the UNIDO Evaluation Group and one national evaluation consultant (to be selected jointly by UNIDO and the Government of China.

The staff member of UNIDO evaluation group will act as a member of the evaluation team and will participate in the evaluation mission in order to ensure the usefulness of the evaluation for UNIDO organisational learning.

UNIDO evaluation group will be responsible for the quality control of the evaluation process and report. It will provide inputs regarding findings, lessons learned and recommendations from other UNIDO evaluations, ensuring that the evaluation report is useful for UNIDO in terms of organisational learning (recommendations and lessons learned) and its compliance with UNIDO evaluation policy and these terms of reference.

All consultants will be contracted by UNIDO. The tasks of each team member are specified in the job descriptions attached to these terms of reference.

Members of the evaluation team must not have been directly involved in the design and/or implementation of the programme/projects.

UNIDO Field Office in China will support the evaluation team. Donor representatives from the bilateral donor representations will be briefed and debriefed.

Timing

The evaluation is scheduled to take place in the period May to August 2008. The field mission for the evaluation is scheduled for the first half of June 2008.

After the field mission, the evaluation team leader will come to UNIDO HQ for debriefing. The final version of the evaluation report will be submitted 6-8 weeks after the debriefing at the latest.

V. REPORTING

The evaluation report shall follow the structure given in annex 1. The reporting language will be English.

Review of the Draft Report: Draft reports submitted to UNIDO Evaluation Group are shared with the corresponding Programme or Project Officer for initial review and consultation. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks agreement on the findings and recommendations. The evaluators will take the comments into consideration in preparing the final version of the report.

Quality Assessment of the Evaluation Report*:* All UNIDO evaluations are subject to quality assessments by UNIDO Evaluation Group. These apply evaluation quality assessment criteria and are used as a tool for providing structured feedback. The quality of the evaluation report will be assessed and rated against the criteria set forth in the Checklist on evaluation report quality (annex 2).

Annex 2 - Agenda of Evaluation Mission in China for NIP Project

Date	Time	Activities	Meeting Venue	Participants
24 June 2008	08:30-10:00	Briefing UNIDO Regional Office	UNIDO Office	Dr Ajma, DG UNIDO Beijing Office 2 UNIDO staff
	10:30–11:00	Welcoming remarks by , Zhuang Guotai FECO Director General Introduction on Requirements of Evaluation (Evaluation team)	CIO	Zhuang Guotai, DG of FECO / MEP Yang Xiaoling, Chief Division, CIO Lu Chenggang, Deputy Chief , CIO Dingqiong, Deputy Chief Division, CIO Cheng Tianjin, Chief Division of Procurement, FECO/MEP Wu Xian, Chief Division of Financial, FECO/MEP Sun Yangzhao, Senior Project Officer, CIO Zhaoziying, Senior Project Officer, CIO Zhang Jiancheng, Project Officer, CIO Hujian, Project Officer, CIO
	11:00-12:30	Overview of NIP project implementation		
	14:00-15:00	Introduction of procurement and financial management		
	15:00-16:30	Sub-strategy development on Pesticide POPs, PCB and UP/WCS (process of development)		
	16:30-17:30	Discussion		
25 June 2008	09:00-10:30	General introduction of Department of Environmental Science and Engineering, Tsinghua University Introduction on work on UP-POPs Strategy and contaminated sites in NIP development by	Environmental and engineering Department, Tsinghua University	Prof. Yugang, Dean Dr. Huangjun,
	10:30-11:30	Discussion		

Date	Time	Activities	Meeting Venue	Participants
	14:00-15:30	General introduction of College of Environmental Science and Engineering, Peking University Introduction of work carried by Peking University in NIP development	Environmental Science and engineering Department, Peking University	Prof. Hu Jianxin, Dean Dr Liu Jianguo,
	15:30-16:30	Discussion		
26 June 2008	09:00-10:30	**Meetings with Sino-Italian Cooperation Program on Environmental Protection**	Sino-Italian Cooperation Program Office	Mr. Dario Brescia, Programme Manager
27 June 2008	09:00-10:30	Welcoming remarks Introduction on Provincial PCB Inventory by Solid Waste Management Center of provincial EPB.	Zhejiang EPB	Mr. Zhu Zhenxuan, Vice-director, Zhejiang EPB Mr. Gu Peilong, Director, Solid Waste Management Center of Zhejiang EPB Zhangyu, Vice-director, Solid Waste Management Center of Zhejiang EPB Mr. Xuqiang, Vice-director, Project Division of Zhejiang EPB Ms. Hujingying, Project officer, Solid Waste Management Center, Zhejiang EPB Mr. Dong Liangyun, Project officer, Solid Waste Management Center, Zhejiang EPB Ms. Weili, Hangzhou Dadi Environmental Protection Company
	10:30-11:30	Discussion		

Date	Time	Activities	Meeting Venue	Participants
	15:00-16:00	Introduction of Medical Waste Incineration	Huzhou Industrial and Medical Waste Disposal Company	Prof. Li Xiaodong, Heating Energy Engineering Institute, Zhejiang University Mr. Shizheng, President, Huzhou Disposal Company Mr. Wang Jianding, Vice General Manager, Huzhou Disposal Company Mr. Qiu Xingyan, Vice General Manager, Huzhou Disposal Company Dr. Shen Xiaojiang,Vice General Engineer, Huzhou Company Ph.D Lu Shengyong, Heating Energy Engineering Institute, Zhejiang University Mr. Chenbin, Research Assistant, Heating Energy Engineering Institute, Zhejiang University Huang Qunxing, Research Assistant, Heating Energy Engineering Institute, Zhejiang University
	16:00-16:30	Discussion		
28 June 2008	09:00-10:00	Welcoming remarks Introduction of Chlordane/Mirex Inventory by National Termite Control Center (NTCC)	NTCC	Shi Yong, Director, NTCC, Ministry of Construction Ms. Ruan Guanhua, Advanced Engineer, NTCC, Ministry of Construction Mr. Xu Fajiang, Deputy Chief, Foreign Economy Liaison Division, Zhejiang Construction Bureau Mr. Zhao Jingyang, Advanced Engineer, NTCC, Ministry of Construction Ms. Huyin, engineer, NTCC, Ministry of Construction Mr. Dai Qingfeng, engineer, NTCC, Ministry of Construction Prof.Mu Jianchu, Zhejiang University
	10:00-10:30	Discussion		

Date	Time	Activities	Meeting Venue	Participants
29 June 2008	09:00-10:30	▪ Welcome remarks ▪ Introduction of work on provincial Capacity Building in Chongqing (Center for Management on Solid Waste)	Chongqing	Dr. Tang Degang, Assistant director, Chongqing EPB Mr. Zhuo Jihua, Chief Division, Chongqing EPB Mr. Liao Shiguo, Director, Solid Waste Management Center, Chong Qing EPB Mr. TianJun, Chief of Division, Solid Waste Management Center, Chong Qing EPB Mr. Zhang Chunzhen, Solid Waste Management Center, Chong Qing EPB Ms. Hu Fengqi, Solid Waste Management Center, Chong Qing EPB Qiu Chengguo, Vice-general Manager, Chongqing Pesticides Group Company Limited. Ran Liang, Director of Office, Chongqing Pesticides Group Company Limited. Peng Daihua, Chief Division of Environmental Protection, Chongqing Pesticides Group Company Limited. Zhang Guoqing, Chief Division of Manufacture, Chongqing Pesticides Group Company Limited.
	10:30-11:30	▪ Discussion		
	14:00-17:30	▪ Visit one Pesticides Plant and Stockpile site of Pesticides in Chongqing		
	14:00-15:00	▪ Welcome remarks ▪ Introduction of work on Reduction of UP Release carried by Huatai Paper and Pulp Company	Dongying, Huatai Hotel	Mr. Wang Zhaoguo, Vice President, Hua Tai Group Company Mr. Zhang Fengshan, Vice General Engineer, Hua Tai Group Company Mr. Sun Yajun, Director, Technical Center, Hua Tai Group Company Mr. Zhou Jingpeng, Rearcher, Hua Tai Group Company Mr. Gaoyang, Professor, Shandong Institute of Light Industry
	15:00-16:00	▪ Discussion		
	16:00-18:00	▪ Visit the paper print plant and bleaching plant		
1 July				

Date	Time	Activities	Meeting Venue	Participants
2008	14:00-15:30	• General introduction of RCEES • Introduction on work on UP-POPs inventory carried by Research Center of Ecology Sciences (RCEES)	RCEES	Prof. Jiang Guibin, Vice Director Prof. Zheng Minhui Prof. Liu Wenbin,
	15:30-16:30	• Discussion • Visit State Key Laboratory of Environmental Chemistry and Ecotoxicology of RCEES		
2 July 2008	13:30 – 15:00	Debriefing with UNIDO regional office	UNIDO office	Dr Ajma, DG of UNIDO Beijing Office
	15:30 – 16:30	Meeting with representative of steel association	CIO	Prof. Huangdao, Chinese Iron & Steel Association
3 July	• Wrap-up Meeting • Presentation of preliminary findings to CIO		CIO	Zhuang Guotai, DG of FECO/MEP Yang Xiaoling, Chief Division of CIO Lu Chenggang, Deputy Chief Division of CIO Dingqiong, Deputy Chief Division of CIO Cheng Tianjin, Chief Division of Procurement of FECO/MEP Wu Xian, Chief Division of Financial of FECO/MEP Sun Yangzhao, Senior Project Officer of CIO Zhaoziying, Senior Project Officer of CIO Zhang Jiancheng, Project Officer of CIO Hujian, Project Officer of CIO

Annex 3 – Co-financing

Verification of actual co-financing, project GF/CPR/04/002

No.	Project Title	Sponsor	IA	Budget Amount($)			Actual Disbursement($)			Verification fo co-actual co-financing	Duaration
				Subtotal	Executed by IA	Executed by FECO	Subtotal	Executed by IA	Executed by FECO		
1	Building the Capacity of China to implement *the Stockholm Convention* and develop a **National Implementation Plan**	GEF	UNIDO	**4,056,500.00**	784,500.00	3,272,000.00	**4,056,500.00**	747,035.05	3,309,464.95	Chinese contribution consisted in establishment of SC implementation capacities at federal and local levels. Site visits at EPBs and CIO suggest that this has materialised. No hard data available. UNIDO contribution consisted in support by senior staff to the China project, co-finance apparently materilalised. No hard data available.	Sep. 2004 till now
		China		**870,000.00**		870,000.00	**977,173.96**		977,173.96		
		UNIDO		**195,000.00**	195,000.00		**195,000.00**	195,000.00			
2	China's Strategy on reduction and elimination of **Pesticide POPs**	Italy	UNDP	**1,650,000.00**	497,452.00	1,152,548.00	**1,561,441.00**	408,893.00	1,152,548.00	Co-finance materialised	Sep.2001-Dec.2006
3	China **PCBs** Identification Methodology & Preliminary Strategy of Reduction	Italy	WB	**1,611,150.00**		1,611,150.00	**1,611,150.00**		1,611,150.00	Co-finance materialised	Jan. 2004-Dec. 2006
4	China **Dioxin** Reduction Strategy: BAT/BEP and Incremental Cost Estimation	Italy	UNIDO	**1,074,100.00**	798,100.00	276,000.00	**1,074,071.08**	798,100.00	275,971.08	Co-finance materialised	Sep. 2004-Nov.2007
5	The **Capacity Building** for Estimation and Management on the effect of POPs Exposure Effect	Canada	WB	**600,000.00**		600,000.00	**564,969.32**		564,969.32	Co-finance materialised	Jan. 2004-Jun.2006
5.1	Case study on Toxicity of POPs to women and children in China		WB	180,000.00		180,000.00	178,914.53		178,914.53		
5.2	Case study on alternative of chlordane and mirex for termite control in China		WB	250,000.00		250,000.00	211,087.31		211,087.31		
5.3	Capacity Buidling of PCBs management		WB	170,000.00		170,000.00	174,967.48		174,967.48		
	Total Amount			**10,056,750.00**	**2,275,052.00**	**7,781,698.00**	**10,040,305.36**	**2,149,028.05**	**7,891,277.31**		