

PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE

Report No.: PIDA13685

Project Name	China Contaminated Site Management Project (P145533)
Region	EAST ASIA AND PACIFIC
Country	China
Sector(s)	Other industry (70%), Public administration- Industry and trade (30%)
Theme(s)	Pollution management and environmental health (80%), Environmental policies and institutions (20%)
Lending Instrument	Investment Project Financing
Project ID	P145533
GEF Focal Area	Persistent Organic Pollutants
Borrower(s)	PEOPLE'S REPUBLIC OF CHINA
Implementing Agency	Foreign Economic Cooperation Office of Ministry of Environmental Protection
Environmental Category	A-Full Assessment
Date PID Prepared/Updated	26-Oct-2014
Date PID Approved/Disclosed	15-Nov-2014
Estimated Date of Appraisal Completion	03-Nov-2014
Estimated Date of Board Approval	30-Apr-2015
Decision	The meeting authorized the team to go ahead with the project appraisal once the ISDS and safeguard documents are disclosed through Infoshop.

I. Project Context

Country Context

1. Soil Pollution in China. China's impressive economic growth and transformation over the past three decades have come at the price of significant environmental pollution and degradation. The rapid industrialization has left its footprint on soil, air and water quality. Soil pollution has become a serious health and environmental threat in China, contaminating the food chain with heavy metals, fertilizers and pesticides, persistent organic pollutants (POPs) and solvents; and polluting groundwater and surface waters. The Chinese Government has become aware of the serious socioeconomic risks resulting from soil pollution and carried out China's first soil pollution survey from April 2005 to December 2013. The survey covered all arable land, partial forest land, grassland, unused land, and construction land with a total area of about 6.3 million square kilometers. On April 17, 2014, the Ministry of Environmental Protection (MEP) and Ministry of Land and Resources (MLR) jointly issued a Communique on results of this survey. It states that soil

pollution in some regions is severe, soil quality of arable land is worrying, and soil environment problems in abandoned industrial and mining sites are prominent. The overall percentage of sample points exceeding the screening threshold in the country is estimated at 16.1%. About 33% of sample points in highly polluting industries, Industrial Parks, abandoned industrial sites, and mining areas, 20% in arable land, 26% in wastewater irrigation areas and 20% in the land along highways show contamination. The main contaminants found are heavy metals (cadmium, nickel, arsenic, cuprum, mercury, lead, chromium, zinc) and organic pollutants (hexachlorocyclohexane-HCH, dichlorodiphenyl trichloroethane-DDT, and polycyclic aromatic hydrocarbons-PAHs). These results demonstrate the extent of the country's land pollution problems. On one hand, this poses environmental and health risks in China's most densely populated areas, on the other hand, this is an obstacle to redevelopment, and urban and rural economic growth.

2. Government Efforts to Address Site Contamination. In 2004, in response to human poisoning incidents resulting from legacy soil pollution from older industries, the former State Environmental Protection Administration, now MEP, issued a Notice on Effective Prevention and Control of Environmental Pollution for Industrial Enterprise Relocation (SEPA 2004, No. 47). In June 2008, MEP updated the 2004 Notice by issuing a Notice on Strengthening Soil Pollution Prevention and Control (MEP, No. 48). In 2011, the State Council issued Opinions on Strengthening Key Tasks on Environmental Protection, which require that environmental assessment and environmentally sound management is carried out for contaminated sites before they can be redeveloped. In November 2012, MEP, MLR, the Ministry of Industry and Information Technology (MIIT), and the Ministry of Housing, Urban and Rural Development (MHURD) jointly issued a Notice on Safeguarding Redevelopment of Industry-contaminated Sites. The Notice requires: (i) to identify industrial enterprises to be closed or relocated, (ii) to carry out environmental investigation and risk assessment of these sites in consideration of land use, (iii) to clarify cleanup responsible bodies before land transfer, (iv) to stipulate special arrangements for the cleanup of high-risk sites, and (v) to set up professional qualifications for companies, which will be engaged in contaminated site investigation, risk assessment and remediation.

3. In January 2013, the State Council further issued a Work Arrangement on Soil Protection and Comprehensive Treatment in Near Future. This document sets the working targets for soil protection, namely: by 2015 start control of environmental risks of contaminated sites, promote treatment and cleanup demonstrations of soil pollution in typical areas, and gradually establish the policy, regulation and standard system; with a view that by 2020 a national soil protection system will be fully established and the soil quality in the country will show improvement. The document also calls for local governments to develop their own soil protection and comprehensive treatment programs with clear objectives, tasks and measures. For example, Beijing, Chongqing and Zhejiang have issued local policies and regulations on contaminated site management and have spent hundreds of millions of RMB on contaminated sites management. Pilot cleanup projects have been implemented in Beijing, Shanghai, Chongqing, Zhejiang, Jiangsu, Liaoning, and other provinces. Most draw on foreign experience, and have been jointly executed with foreign environmental protection companies and research institutes, and their domestic counterparts.

4. The 12th Five-Year (2011-2015) Plan (FYP) for National Economic and Social Development of the People's Republic of China requests to focus on addressing salient environmental problems, such as unsafe drinking water, and air and soil pollution negatively impacting public health, intensify integrated management and noticeably improve environmental quality. Based on the Plan, MEP has developed and issued (1) the National Environmental Protection 12th FYP; and (2) the National POPs Prevention and Control Plan during the 12th FYP period. Both plans emphasize the need to establish and improve relevant laws, regulations and standards for soil pollution prevention and control.

5. The 12th National People's Congress Standing Committee (China's top legislature) voted to adopt on April 24, 2014 the amended Environmental Protection Law, which will come into effect on January 1, 2015. With 70 articles, compared with 47 in the original law passed in 1989, the revised Environmental Protection Law, the first change to the law in 25 years, sets environmental protection as the country's top priority. The new law requires that economic and social development should be coordinated with environmental protection and encourages studies on the impact that environmental quality causes on public health, urging prevention and control of pollution-related diseases. It says that the country should establish and improve a national soil pollution investigation, monitoring, risk assessment and remediation system (Article 32), and set up and strengthen a national public health monitoring and risk assessment system (Article 39). It also says in a new Chapter 5 that the public has the right to access information related to environmental quality, monitoring data, pollution incidents, etc. and the environmental protection agencies should disclose this information and improve public participation procedures (Article 53-58).

6. MEP is also making great efforts to include a Soil Pollution Prevention and Control Law in the legislation plan of the National Congress. The initial draft of the law has been prepared and comments are being widely collected. The Law, when finalized, will be submitted directly to the National People's Congress for approval without a need of going through the Legislative Affairs Office of the State Council, which means that its review and approval process will be more streamlined, although it is not clear yet when the Law will be issued. Recently, MEP has also internally approved in principle an Action Plan for Soil Pollution Prevention and Control (i.e., Tushitiao), which is expected to be approved by the State Council by the end of 2014. The objective of the Action Plan is that by 2020, soil environment of arable land will be effectively protected, the worsening trend of soil pollution will be controlled, and soil quality in some regions improved. The total investment is expected to reach trillions of RMB. China has also considered international technical assistance, an important means to introduce good practices and experiences from developed countries for expediting its process of addressing site contamination issues.

Sectoral and institutional Context

7. **Stockholm Convention.** The proposed project will contribute to China's efforts in complying with the Stockholm Convention on Elimination of POPs. The Stockholm Convention, listing twenty-two POPs chemicals to date, was adopted in 2001 and entered into force on May 17, 2004. China demonstrated its commitment to the Convention by ratifying it early, and it came into effect for the country on November 11, 2004. Parties are requested to develop appropriate strategies for identifying sites contaminated by chemicals listed in Annex A (elimination), B (restriction) or C (unintentional production) of the Convention; if remediation of those sites is undertaken it shall be performed in an environmentally sound manner. China has developed its National Implementation Plan (NIP) for POPs Reduction and Elimination. Cleanup of POPs contaminated sites is one of the priorities.

8. **POPs Contamination Extent.** Some attempts limited at identifying and initially assessing POPs contaminated sites were made through development of the NIP for POPs in 2007, and a Study on Regulatory and Institutional Framework and Remediation Technologies for POPs Pesticide Contaminated Sites in China funded by the Canadian POPs Trust Fund, managed by the World Bank in 2009/2010. During the project preparation stage, additional information on POPs contaminated sites was gathered from the provincial annals on chemical industries, the China Pesticide Information Network (www.chinapesticide.org.cn) on endosulfan and its formulation producers, the Organic Fluorine and Silicone Material Industry Association on perfluorooctane

sulfonic acid (PFOS) producers, as well as from local governments responding to the data reporting requirements under the National POPs Prevention and Control Plan during the 12th FYP period. It is estimated that China had about 60 DDT, chlordane and mirex, hexachlorobenzene (HCB), heptachlor, and toxaphene and four polychlorinated biphenyls (PCBs) production factories (initial site investigation was carried out in 47 out of the 60 sites with POPs contamination identified), 38 endosulfan producers, 72 HCH (and DDT) producers, and 12 (8 are still in production today) PFOS producers. Most of these factories were equipped with outdated technologies and lacked proper waste and wastewater handling and rainfall collection systems, which could lead to soil and groundwater pollution. Evidence of site contamination was found through site visits, such as presence of waste residues and strong odors of pesticides in and around the production areas. In addition, China also has some legacy e-waste contaminated sites containing heavy metals, PCBs, pentabromodiphenyl ether (PBDE), polybrominated biphenyls (PBBs), dioxin and polybrominated dibenzodioxins (PBDDs) mainly in Guangdong, Zhejiang and Fujian provinces resulting from extensive operations in the past: incineration, crushing, dumping, and use of concentrated acid to extract precious metals and direct discharge of the effluent. Due to lack of nation-wide or sectoral hazard material tracking systems and reporting requirements for producers and users, as well as risk assessment requirements before land use change and land owner change, some POPs contaminated areas have already been dismantled and redeveloped without thorough investigation and, where needed, remediation.

Issues Related to Prevention and Control of Site Contamination in China

9. Policy and Legal Constraints. There is no national law encompassing soil pollution, cleanup and redevelopment, as well as prevention of soil pollution. Legal requirements related to soil pollution and liability are scattered in the provisions of several existing national laws or regulations. These relevant legal provisions, however, are not systematic or consistent, and none of them focuses on prevention and control of soil pollution or site contamination. They are also not specific, lacking operational details, accountability and enforcement provisions. Control and prevention requirements with measures pertaining specifically to soil pollution are largely missing.

10. Institutional and Capacity Constraints. Responsibility for management of industrial and agriculture contaminated sites or land is divided among several ministries: MLR, MEP, MHURD, Ministry of Agriculture (MOA) and the National Development and Reform Committee (NDRC). Although there is a definition of each ministry's responsibilities, overlaps persist and there is a lack of agreed and streamlined management and coordination procedures for contaminated sites due to the lack of applicable law for soil pollution. Most remediation projects that have been completed often were result of health incidents and/or developer's demand for a clean land after discovering contamination. Government officials lack technical background and knowledge for review of cleanup proposals. There are no requirements for professional qualification of cleanup practitioners and procedures for review and approval of cleanup plans. The country also lacks cleanup professionals with hands-on engineering experience on remedial plan development and remedial action.

11. Technology Constraints. In recent years, government funding has helped develop cleanup technologies and equipment for selected types of contaminated sites. Although various soil and groundwater remediation technologies exist, for most sites only a few are both practical and economical. In China, the most commonly used but relatively expensive remediation practice is excavation followed by ex-situ treatment, such as depositing contaminated soil in an off-site landfill, and/or neutralizing with cement kiln treatment. In-situ remediation technologies, which are

often less costly whilst taking more time to implement, are still in the early stage of research and piloting. Furthermore, the concept of risk assessment and risk management for contaminated sites has not been accepted widely and used normatively yet.

12. **Financing Constraints.** Cleaning up contaminated sites for redevelopment is expensive; therefore, financing is often a major obstacle. Even in common cases where land values after cleanup easily outweigh the cleanup costs, the upfront costs of remediation and the lack of funding options cause serious cash-flow problems. In China, no specific funds exist for contaminated site cleanup (like the Superfund or the Brownfield Remediation Fund in USA) at either national or local levels. No clearly defined rules and funding channels exist between known stakeholders (namely the governments, previous or current land owners, and developers) for cleanup and redevelopment of contaminated sites. This is an urgent area that requires improvement.

13. **Information Constraints.** Although the national soil survey has provided an overall overview of the soil pollution, particularly in agricultural land, the degree of pollution and other risks in specific locations remain unclear. China has no hazardous materials tracking and information reporting system for events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. The invisibility of soil pollution and no sufficient information disclosure have led to a very poor awareness of potential harms.

GEF-added Value

14. Given the growing pressure to manage health and environmental risks of contaminated industrial sites and agricultural land, China is putting more efforts to establish its management system and improve its technical and institutional capacity, but the country will have a long and hard way to go, before it can effectively prevent and control site contamination. Additional problems could result from superficial or inadequate characterization of contamination, which could lead to underestimation of risks or remediation measures that would go beyond what is required for managing risks. Developed countries, such as USA, Canada, and many in the European Union, have accumulated experience through over 30 years of tackling site contamination and have developed comprehensive and proven frameworks for risk management of contaminated sites. China does not need to re-invent the wheel and there is a great deal to learn from international experience. With GEF support, China can establish relatively fast a complete legislative and regulatory framework, including administrative measures and technical guidelines and standards based on international good practices in Chinese context. The Project, building on the Chinese government's efforts especially on high-level policy development, will incrementally improve China's capacity for managing contaminated sites by developing additional technical guidelines for prevention and control of soil pollution, developing administrative measures (operational procedures and requirements) on information disclosure and public participation, studying financing options for cleanup, providing training programs for cleanup professionals, government officials and polluting enterprises, raising public awareness, identifying POPs contaminated sites, and carrying out technical assistance activities on prevention of site contamination. By supporting cleanup demonstrations of POPs contaminated sites, the technical and managerial experience gained will be disseminated nationwide. The proposed project is very timely, and the government has strong commitment to reduce environment and health risks associated with POPs and/or other hazardous chemicals and would benefit from international experience on how to make this work in practice.

15. **Global Environmental Benefits.** The project will reduce POPs waste and also strengthen the

country's management capacity for prevention and control of soil pollution in the long run. The project will contribute to achieving the goal of the GEF's chemicals program "to promote the sound management of chemicals throughout their life-cycle in ways that lead to the minimization of significant adverse effects on human health and the global environment", and specifically the outcome 'POPs waste prevented, managed, and disposed of, and POPs contaminated sites managed in an environmentally sound manner' and 'country capacity built to effectively phase out and reduce release of POPs'.

II. Proposed Development Objectives

The project development objective (also the global environmental objective) is to improve the country's capacity for managing site contamination, and demonstrate identification and cleanup of sites contaminated with POPs and other hazardous chemicals in an environmentally sound manner.

III. Project Description

Component Name

Component 1: Capacity Development for Prevention and Control of Site Contamination

Comments (optional)

Component Name

Component 2: Cleanup Demonstrations of Sites Contaminated with POPs (and Other Hazardous Chemicals)

Comments (optional)

Component Name

Component 3: Project Management

Comments (optional)

IV. Financing (in USD Million)

Total Project Cost:	75.00	Total Bank Financing:	0.00
Financing Gap:	0.00		
For Loans/Credits/Others			Amount
Borrower			60.00
Global Environment Facility (GEF)			15.00
Total			75.00

V. Implementation

A. Institutional and Implementation Arrangements

16. Foreign Economic Cooperation Office (FECO) under the MEP will serve as the overall national implementing agency for the Project. Chongqing and Liaoning have set up Project Management Units (PMUs) in Chongqing Environmental Protection Bureau (CEPB) and Liaoning Environmental Protection Department (LEPD) to manage and coordinate project activities in

Chongqing and Liaoning, respectively. FECO will manage and coordinate project activities at the national level, and also supervise project implementation by the two PMUs and consolidate project progress and financial reports.

17. To ensure strong stakeholder involvement, the existing National Leading Group (NLG) for implementation of the POPs Stockholm Convention will continue to provide an overall guidance and coordination for implementation of the Project and to ensure facilitating adoption of national level regulations as early as possible. The NLG was established in September 2003 with 14 ministries and with MEP as the Lead Agency. FECO will organize NLG meetings at least semi-annually to report and collect feedback/comments on project implementation. In Chongqing and Liaoning, an inter-agency steering committee has also been set up to provide guidance to the PMUs for project implementation.

18. In the two demonstration areas, the specific site cleanup subprojects will be managed by the local PMUs. Site cleanup subprojects in other provinces will be managed by FECO. Implementation of site cleanup activities will be conducted by contractors, and supervised by independent supervision companies. Both will be selected through a bidding process. Environmental, health and safety mitigation measures in the EA/ESMP will be incorporated into the bidding documents and later into the contractors' contracts to ensure effective implementation. Cleanup process will be closely supervised and final results be verified by the local EPBs.

B. Results Monitoring and Evaluation

19. The Monitoring and Evaluation (M&E) system of the Project includes: (a) Annual Work Plans; (b) periodic on-site inspection and verification by FECO and PMU staff; (c) consolidated semi-annual project progress reports compiled by FECO to the World Bank; (d) consolidated semi-annual unaudited Interim Financial Reports (IFRs) on use of funds provided by the FECO to the World Bank; (e) completion reports for each cleanup subprojects under Component 2, (f) project completion reports in Chongqing and Liaoning and a consolidated project completion report by FECO; and (g) annual financial audits of the sole project account set in MOF. See Annex 3 for details.

C. Sustainability

20. The Government of China is obligated, as a Party to the Stockholm Convention, to identify POPs contaminated sites and to undertake their remediation in an environmentally sound manner. Sustainability and replicability of the Project will be ensured through the following features of the project design:

- (a) The project design is aligned with ongoing efforts of the Chinese government on adopting the Soil Pollution Prevention and Control Law. It is hoped that the Law would be issued during the project implementation period, which will facilitate possible issuance of administrative measures and technical guidelines prepared under the Project before the project closing to secure long-term project outcome sustainability;
- (b) The demonstration area approach will allow combination of policy actions, capacity building and cleanup demonstrations to systematically and sustainably address site contamination at the provincial level; experiences learned from the demonstration areas will be disseminated to other provinces for potential replication;

- (c) Beyond cleanup demonstrations of POPs contaminated sites under Component 2, the project Component 1 includes TA and policy activities on both prevention and control of site contamination: technical training on site cleanup process, ESMS training on prevention of industrial site contamination, pilot on integrated EMS for an Industrial Park in Chongqing, and policy gap analysis for prevention and control of agricultural land contamination in Hunan. Administration measures will be established under the Project to sustain the trainings and knowledge sharing and outreach will be organized for potential replication;
- (d) Public awareness and community involvement activities will also be designed for both prevention and control of soil pollution; and
- (e) Site-specific EAs and ESMPs will be prepared, approved and disclosed for each site cleanup to make sure that any potential environment, social, health and safety risks be minimized and site is cleaned to standards that meet the needs of future land use. These EA and ESMP reports will contribute to standardizing documentation requirements for site cleanup in China.

VI. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	x	
Natural Habitats OP/BP 4.04		x
Forests OP/BP 4.36		x
Pest Management OP 4.09		x
Physical Cultural Resources OP/BP 4.11	x	
Indigenous Peoples OP/BP 4.10	x	
Involuntary Resettlement OP/BP 4.12	x	
Safety of Dams OP/BP 4.37		x
Projects on International Waterways OP/BP 7.50		x
Projects in Disputed Areas OP/BP 7.60		x

Comments (optional)

VII. Contact point

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