

# PROJECT INFORMATION DOCUMENT (PID)

## CONCEPT STAGE

Report No.: PIDC1041

<b>Project Name</b>	China Contaminated Site Cleanup Project (P145533)
<b>Region</b>	EAST ASIA AND PACIFIC
<b>Country</b>	China
<b>Sector(s)</b>	Other industry (90%), Public administration- Industry and trade (10%)
<b>Theme(s)</b>	Pollution management and environmental health (94%), Environmental policies and institutions (6%)
<b>Lending Instrument</b>	Specific Investment Loan
<b>Project ID</b>	P145533
<b>GEF Focal Area</b>	Persistent Organic Pollutants
<b>Borrower(s)</b>	International Department, Ministry of Finance
<b>Implementing Agency</b>	Foreign Economic Cooperation Office of Ministry of Environmental Protection
<b>Environmental Category</b>	A-Full Assessment
<b>Date PID Prepared/ Updated</b>	27-Jun-2013
<b>Estimated Date of Appraisal Completion</b>	30-Jun-2014
<b>Estimated Date of Board Approval</b>	18-Dec-2014
<b>Concept Review Decision</b>	Track II - The review did authorize the preparation to continue

### I. Introduction and Context

#### Country Context

Site Contamination in China. Site pollution has become a serious health and environmental threat in China, contaminating the food chain with heavy metals (such as lead, mercury, arsenic and cadmium), fertilizer and pesticides, persistent organic pollutants (POPs) and solvents; and polluting groundwater and surface waters. In 2010, about 20% of China's arable land was found to be contaminated and the situation is getting worse. In urban areas, China's industrialization and modernization process, which started in the 1950s, has left a legacy of vast polluted industrial and commercial areas. More recently, hundreds of old industrial polluting enterprises are being relocated out of towns due to rapid urbanization, for example in the cities of Beijing, Chongqing, Shenyang, Wuhan and Jiangsu and Zhejiang provinces. However, detailed information on site contamination in urban areas is not available. These contaminated sites pose a dual problem: on one hand, they create environmental and health risks in China's most densely populated areas, on the other hand, they are an obstacle to redevelopment and urban and rural economic growth.

Government Efforts to Address Site Contamination. The Chinese Government has gradually become more aware of the serious socioeconomic risks resulting from site contamination. In July 2006, the State Environment Protection Administration (now Ministry of Environment Protection, MEP) and the Ministry of Land and Resources (MOLR) jointly launched China's first soil pollution survey backed by a budget of 1 billion yuan (125 million U.S. dollars). The survey focused on protected farmland and grain production areas and took four years to finish. Soil samples across China under the survey have revealed widespread remnants of toxic heavy metals dating back at least a century, and traces of DDT which was banned in the 1980s. The survey demonstrates the extent of the country's land pollution problems and its results are currently being analyzed and processed.

In June 2008, MEP issued an official document entitled "Recommendations on Strengthening Soil Contamination Prevention and Remediation." In 2011, the State Council issued "Opinions on Strengthening Key Tasks on Environmental Protection", which requires that environmental assessment and environmentally sound treatment should be carried out for contaminated sites before they can be redeveloped. In November 2012, MEP, MOLR, the Ministry of Industry and Information, and the Ministry of Housing, Urban and Rural Development (MOHURD) jointly issued a "Notice on Safeguarding Redevelopment of Industry-contaminated Sites". The Notice requires (i) to identify industrial enterprises to be closed or relocated and (ii) to carry out environmental investigation and risk assessment of the related sites in consideration of land use, (iii) to clarify cleanup responsible bodies before land transfer, (iv) special arrangements for the cleanup of high-risk sites, and (v) set up of qualifications for companies who will be engaged in contaminated site investigation, risk assessment and cleanup.

In January 2013, the State Council further issued "Work Arrangement on Soil Protection and Comprehensive Treatment in Near Future". This document sets the working targets for soil protection: by 2015 start to control 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, Chongqing and Beijing 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, Shenyang, and other cities. Most draw on foreign experience, and were jointly executed with foreign environmental protection companies and research institutes, and their domestic counterparts.

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 (1) the National Environmental Protection 12th FYP; and (2) the National POPs Prevention and Control Plan during the 12th FYP period. Both plans emphasize that there is a need to establish and improve relevant laws, regulations and standards for soil pollution control. MEP is making 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 recently and comments will be

widely collected. 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**

**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, B or C 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 for POPs reduction and elimination. Cleanup of POPs contaminated sites is one of the priorities.

**POPs Contamination.** Some attempts limited at identifying and assessing POP pesticides contaminated sites were made through a "Study on Regulatory and Institutional Framework and Remediation Technologies for POPs Contaminated Sites in China" funded by the Canadian POPs Trust Fund and managed by the Bank in 2009/2010. The study shows that China had fifty-nine POPs pesticides factories and fourteen of them, only about 24% had performed preliminary environmental screening or assessment of site contamination. Most of these factories were equipped with outdated technologies and lack of proper waste and wastewater handling systems and rainfall collection system which could lead to site contamination. Evidence of site contamination was found, such as presence of waste residues and strong odors of pesticides in and around the production areas. Due to the lack of a nation-wide POPs contaminated site inventory and site risk management procedures, some possible pesticide contaminated areas have been dismantled and redeveloped without thorough investigation and, where needed, remediation.

### **Issues for Cleanup of Contaminated Sites in China.**

**Policy and Legal Constraints.** There is no national law encompassing site contamination and cleanup and redevelopment. 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 site contamination. They are also not specific lacking operational details, accountability, and enforcement provisions. Control and prevention requirements with measures pertaining specifically to land pollution are largely missing. There are no national technical guidelines and standards for cleanup operations.

**Institutional Constraints.** Management of industrial contaminated sites is divided over several ministries: MOLR, MEP, MOHURD and the National Development and Reform Committee (NDRC). Although there is a definition of each ministry's responsibilities and duties, there are problems with overlap and absence of agreed and streamlined management procedures especially regarding contaminated sites that have not yet been covered by institutional responsibilities due to the lack of applicable laws and regulations. Remediation plans are usually considered and cleanup methods selected on a case-by-case basis, and the redevelopment of the first few sites was a process of "learning by doing."

**Information Constraints.** Although the national soil survey will provide an overview of the

contamination sites situation, particularly in farmlands, the degree of pollution and other risks in specific locations remain unclear.

**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 cleanup technologies exist, for most sites only a few are both practical and economical. In China, the most commonly used remediation practice is excavation followed by ex-situ treatment, such as depositing contaminated soil in an off-site landfill, and/or neutralizing with kiln treatment. In-situ remediation technologies are still in the early stage of research and piloting.

**Financing Constraints.** Cleaning up contaminated sites for redevelopment is expensive; therefore, financial issues are often a major obstacle. Even in situations, which are rather common 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 the 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 the cleanup and redevelopment of contaminated sites. This is an urgent area for improvement. Options will be carefully studied under the proposed project to support the development of funding instruments for contaminated sites management and cleanup, including better and practical application of the “polluter pays” principle.

**GEF-added Value.** Given the growing pressure to manage health and environmental risks of contaminated sites, China will put more efforts to establish its management system and improve its technical and institutional capability, but it would have a long and hard way to go, before it can effectively determine and control the risks of contaminated sites. Additional problems could result from superficial or inadequate characterization of contamination sites, which could lead to underestimation of risks or remediation measures that would go beyond what is required for managing risks of certain contaminated sites. 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 an implementable legislative and regulatory framework with technical guidelines and standards based on international successful experience with risk management applied within the Chinese context. The project will develop China’s capacity for identifying and reducing site contamination and related health risks by establishing the legal and regulatory framework and providing training programs for professionals on technical guidelines and standards, and training programs for officials at relevant levels of government including those involved in enforcement. By supporting cleanup of contaminated sites in selected provinces, the experience gained on site identification and cleanup methods will be disseminated to other provinces. The proposed project is timely, the government has strong commitments to reduce environment and health risks associated with POPs and/or other hazardous chemical contamination and would benefit from international experience on how to make this work.

**International and National Experience and Lessons Learned.** The Bank has also been working with other countries on site cleanup: Azerbaijan, India, Kazakhstan, Kosovo, Montenegro etc. International experience and lessons learned from these projects include (i) legal issues related to the selected sites for remediation such as (former) ownership or any other claim, concession or

exploitation right that may rest on the site need to be thoroughly reviewed and addressed, (ii) any ongoing use of the site needs to be assessed, including continued practices of waste disposal, and if so how to deal with this; (iii) importance of learning from international experience in tailoring remediation or confinement approaches to future use of the site; and (iv) the roles and responsibilities in site cleanup and redevelopment between the public and the private sector (both site owners and developers) need to be defined. In China, two POPs projects supervised by the Bank have been completed recently, which involved cleanup of two chlordane and mirex production sites in Jiangsu and some sites with waste PCB burials in Zhejiang. While the two projects were not designed to programmatically address contaminated site issues in a comprehensive site remediation and redevelopment context as is the basis for the proposed project, their lessons on project design and implementation should be learned and some outputs will be used. The lessons learned from the two projects include: (i) capacity building with a perception-and-behavior-change approach at the both national and provincial levels facilitates project sustainability, (ii) undertaking in-depth needs assessment is required to ensure the project is accurately designed to respond to local needs, (iii) knowledge and expertise sharing can be fostered with a network of international consultants, implementing agencies, and the private sector, (iv) addressing POPs issues should be integrated into the country's existing regulatory framework; (v) capacity should be built before physical interventions, and (vi) project risk assessment should be adequate and should foresee unexpected events, financially and technically, as they nearly always occur during cleanup operations.

### **Relationship to CAS**

The proposed Project is consistent with Strategic Theme One: 'Supporting Greener Growth' of the China – World Bank Country Partnership Strategy (CPS) for FY2013-FY2016. Under this theme, the Project would support Outcome 1.6: Demonstrating Pollution Management Measures, which would be achieved among others by "supporting efforts to reduce hazardous waste, by continuing to support the reduction of persistent organic pollutants (POPs)—the byproducts of industrial production and the world's most toxic chemicals—from the regulatory level to emissions control and urban site cleanup." The proposed project is also consistent with the Bank's new 2011 Environment Strategy toward a Green, Clean and Resilient World for All. According to the Strategy, the Bank will focus on legacy pollution and water basin cleanup.

## **II. Proposed Development Objective(s)**

### **Proposed Global Environmental Objective(s) (From PCN)**

The project development objective (also the global environmental objective) is to support the Chinese government to establish the policy and regulatory framework for contaminated sites, and pilot the identification and remediation of sites contaminated with POPs and other hazardous chemicals.

### **Key Results (From PCN)**

The project indicators that reflect and measure success in achieving the PDO are (1) developed policy and regulatory framework at the national and provincial levels for contaminated sites, (2) contaminated land managed or dump sites closed under the project (ha) (core sector indicator); (3) POPs and POPs waste destroyed, disposed of or contained in an environmentally sound manner (tons) (core sector indicator); and (4) a national priority list of POPs contaminated sites prepared. The project will contribute to the expected GEF POPs focal area Outcome 1.4 'POPs waste prevented, managed, and disposed of, and POPs contaminated sites managed in an environmentally sound manner' and Outcome 1.5 'country capacity built to effectively phase out and reduce release of POPs.

### III. Preliminary Description

#### Concept Description

The Government of China is showing keen interest in the Project that would support its investment programs to address the above-mentioned issues of contaminated site cleanup and redevelopment at both the national and the provincial levels. At the national level, the project will focus on technical support to the development of the national-level legal and regulatory framework for contaminated sites in general, POPs contaminated site inventory, and international and national knowledge sharing. At the provincial level, two provinces as pioneers with strong commitment, ownership, willingness to control and cleanup of contaminated sites will be selected during the project preparation stage as the demonstration provinces. FECO will rapidly initiate discussions during project preparation with potential provinces and municipalities including Hunan, Shandong, Jiangsu, Guangdong, Liaoning, Hubei, Beijing, and Chongqing regarding their interest to participate to the project as these provinces and cities have been at the forefront of efforts on contaminated sites management. Other provinces will also benefit from targeted knowledge sharing and training activities and events on contaminated site cleanup under the Project. The provincial approach will allow combination of policy actions, technical assistance and cleanup investments to address systematically site contamination issues in China, which also ensures sustainability of the project outcomes.

The project will include the following three components to achieve the PDO.

a) Component 1: Support to the development of the regulatory framework and capacity building for management of contaminated sites and development of a national priority list of POPs contaminated sites. This component will cover three sets of activities. First, this component will establish a set of policies, regulations and technical guidelines at the national level and in the two demonstration provinces for addressing contaminated sites in general (not only POPs sites). The preparation, introduction and application of technical guidelines and standards will cover the entire cleanup process, including preliminary site assessment, site inspection, priorities listing based on risk assessment, site investigation, cleanup design - cleanup objectives and technology selection based on risk mitigation and cost-effectiveness, and detailed analysis against established evaluation criteria, review of site cleanup proposals, cleanup implementation (including dismantling of buildings on the site), cleanup completion with verification, and site redevelopment. These policies and guidelines will also include requirements related to community involvement, enforcement, emergency response, certification of qualified site-cleanup service providers, and a wide variety of characterization, monitoring, and remediation technologies throughout the cleanup process.

Secondly, this component will provide training programs for different target audiences on laws, policies, guidelines, standards, the site cleanup process and reporting requirements, and conduct public awareness-raising activities and knowledge sharing workshops on cost-effective containment and cleanup technologies. Outreach will be organized for stakeholders to see the cleanup process and results under Component 2.

Thirdly, this component will carry out the preliminary assessment and site inspection to evaluate the risks at POPs sites: mainly POPs pesticides, e-waste (including PBDEs- polybrominated diphenyl ether and other POPs if any) and PFOS contaminated sites, as well as mercury contaminated sites (as relevant) and to produce a national priorities list stored in a management information system (MIS). The list is intended primarily to guide the country in determining which sites warrant further

investigation and cleanup.

b) Component 2: Cleanup or contamination control of sites contaminated with POPs (may contain other hazardous chemicals). This component will finance site cleanup and/or contamination control. Different site-specific cleanup financing mechanisms, cleanup technologies and contamination control measures are expected in order to diversify the demonstration results. The project might target the cleanup and/or contamination control of five to eight sites.

Sites are expected to be selected from the two demonstration provinces. Sites will be selected considering the following factors: sites are found that can be cleaned up readily and profitably because of high redevelopment potential or where health risks are so urgent that immediate action is needed; sites which are exposing high risks but cleanup is not feasible in short term need contamination control measures; cost-effectiveness of cleanup technologies; financial mechanisms; and the total number of sites to be included in the project will depend on mostly and the project budget and the availability of co-financing. Detailed site selection criteria will be determined and agreed with the project counterparts at the early stage of project preparation.

As the final cleanup approach and budget of a site can only be determined following detailed site investigations, technical cleanup design and environment management plans (EMPs), it is not possible to confirm and prepare all sites during project preparation for direct implementation of remediation works. Therefore, it is proposed that a list of candidate sites with diversified situations will be prepared during project preparation based on available information. It is expected that preparation work (site investigation, technical cleanup design and EMPs) for the first one or two sites will be completed during project preparation so that cleanup works could start for these sites in the first year of project implementation. Cleanup works for the other demonstration sites will be prepared during project implementation. This approach allows a certain staging of remediation works under this component for the various sites, which will be beneficial to support Component 1 and the preparation of other demonstration sites will follow the sites that started earliest. The lessons learned from all the demonstration sites will feed the process of policy development under the Component 1.

c) Component 3: Project management, monitoring and evaluation. This component will support monitoring and evaluation of the project outcome indicators and results, administration of project activities, and the project launch and completion workshops.

**Project Cost and Duration.** The total project budget will be determined during project preparation; however, it is currently estimated about US\$75 million with the main sources of financing to be provided by the government and/or site owners/users (US\$ 60 million) and the GEF grant (US\$ 15 million). See an estimated cost breakdown in the Bank PCN stage/GEF datasheet. The GEF project preparation is expected to begin in July 2013 with GEF and the Bank's approval envisaged for 2014 and an implementation period of six years (2015-2020).

**Project Preparation Grant.** A GEF project preparation grant (PPG) of US\$ 300,000 requested for project preparation will support the following activities: (1) design of component 1: hold stakeholder meetings, carry out relevant studies needed for fine-tune the project activities at the national and provincial levels; (2) preparation of the site cleanup activities through identifying two demonstration provinces and candidate sites, including holding stakeholder meetings, collecting and studying site baselines, and developing a list of candidate sites. One or two sites will undergo

comprehensive site investigation, risk assessment, cleanup technology evaluation, and environmental and social assessment as basis for these sites to be remediated early during project implementation, and (3) establishment of project management teams at the national and provincial levels, hiring technical consultants for project preparation activities and project preparation management.

#### IV. Safeguard Policies that might apply

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

#### V. Financing (in USD Million)

Total Project Cost:	75.00	Total Bank Financing:	0.00
Total Cofinancing:		Financing Gap:	0.00
<b>Financing Source</b>		<b>Amount</b>	
BORROWER/RECIPIENT		60.00	
Global Environment Facility (GEF)		15.00	
Total		75.00	

#### VI. Contact point

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