INTEGRATED SAFEGUARDS DATA SHEET
APPRAISAL STAGE

Report No.: ISDSA13300

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I. BASIC INFORMATION

1. Basic Project Data

Country:	China	**Project ID:**	P147381
Project Name:	Zhuzhou Brownfield Remediation Project (P147381)		
Task Team Leader(s):	Frank Van Woerden,Ning Yang		
Estimated Appraisal Date:	25-Sep-2015	**Estimated Board Date:**	15-Dec-2015
Managing Unit:	GEN02	**Lending Instrument:**	Investment Project Financing
Sector(s):	General industry and trade sector (50%), General agriculture, fishing and forestry sector (20%), Solid waste management (30%)		
Theme(s):	Pollution management and environmental health (70%), Urban Economic Development (20%), Environmental policies and institutions (10%)		
Is this project processed under OP 8.50 (Emergency Recovery) or OP 8.00 (Rapid Response to Crises and Emergencies)?	No		
Financing (In USD Million)			
Total Project Cost:	235.40	Total Bank Financing:	150.00
Financing Gap:	0.00		

Financing Source	Amount
Borrower	85.40
International Bank for Reconstruction and Development	150.00
Total	235.40

Environmental Category:	A - Full Assessment
Is this a Repeater project?	No

2. Project Development Objective(s)

The project development objective is to reduce public exposure to contaminated land in the project area using risk-based remediation approaches.

3. Project Description

1. The Project will support the following activities with a total cost of USD235.4 million, of which IBRD loan 150 million.

2. Component 1 ? Remediation of contaminated plots (total cost US$163.5 million, of which IBRD loan US$131.1 million). The component will support cleanup and remediation of 2.73km2 contaminated plots and 0.11km2 of dispersed open soil plots in residential area. The following activities will be undertaken:

(a) Site preparation. This will include: (a) demolition and removal of structures of households in remediation area and six closed plants, and land clearance in 2.30km2 remediation area (excluding the six closed plants, ponds and channels, and two waste pile sites). Around 45,843 m3 of demolition/construction wastes and a considerable amount of vegetation residuals (including attached top soils) will be generated, which will be either reused or transported to a temporary construction waste storage site before being finally disposed of in the project landfill. For the six closed plants, washing demolition wastes and those buildings that do not need to be demolished (such as office buildings) will generate 6,742 m3 of wastewater that requires treatment.

(b) Transport routes. Twenty-one roads totaling 26km are planned for the transport of contaminated soils, wastes or materials, among which four are major roads, 14 existing small roads will be improved and three new small roads will be built.

(c) Soil and sediment treatment in closed plants. This includes six closed plants that in total have a remediation area of 0.13 km2. Around 90,861m3 of contaminated soils in these closed industrial sites will need to be remediated through excavation and transported to facility facilities. Around 74,313m3 of heavy metal contaminated soils will be sent to the Xinqiao Stabilization/Solidification (S/S) treatment facility before being finally disposed of in the project landfill; the remaining 16,458 m3 contains organic contaminants and will be sent to Zhuzhou Zhongcai Cement Plant for treatment. After excavation, these industry sites will undertake soil backfill, restoration and revegetation.

(d) Remediation of contaminated soil plots. Excluding closed plants, ponds/ channels and waste piles sites, about 2.3km? of contaminated plots totaling around 1.38 million m3 of contaminated soils will need to be remediated by using in-situ or ex-situ technologies. About 0.29 million m3 will be excavated, transported to and treated at the Xinqiao S/S facility before being finally disposed of in the project landfill; about 0.37 million m3 will be moved to planned non-sensitive area or the project landfill; the remaining 0.69 million m3 will be remediated in-situ through physiochemical or ecological measures. Those sites undertakes excavation will be backfilled with clean soils, restored and re-vegetated.

(e) Clean-up of industrial waste piles. Two waste piles that amount to 84,700 m3 (including contaminates soils beneath) in Tongxia sub-area and Hongxin Plant will be transported to the Xinqiao S/S site for treatment finally disposed of in the project landfill.

(f) Remediation of contaminated ponds and channels. Twenty-six ponds that have a total area of 0.17km2 will be remediated following pumping water, dredging and dewatering of contaminated sediments, and restoration. In total around 0.26 million m3 of water will be pumped and treated by mobile treatment facilities before being discharged into drainage channels; around 0.173 million m3 of sediments will be dredged and dewatered in Xinqiao or Xiawangang Dewatering sites nearby, and moved to Xinqiao S/S site for treatment before being finally disposed of in the project landfill.

Sediment dewatering will generate 79,800 m3 of wastewater that will be treated by mobile treatment facilities and be discharged into drainage channels. After dredging, those ponds will be refilled with sands, cobbles (around 0.26 million m3) to original elevation, and restored through structure stabilization and greening.

(g) Soil exchange program. Around 55,428m3 contaminated soils in 0.11 km2 dispersed plots outside the 2.73 km2 remediation area will undertake clean soil replacement as the existing top soils pose certain level of health risks. These contaminated areas include parks, playgrounds and other open spaces in residential areas. Around 26,759m3 of soils that meet non-sensitive land use soil quality will be moved to planned non-sensitive area; the remaining 28,669m3 will be moved to Xinqiao S/S site for treatment before being finally disposed of in the project landfill. After the replacement, these plots will be restored to their original conditions and covered with vegetation to prevent soil erosion.

Component 2 ? Associated treatment and disposal works (total cost US$22.3 million, of which IBRD loan US$16.0 million)

3. This component will support associated remediation works that are required to enable the remediation of certain plots or to make sure that the remediation is sustainable under Component 1.

(a) Xinqiao dewatering site. This dewatering site has an area of 4,200 m2, including dewatering area 4,000m2 and storage area 200m2. This site will serve the treatment of sediments from the ponds nearby. Upon service completion, this works will be removed and site restored.

An existing Xiawangang dewatering site will used for the project as well. The site has an area of 5,500 m2, including dewatering area 4,000m2 and storage area 1,500 m2. The site was built for the treatment of Xiawangang Channel in 2012 and is now idled. It will be used for the treatment of sediment from Old Xiawangang Channel and ponds nearby.

(b) Xinqiao Stabilization/Solidification (S/S) Facility. The facility is located between the above-mentioned two dewatering sites in the middle of the project area. The site was built for the treatment of solid wastes under other prior implemented projects, which was completed in December 2014. The Bank-financed project will provide S/S treatment facilities and necessary modification to the civil works to enable the site meet the project needs. By estimate, around 584,693m3 of sediments, contaminated soils and industrial wastes will be treated with the S/S facilities. In addition, in the same area since the project landfill will be built and provide service in June 2018, a temporary storage area of 10,000m2 will be built to store around 0.15 million m3 of wastes and residuals before the landfill in put into use.

The Xinqiao S/S facility and temporary construction waste storage site will be located by an existing major road Tongxia Road in the project area. The site has an area of 108mu (7ha). In the same area, the project supported environmental information and demonstration center will be built.

(c) Wastewater treatment facilities. This includes four sets of mobile wastewater treatment facilities and on-site tanks for the wastewater resulted from washing demolition wastes and pond sediment dewatering, which in total amount to around 87,000m3. In addition, surface water from the

ponds, amount to 260,000m3, will be monitored and discharged into nearby drainages. Upon service completion, the wastewater treatment tanks will be removed and site restored.

(d) Industrial solid waste landfill ? A landfill with the capacity of 2 million m3 will be built on an abandoned quarry in the project area. The volume of the estimated construction waste, together with the soil, sediment and waste residue after stabilization is about 0.689 million m3 in total. These wastes will be disposed of in the landfill. The abandoned quarry pit of Zhuzhou Hehua Cement Plant will be turned into a solid waste landfill with necessary engineering measures. The pit contains around 2 million m3 of water now. Treatment facility and drainage will be built first to treat and drain the water. Upon landfilling of the wastes under the project, the landfill will undertake interim closure per standard technical practice and will continue provide services up to 2026.

Component 3 ? Capacity building and knowledge management (total cost US$8.3 million, of which IBRD loan US$1.0 million)

4. The project will support Zhuzhou City and Shifeng District??s capacity to demonstrate the technical and management knowledge gained from the project implementation, to engage the public, to manage remediation and redevelopment strategic planning.

(a) Environmental Information and Demonstration Center. To maximize the demonstration impact of the project, an environmental information and demonstration center will be established, which will serve the following purposes: 1) public disclosure of the monitoring reports and the pollution maps that were prepared as well as the pollution maps that will be prepared after the remediation is complete to demonstrate success; 2)an environmental education platform for the public to review the pollution history, display remediation achievements and anticipate the future development of environmental protection; 3) a monitoring data center to provide support for environmental management and green development; and 4)provide information on area??s redevelopment plans and serve as a center for the affected to file their complaints. Specific civil works include a management building with a construction area of 820m2; an environmental protection exhibition center with construction area of 7,150m2, and an experiment/demonstration base with an area of 40,000m2.

(b) Study on Qingshuitang Brownfield Remediation and Strategic Planning. The project will address the remediation of the 8.48km2 portion of the 15.15km2 Qingshuitang core zone. The remediation adopts a risk-based approach that integrates land contamination status and planned land uses for the core zone. In 2013, the Zhuzhou Municipality approved a regulatory urban development planning for the core zone. In coming years, it is anticipated that industrial restructure will take place and the land will be turned into commercial, residential and new industrial uses. In response to this dynamic process, this study intends to look into the following aspects: (i) recommendations for filling the potential gaps between the remediation results and future land use/urban development strategic planning, through defining remedial remediation targets or refining the strategic planning; (ii) a strategic environmental and social impact assessment for the remediation and redevelopment of Qingshuitang core zone that will address among other issues the conversion of land use and its impacts on land value and beneficiaries ; (iii) application of green remediation in the future remediation practices in Qingshuitang. The green remediation is defined by USEPA as the practice to consider all environmental effects of remedy implementation and incorporating options to maximize the net environmental benefits of cleanup actions; (iv) policy recommendations for addressing policy, regulation, financing and market issues in the remediation and redevelopment.

(c) Study on the compliance framework for Qingshuitang environmental quality and industrial pollution control. Outside the project remediation area and in the Qingshuitang core zone, there will be industrial facilities in operation in coming years, notably the Zhuzhou smelter plant. Monitoring the industrial emissions and regional environmental quality is needed to ensure their compliance, mitigate the risks of recontamination and protect future development. This study will include: (i) regional groundwater monitoring and modelling; (ii) monitoring of industrial emissions, secondary pollution analysis and data analysis for environmental management.

Component 4 ? Project Management, Monitoring and Evaluation (total cost US$11.1 million, of which IBRD loan US$1.5 million)

5. The project will support the PMO and PIU to enhance management capacity through training, study tour and outsourcing consulting services.

(a) Project management capacity building. This component will support: (i) training on procurement, financial management, safeguards, reporting, monitoring, etc.; (ii) domestic and abroad study tours; (iii) skills training for landless farmers, laid-off workers, and resettled households and; (iv) development of a project management information system for the project implementation.

(b) Project management, including the project procurement agent, designing institute, project management consultant, engineering supervision and environmental supervision.

(c) External environmental monitoring and social monitoring. These two activities are designed to assist the PIU in monitoring the implementation of the project Resettlement Plan and Environmental Management Plan.

4. Project location and salient physical characteristics relevant to the safeguard analysis (if known)

The project is located in Qingshuitang Industrial Zone (QIZ), Shifeng District, Zhuzhou City.. Zhuzhou City is located in the eastern part of Hunan Province and mid-low reach of Xiangjiang River. QIZ is a famous metallurgical and chemical industrial base in China, which started to house industries in early 1950??s. The project region belongs to subtropical monsoon humid area, with four distinctive seasons. The average temperature is 17.4oC (min. -11.5oC and max. 40.2oC), and the average precipitation is 1442.7mm, which mainly occurs during April ? August. The dominant wind direction is NWN, with annual average speed of 2.0m/s. The topography of Zhuzhou is mainly surrounded by mountains and rolling hills with low river basin in the middle.

Xiangjiang River, a major tributary of Yangtze River, flows through Zhuzhou city. The river has an annual average flow of 1,780m3/s. The project area is on the immediate north of the river and there are five small branches feeding to the Xiang River through the project area.

Two geological structures dominate the project area. One is exposed bedrock with very scarce fissure and pore water; the other is alluvial material layer that lies in the south-middle of the project area, of which the upper section is dense silty-sandy clay with poor water permeability; the under layer is loose sands with rich groundwater. In the project area there is also thick fill soils on top of bed rock; both with deficient groundwater. Overall, the groundwater is deficient with poor migration in the project area. The groundwater flows NE-SW toward the Xiang River. It is primarily replenished by precipitation and presents an annual variation of 0.5-1m..

The project area is a portion of the QIZ and has a total area of 8.48km2. According to social survey, there are 10 communities and villages in or partially in the project area. There is a population of 6,237 in the project area. The farmland, mostly in the western part of the project area, is not suitable for farming due to soil contamination. In 2009 the central government issued a policy to turn the farmland into construction land and incorporate farmers in the project area into employment and social security system for urban residents.

5. Environmental and Social Safeguards Specialists

Ning Yang (GENDR)

Songling Yao (GSURR)

6. Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	The project is an environmental cleanup project by nature, thus it will have significant environmental and social benefits by remediating site contamination and improve ambient environmental quality. The project is assigned Category A for environmental purpose due to complex contamination situations and land use patterns, human health and agriculture products contamination concerns, industrial pollution issues, and high demand for technical efforts throughout remediation process. An EIA, a standalone EMP, an ESMF and an EA Executive Summary were prepared. Public consultation and information disclosure were carried out following OP4.01.
Natural Habitats OP/BP 4.04	Yes	The project area is industrialized, largely polluted, and does not include any critical natural habitats. The project remediation activities, particularly the land clearance, earth excavation and sediment dredging will have negative impacts on natural habitats. Rehabilitation measures will be carried out to restore the vegetation and aqua ecosystem. Overall, the project impacts on natural habitats will be limited and short-term. In long run, the project area after remediation will have positive impacts on the adjacent Xiangjiang River.
Forests OP/BP 4.36	No	The project will not involve any forests.
Pest Management OP 4.09	No	The project will not result in use or procurement of pesticides.
Physical Cultural Resources OP/BP 4.11	Yes	Site survey and consultation with responsible agencies and local communities were carried out during EA preparation to identify PCR in the project area. Several PCRs such as a temple were found in the project area. The project activities identified during project preparation are not anticipated to have any directly impact to any PCRs.

		The policy is triggered for precautionary purpose, because during the project implementation, within the project area additional remediation activities may be deemed necessary as results of legal requirements or site monitoring, and they may potentially impact the identified PCRs. An EMSF has been prepared for the potential remediation activities to guide policy screening for specific activities. Chance-find procedures is included in the EMP
Indigenous Peoples OP/ BP 4.10	No	There is no ethnic village or community present in the project or collectively attached to the project areas, and so IP Policy is not triggered.
Involuntary Resettlement OP/BP 4.12	Yes	The project component I and II will entail land acquisition, relocation of households, as well as impacts on enterprises and infrastructure in the project area. Further, some implemented resettlement of two activities in the area was identified to link to the project. So the OP 4.12 is triggered, and a resettlement plan (RP) for resettlement impacts from some activities clearly defined prior to the appraisal and a resettlement policy framework (RPF) for other resettlement impacts were prepared. In addition, on worker settlement related to the closed enterprises, a worker settlement review report was prepared.
Safety of Dams OP/BP 4.37	No	The project does not involve any dams.
Projects on International Waterways OP/BP 7.50	No	The project is located in hinterland and does not involve any international waters.
Projects in Disputed Areas OP/BP 7.60	No	The project is does not involve any disputed areas.

II. Key Safeguard Policy Issues and Their Management

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:
Environment OP4.01 Environmental Assessment. The project is an environmental cleanup project by nature, thus it will have significant environmental and social benefits by remediating site contamination and improve ambient environmental quality. The project is assigned Category A for environmental purpose due to complex contamination situations and land use patterns, human health and agriculture products contamination concerns, industrial pollution issues, and high demand for technical efforts throughout remediation process. Three environmental safeguards policies were triggered, i.e. OP4.01, OP4.04 and OP4.11. The World Bank Group EHS Guidelines were incorporated into the EA where applicable. An EIA, a standalone EMP, an ESMF and an EA

Executive Summary were prepared by accredited EIA institute. The EA was reviewed by the Bank team and considered satisfies Bank requirement.

The project EA study covers three spatial contexts. The project is located in Qingshuitang Industrial Zone (QIZ) which has an area of 47km2. The QIZ includes a core area of 16km2, and the project implementation area is a portion of the core area and covers 8.48km2. While the EA pays special attention to the project area, it also extensively looks into historical and current industrial pollution emissions, land, surface water, groundwater, and communities in the wider spatial contexts. During project preparation, detailed land use survey, environmental site investigation were carried out, based on which risk assessment were conducted; remediation plan was developed; environmental impact assessment were prepared; and impact mitigation plan were defined.

Land uses. According to the land use survey conducted during the project preparation, the project area has a mix of land uses that can be categorized into 5 types, i.e. industrial/infrastructure, residential, farmland/idled land, waters and woodland. It is noted that due to soil contamination, in 2009 the farmland was turned into construction land per central government??s requirement. Accordingly the farmers were turned into urban residents and incorporated into the corresponding employment and social security system. There is intensive road network, including a major road Tongxia Road traversing the project area.

Environmental site investigation and risk assessment. During 2011-2014, environmental site investigation and risk assessment were carried out to cover soils, channels and ponds, waste piles, closed industrial facilities, open soil plots in residential areas, and groundwater. Based on analysis results and risk assessment, the primary contaminants of concern are heavy metals including Pb, As, Cd, etc. in soils, sediments and wastes. In one closed industrial facility organic contaminants such as aniline and benzopyrene were tested in soils. Groundwater contamination did not show a universal pattern across the area; latest monitoring conducted in November 2014 indicated exceedance of nitrate, nitrite and Beryllium, while historical monitoring show localized exceedance of other heavy metals against applicable groundwater standard. Sampling of agricultural products of the area showed exceedance of Cd, Pb and Zn against applicable food products quality standards.

Risk assessment was conducted following national technical guidelines and internationally recognized tools and data sources developed by USEPA and ASTM. Based on the site investigation results and planned land uses, with the main objective of protecting human health, the project area risk levels were calculated and compared against thresholds, e.g. for carcinogenic risk, the acceptable level for a single pollutant is 10-6. As result, the project area is categorized into 3 parts, i.e. 2.02 km2 risk acceptable area, 3.73 km2 risk controllable area, and 2.73 km2 remediation area that presents unacceptable risk levels and requires remediation actions. For groundwater, the results of risk assessment indicates that the potential groundwater contamination does not pose unacceptable risk levels to human health. Zhuzhou Municipal Environmental Protection Bureau has approved the risk assessment for the project area.

Remediation plan. Based on risk assessment results, a set of cleanup and remediation actions were designed, including in-situ phytoremediation, bio-interception, in-situ stabilization plus capping or revegetation, excavation, reuse soils in the project area. Dewatering and solidification/ stabilization treatment f acilities will be used to treat sediments, contaminated soils and industrial solid wastes. A landfill will be built on an abandoned quarry in the project area and used for

receive treated residues and structure demolition wastes. The remediation technologies and treatment/disposal works were selected through careful alternative analysis, tailored to site-specific contamination risk levels andland use plan. To support the remediation efforts, land clearing, limited access roads, and wastewater treatment facilities will be needed.

Impacts assessment and mitigation. Anticipated key environmental and social issues are associated with the following activities: 1) excavation and transport of contaminated soils and wastes, 2) dredging and dewatering of sediments and, 3) building and operation of treatment and disposal facilities. These activities may result in negative environmental and social, including: 1)impacts on air quality during excavation, transport, treatment and disposal of soils/wastes; 2) impacts on surface water quality during landfill preparation (i.e. discharging accumulated water in an existing quarry pit), sediment dewatering and from construction wastewater; 3) impacts on groundwater during construction and operation of treatment/disposal facilities; 4) impacts on ecology during land clearance for site preparation and dredging of contaminated ponds; 5) impacts of solid waste such as the demolition of structures in closed plants; 6) social impacts such as land acquisition, disturbance to facilities, traffic, visual and worker camp; and 7) health and safety concerns during construction and operation.

These impacts have been adequately assessed and mitigation measures developed in the EMP, which can effectively avoid, minimize or mitigate potential negative environmental and social impacts. To summarize, the project includes adequate treatment and disposal facilities to manage contaminated soils, solid wastes and wastewater; mitigation measures have been developed for the construction, operation and decommissioning/closure of disposal facilities and the landfill; environmental mitigation measures were developed for the clean-up, demolition, excavation, recycling, transport and disposal activities to minimize impacts on ambient air, surface water, groundwater quality and local communities; post-construction site restoration were considered; environmental specifications, including health protection and safety measures were included in the EMP as well. In addition, close environmental monitoring and supervision will be carried out throughout the project implementation to ensure remediation target met and impacts on air, surface water, groundwater, acoustic environment and communities effectively mitigated.

Associated works. The project physical activities will mostly take place within the project area. Three main associated works were considered and included in the EA, 1)the project will need to backfill clean soils to excavated area. The project owner has made agreement with the municipal government that this need will be met by obtaining clean soils from other development activities in the city. The soil borrowing, transportation and backfilling are covered in the EMP and ESMF. 2) About 8,274m3 soils that contains organic contaminants in Tiancheng Chemical Plant will be moved to Zhuzhou Zhongcai Cement Plant for treatment. Due diligence of the cement plant was carried out. The plant is listed in National Key Emission Source List and has been under close inspection of local environmental authority. No incompliance has been found. The volume of organic contaminated soils is tiny compared to the production of the cement plant and is not expected to affect the emission levels of the plant. 3) In addition, under the project, the 6 enterprise were closed already and will not be relocated to other places. Impacted households will be resettled in already-built resettlement area.

Due diligence review of industrial emissions were carried out and included in the EA. It is noted that in 2011 the State Council issued an Implementation Plan for Heavy Metal Pollution Treatment in Xiangjiang River Basin. Following the policy, in the Core Area some small enterprises have been shut down. Remaining industries in the Core Area include a major lead-zinc smelter complex

and a chemical complex. They have undergone technical renovation, installed sophisticated pollution control facilities and are under close inspection of local environmental protection bureaus. However, they will remain active in foreseeable future. These two major industrial complexes are located adjacent to the project area. Monitoring results show over the past years emission compliance have been improved as result of more stringent environmental enforcement. Latest monitoring in early 2015 show overall compliance of emissions from the industries.

OP4.04 Natural Habitats. Ecological survey carried out during EA preparation indicates there is no critical natural habitats or endangered/valuable species and plants identified in the project area. The project remediation activities, particularly the land clearance, earth excavation and sediment dredging will have negative impacts on natural habitats. The excavated areas will be restored by backfilling clean soils and revegetation. Temporary treatment works will be removed and site restored upon service completion. The dredged ponds will be rehabilitated through backfilling appropriate materials to support aqua system recovery. Overall, the project impacts on natural habitats will be limited and short-term. In long run, the project area after remediation will have positive impacts on the adjacent Xiangjiang River.

OP4.11 Physical Cultural Resources. Site survey and consultation with responsible agencies and local communities were carried out during EA preparation to identify PCR in the project area. There is no Cultural Relics Protection Unit found. A Dawang Temple and tombs are located on hills where no physical activities will be implemented. A Wuniang Temple is located in non-remediation area. The project activities designed at the project preparation are not anticipated to have directly impact on any of these PCRs. The policy is triggered for precautionary purpose, because during the project implementation, within the project area additional remediation activities may be deemed necessary as results of legal requirements or site monitoring, and they may potentially impact the identified PCRs. An EMSF has been prepared for the potential remediation activities to guide policy screening for such specific activities. Chance-find procedures is included in the EMP.

Social

Qingshuitang core area covers an area of 8.48 km2, in which 2.73 km2 is to be covered in the project brownfield remediation scheme. The specific activities cover i) treatment and restoration of polluted site: ii) construction of utilities for site restoration; iii) construction of solid waste landfill; iv) construction of environmental protection demonstration center. In addition, scattered replacement of surface bare soil shall be conducted beyond the 2.73 km2 area, 0.11km2 in total. The project social study will cover this entire area.

The project will likely entail relocation of households and enterprises, as well as land acquisition. The main resettlement impacts include relocation of 94 households, structure demolition of three enterprises, about 273 mu permanent land acquisition and 4190 mu temporary land acquisition.

In addition, two activities in the project area were identified to link to the project, Tongxia Road II and former implemented soil pollution treatment. The implemented resettlement under the two activities were conducted a due diligence review, as annex II of the RP, which found that 416 mu collective land was permanently acquired in five villages/communities, with relocation of 122 households and 498 persons.

Further, the project will aim to clean up land of six enterprises, which were already closed by the

government due to environmental non-compliance. The works will include demolishing of the structures in three enterprises, and borrowing the contaminated land for remediation.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

The redevelopment and urbanization of the QIZ core zone will be facilitated by the project. Therefore, there will be significant induced and cumulative impacts envisaged for the project area from a long-term point of view.

Zhuzhou City has developed a new urban planning for the QIZ Core Area. According to the planning, The main function of the core zone will include business, industries (rail industries and environment-friendly industries), logistics and residential area. Preliminary assessment has been undertaken in the project environmental assessment, which foresees a significant reduction of industrial land from 839ha to 199ha and corresponding cut of industrial emissions. Land for business, green space and residential area will increase. With the redevelopment and urbanization of the area, impacts on regional hydrology, ecology and livelihoods are anticipated. A Qingshui Lake constructed wetland is planned to bring ecological benefits to the area. With the project area remediated, in long run the Xiangjiang River??s water quality and ecosystem will be benefited.

It is noted that upon the project remediation, there is still a long road ahead for redevelopment, and there is obvious uncertainty associated with industrial restructure in the QIZ. To address the strategic and cumulative impacts in a more scientific and thorough approach, the project will support a second phase detailed strategic and cumulative environment and social impacts assessment as part of the Technical Assistance program (component 3 of the project). The study will, based on preliminary assessment, carry out further data collection, research and consultation for a strategic cumulative impacts assessment. In particular, social and livelihood impacts associated with land redevelopment will be reviewed. A Terms of Reference for this study has been developed, and included in the EMP.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

Alternative analysis has been conducted for the project with comprehensive considerations of environmental, social, technical and economic factors. The main analysis of alternatives is summarized as follows.

With/Without Project. The implementation of the project will bring significant positive environmental and social benefits by cleaning up the area, removing the contamination risk public health, and facilitating sustainable development of QIZ. The adverse environmental impacts during remediation process is manageable, and can be adequately avoided, minimized and mitigated through efficient implementation the EMP.

Remediation of heavy metal contaminated soils. Several technologies were studied, including S/S, excavation and ex-situ landfill, phytoremediation and soil washing with consideration of technical feasibility, period of remediation, land use plan and economics. Finally, a combination of in-situ stabilization + capping, in-situ stabilization + vegetation remediation, ex-situ S/S, removal to industrial land and phytoremediation interception barriers was selected.

Remediation of organic contamination soil: three technologies were studied, including biodegradation, excavation and ex-situ landfill, and incineration. The incineration technology is selected due to consideration of proper scale, remediation time and cost. The Zhuzhou Cement

Plant, about 18km from the project, has the appropriate process and emission treatment facilities that meet the national standards of Technical Specifications for Co-incineration of Solid Waste by Cement Kiln(HJ662-2013), therefore, is selected for incineration treatment.

Solid Waste Landfill. Two options were considered for the landfill: Option 1 to use an abandoned quarry pit in the area; and Option 2 is to construct a new above-ground tray-type landfill in the planned green space of the project area. Reuse the quarry pit will avoid occupation of new land, fully utilize the non-usable industrial legacy site to accommodate the project waste as well as long-term disposal of solid waste for the city. New construction of above-ground landfill, though is easier for construction, will take large green space, require construction enclosure dams and will have more chance of public exposure. With comprehensive comparison, Option 1 is selected.

Treatment of water in the quarry pit. The quarry pit water contains NH3-N higher than applicable standards and requires prior treatment before discharge. Two treatment options were considered: Option 1 is to send the water to the existing Qinghsuitang Industrial Treatment and Recycling Plant; Option 2 is chemical treatment by adding chemicals to remove NH3-N (breakpoint chlorination method). Option 1 is limited by the capacity of existing plant and requires construction of a connection pipeline. While, Option 2 only requires construction of one treatment tank near the pit (which will later be used as leachate collection tank for the landfill). Therefore, Option 2 is selected.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

Environment

The project owner has engaged an accredited EIA consultant to conduct the EA during project preparation. A standalone EMP was prepared based on the findings of the EIA. The EMP outlines measures to avoid, minimize, and mitigate potential environmental and social impacts as well as a budget for the implementation of EMP activities. The EMP specifies institutional arrangement, specific site remediation plans, monitoring plans, site maintenance requirements (i.e. mitigation measures during operation), acceptance and post-remediation management, capacity building, public engagement, and EMP implementation budget. The project will have dual supervision arrangement; one on construction supervision, the other on environmental supervision which will monitor the remediation process and ensure required quality standards will be met. The EMP will be incorporated into bidding documents and contracts.

The EMP also includes a TOR for long-term groundwater monitoring plan, and a TOR for detailed strategic and cumulative impacts assessment. An ESMF was prepared to deal with potential other remediation activities in the project area. The ESMF sets principles, screening, environmental documentation, public consultation and information disclosure, and review requirements for new activities.

The project owner has no prior experiences in managing Bank-financed project. The EMP has included a clear institutional arrangement that defines the environmental management responsibilities, supervision and reporting duties at municipal-level PMO and PIU ZREIDC. An independent environmental monitoring consultant will be hired to assist in the PMO/PIU in managing environmental safeguards compliance during project implementation

Social

A RP was prepared to handle the above mentioned resettlement impacts, at the meanwhile, some potential impacts could not be clearly identified at this stage of preparation, therefore a RPF is being prepared to address the following: (a) any project actions located outside the currently determined remediation area of 2.73 km2, if any; (b) identification of linkage activities, for instance, treatment facilitates solid waste generation by the project, not clearly determined by project appraisal; (c) any resettlement related to affected enterprises, not included in RP, within the boundaries of the project; (d) activities, which cannot be clearly determined during preparation stage; and (e) activities, which might be changed during implementation stage.

The land compensation rates will exactly follow the national land law, while house/structure compensation will be based on replacement cost. Land compensation is calculated as cash plus training and social security program, given the income from land is very limited. House compensation has two options to choose from by the affected households -cash or house replacement. The government is currently building thousands of apartments at several alternative locations for resettled households to choose from ? among which one is almost completed. The compensation fee for house exceeds the price of replacement house. With resettlement allowance and movement subsidies, the affected households will be well compensated. These measures are explored based on consultations with the affected by local government authorities and acceptable to the affected population. The RP also elaborates on the measures pertinent to institution, participation and financing arrangement, monitoring system, and grievance redress, etc. The total resettlement cost is estimated to be about RMB 212 million.

As for the resettlement under the two linked activities in the project area were identified to link to the project, a due diligence review was conducted, finding that all the land was compensated upon written contracts with village committees in line with national land regulations, and all the household relocation was conducted after full and timely compensation disbursement to the affected upon written agreements with each households based on commercial assets evaluation in line with the national regulations. The random interview of the review found highly satisfaction from the affected households, and the replacement house is under construction and to be completed and be transferred to the households prior to early 2016. The replacement house construction and allocation among the affected will be monitored in the project implementation.

Regarding the worker settlement in the closed enterprises, a due diligence review was conducted and concluded that the enterprise closure and the worker settlement were followed relevant national and provincial regulations.

Citizen engagement and participation has been and will continue to be ensured during project preparation and implementation. As part of the socioeconomic analysis, the information on proposed project activities was disseminated and interviews conducted with a number of affected households (48, including women-headed) and the six enterprise owners. The consultations with stakeholders and the affected will continue as project preparation progresses. The knowledge and public information/environmental demonstration center for urban redevelopment and site remediation established under the project will serve as a point of information on district??s redevelopment plans, and will allow residents to continuously express their opinions, as well as serve as a center of grievance redress, allowing the affected to submit the complaints. The RP further details a participation plan and a resettlement booklet for the project implantation stage. It also details procedures of addressing the complaints, tracking and reporting of the complaints.

Internal and external monitoring systems were established as per RP, including procedure, key contents and indicators, staffing and reporting. Implementation will be monitored by a qualified external monitoring agent.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

Environment

Public consultation and information disclosure were conducted following national laws and regulations, as well as World Bank safeguards policies. Two rounds of consultation and information disclosure were carried out during July 2014 ? May 2015 through a combination of public meetings, field interviews and questionnaire surveys in the project affected communities.

Prior to consultations, brief project information, environmental impacts and mitigation measures as well as linkage of full environmental impact assessment reports were disclosed through the website of Zhouzhou Municipal Government (www.zhuzhou.gov.cn). Meanwhile, posters were placed in main communities of the project areas. Following the information disclosure, public consultations were conducted among project affected communities, including field interviews, public meetings and questionnaires surveys among the public.

The project received broad support from the public consulted, most of which expressed strong wishes to implement the remediation project to improve the local environment. The key environmental concerns by the public mainly focus on: (a) lack of relevant knowledge; (b) impacts of dust, odor and noise; (c) concerns of potential soil pollution outside the remediation area, and (d) wish of relocation of industries out of the area, or relocation of community out of contaminated area, etc.

These public concerns have been given due considerations and responded during the consultation and in the EIA/EMP, including explanation and disclosure of relevant information on-site; development of mitigation measures for dust, odor and dust control; additional clean soil replacement at residential areas outside the remediation area; information on local development plan of industrial relocation etc. All necessary mitigation measures have been incorporated into the project design and the Environmental Management Plans (EMPs). The full draft EIA report has been locally disclosed on April 27, 2015 at the website of Zhuzhou Municipal Government.

Social

To identify the impacts and design a socially sustainable project, a socioeconomic survey and analysis were conducted. A broad stakeholder consultation in the Qingshuitang district, where the project is located, revealed a strong support to the project. Further, a socioeconomic survey and meaningful consultation was conducted in the project area in Tongtangwan, including a random sampled study involving 232 persons and meetings with the affected enterprises. The research showed that all involved are aware of the pollution problem and strongly desire to get the pollution treated as soon as possible. The survey also shows that 98 percent of the participants hope to relocate outside the area, if pollution issue is not addressed; 89 percent think that pollution decrease would have no adverse impacts but positive impacts on income generation; and 93 percent fully support the project.

The full RP/RPF was disclosed locally on May 8, 2015, and the revised report was re-disclosed locally on August 3, 2015. The Worker Settlement Review Report were disclosed on June 3, 2015 and, the revised report was re-disclosed on August 3, 2015 locally. The reports were disclosed at Infoshop on August 14, 2015.

B. Disclosure Requirements

Environmental Assessment/Audit/Management Plan/Other	
Date of receipt by the Bank	28-Jul-2015
Date of submission to InfoShop	20-Aug-2015
For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors	29-Sep-2015
"In country" Disclosure	
China	27-Apr-2015
Comments:	
Resettlement Action Plan/Framework/Policy Process	
Date of receipt by the Bank	22-Jul-2015
Date of submission to InfoShop	14-Aug-2015
"In country" Disclosure	
China	08-May-2015
Comments:	
If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/ Audit/or EMP.	
If in-country disclosure of any of the above documents is not expected, please explain why:	

C. Compliance Monitoring Indicators at the Corporate Level

OP/BP/GP 4.01 - Environment Assessment	
Does the project require a stand-alone EA (including EMP) report?	Yes [×] No [ ] NA [ ]
If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?	Yes [×] No [ ] NA [ ]
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?	Yes [×] No [ ] NA [ ]
OP/BP 4.04 - Natural Habitats	
Would the project result in any significant conversion or degradation of critical natural habitats?	Yes [ ] No [×] NA [ ]
If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?	Yes [ ] No [ ] NA [×]
OP/BP 4.11 - Physical Cultural Resources	
Does the EA include adequate measures related to cultural property?	Yes [×] No [ ] NA [ ]

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?	Yes [×] No [ ] NA [ ]
OP/BP 4.12 - Involuntary Resettlement	
Has a resettlement plan/abbreviated plan/policy framework/ process framework (as appropriate) been prepared?	Yes [×] No [ ] NA [ ]
If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?	Yes [×] No [ ] NA [ ]
Is physical displacement/relocation expected? Provided estimated number of people to be affected	Yes [ ] No [ ] TBD [ ]
Is economic displacement expected? (loss of assets or access to assets that leads to loss of income sources or other means of livelihoods) Provided estimated number of people to be affected	Yes [ ] No [ ] TBD [ ]
The World Bank Policy on Disclosure of Information	
Have relevant safeguard policies documents been sent to the World Bank's Infoshop?	Yes [×] No [ ] NA [ ]
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?	Yes [×] No [ ] NA [ ]
All Safeguard Policies	
Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?	Yes [×] No [ ] NA [ ]
Have costs related to safeguard policy measures been included in the project cost?	Yes [×] No [ ] NA [ ]
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?	Yes [×] No [ ] NA [ ]
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?	Yes [×] No [ ] NA [ ]

III. APPROVALS

Task Team Leader(s):	Name: Frank Van Woerden,Ning Yang	
Approved By		
Safeguards Advisor:	Name: Peter Leonard (SA)	Date: 14-Oct-2015
Practice Manager/ Manager:	Name: Christophe Crepin (PMGR)	Date: 14-Oct-2015