

The World Bank Financed

**Poyang Water Environment Management
Project**

Environmental Management Plan

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August, 2016 Nanchang

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1 Overview

1.1 Introduction

Based on “The World Bank Financed Poyang Water Environment Management Project—Environmental Assessment Report”, this environmental management plan (EMP) is an independent document that includes all environmental protection actions during the project design, construction and operation periods, and acts as an action principle and working framework for implementation of mitigation measures, environmental management and environmental monitoring. The main contents of the plan include:

- *Project introduction
- *Potential environmental impacts
- *Agencies and responsibilities
- *Environmental Management Plan
- * Environmental monitoring plan
- * Environmental Supervision

1.2 EMP Objectives

The objectives of EMP preparation are to 1) improve project screening, site selection, planning, design, implementation and other activities through practicable and feasible prevention and mitigation measures or measures to offset adverse environmental impacts and enhance positive environmental impacts, i.e. to take measures during project implementation to mitigate and manage adverse environmental impacts; 2) assess the actual effectiveness of mitigation measures through implementing environmental monitoring plan, propose, based on monitoring results, recommendations for further improving mitigation measures and meet relevant environmental requirements of the state, Jiangxi Province and the World Bank.

2 Project Description

2.1 Project Background

To improve the ecological environment of Zhuhu Lake Basin and protect the water source, the government of Poyang County plans to use the World Bank Financed Poyang Water Environment Management Project to improve the water quality of Zhuhu Lake, ensure the biological safety of the county's water environment, mitigate pollution to Poyang Lake at the source, enhance the water environmental management level and achieve urbanization of sustainable development. The project aims at reducing pollutants discharged into Poyang Lake from key water area (Zhuhu Lake) and improving water quality management.

2.2 Project Components

Table 2-1 Project Components

Project name	Sub-project	Content	Nature	Site	Service range
Rural domestic sewage collection and treatment project of Zhuhu Lake Basin	wastewater treatment project	set up waste water treatment plants (22 plants with a treatment volume of 50t/d, 11 with treatment volume of 150t/d and 1 with treatment volume of 250 t/d) in 35 villages around Zhuhu Lake (one plant in each village), with total treatment volume of 2600t/d.	new	Zhongnao, Tangli, Caojia, Zhoujia, Dukou, Tongxing, Hengtouzui, Dazong, Yaoli, Miaozui Village, Zhuyundun, Luye Village, Caojiazui, Huangbiquan, Hupen Village, Pantaozui, Chenli Village, Wangjia, Zhanjia, Sheshan, Hushan, Potangxu, Meihu, Ligongnao Village, Shizikou, Datang, GaoHu, Maojia Village, Jiangjia Village, Tangjia, Hujia, Zhaojia, Houfan, Qianfan, Yujia.	Villages around Zhuhu Lake
	wastewater collection pipeline	a new DN200-DN60 sewage pipeline of 101.22km shall be built with a 42.1-km pressure pipe, a 19,131-m slide ditch, a 6,397-m slide ditch connecting pipe, 2677 wastewater inspection shafts and 85 exhaust valve wells.	new		
Ecological restoration and protection project of Zhuhu Lake water system	ecological sewage interception ditches	sewage interception ditches of 95.85km	new	Zhuhu Lake	Zhuhu Lake Basin
	Man-made wetland	101 man-made wetlands of 154,765.02m ² in total	new	Zhuhu Lake	
Water quality monitoring system	Water environment monitoring system premises	1 station using existing rooms of the Administrative Committee of Poyang Lake National Wetland Park	reconstruction	in the Administrative Committee of Poyang Lake National Wetland Park	Zhuhu Lake Basin
	automatic Water environment	1 station with a total construction area of 153.5m ²	new	The source of drinking water intake of the county seat, i.e. the Ligongnao drinking	

Project name	Sub-project	Content	Nature	Site	Service range
	monitoring station			water source	
	automatic Water environment measurement sites	8 automatic water environment measurement cubes	new	in the water intakes in Ligongnao, Sishilijie Yongchang, Sishilijie Zhongtang, Tuanlin, Gaojialing, Zhuhu Township, and Shuanggang and in the water area of Shuanggang Town and Baishazhou Township	

3 Environmental Protection Targets and Standards

3.1 Environmental Protection Targets

1. Acoustic and ambient air protection targets

Most of the environmental impacts brought by this project occur in the construction period. After site investigation, it is decided that the villages are the general acoustic and ambient air protection targets while hospitals, schools, kindergartens and nursing homes are key protection targets. See Table 3-1 for details.

Table 3-1 List of Acoustic and Ambient Air Environment Protection Targets

Project content	Impact period	Impact factor	Protection targets		Number of people	Location	Distance (m)	Requirement of environmental functions
			towns	villages				
Wastewater treatment plants, pipeline network, and the construction of ecological sewage interception ditches	construction period	dust and noise from construction machinery during the construction period	Baishazhou Township	Zhongnao	400	In the north of the wastewater treatment plant of the village	100	Category II standard in <i>Ambient Air Quality Standards</i> (GB3095-2012); and Category I standard in <i>Acoustic Environment Quality Standards</i> (GB3096-2008)
				Tangli	700	In the north of the wastewater treatment plant of the village	120	
				Yaoli Village	450	In the east of the wastewater treatment plant of the village	100	
				Miaozui Village	460	In the east of the wastewater treatment plant of the village	100	
				Caojiazui	1200	In the east of the wastewater treatment plant of the village	130	
				Ligongnao Village	650	In the south of the wastewater treatment plant of	100	

					the village	
			Datang	400	In the east of the wastewater treatment plant of the village	110
			Hujia Village	1300	In the south of the wastewater treatment plant of the village	120
			Zhaojia	500	In the east of the wastewater treatment plant of the village	100
		Zhuhu Townshipp	Caojia	1500	In the east of the wastewater treatment plant of the village	120
			Zhoujia	1300	In the north of the wastewater treatment plant of the village	130
			Dukou	600	In the west of the wastewater treatment plant of the village	100
			Luyitang (Tongli)	900	In the north of the wastewater treatment plant of the village	120
			Hengtouzuui	600	In the east of the wastewater treatment plant of the village	100
		Gaojialing Town	Zhuyundun	1000	In the east of the wastewater treatment plant of the village	130
			Luye Village	450	In the north of the wastewater treatment plant of the village	100
			Dazong	300	In the east of the wastewater treatment plant of the village	110
		Sishilijie Town	Huangbian	1000	In the east of the wastewater treatment plant of the village	130
			Hupen Village	800	In the north of the wastewater treatment plant of the village	150
			Pantaozui	800	In the south of the wastewater treatment plant of	150

						the village	
			Chenli Village	1200		In the south of the wastewater treatment plant of the village	150
			Wangjia	400		In the east of the wastewater treatment plant of the village	130
			Zhanjia	900		In the east of the wastewater treatment plant of the village	120
		Tuanlin Township	Sheshan	1300		In the east of the wastewater treatment plant of the village	100
			Hushan	300		In the west of the wastewater treatment plant of the village	120
			Bantangxu	1300		In the west of the wastewater treatment plant of the village	120
			Meihu	300		In the south of the wastewater treatment plant of the village	100
			Shizishan	200		In the east of the wastewater treatment plant of the village	120
			Gaohu	200		In the east of the wastewater treatment plant of the village	100
			Shuanggang Town	Jiangjia Village	3155		In the north of the wastewater treatment plant of the village
		Tangjia		1300		In the west of the wastewater treatment plant of the village	100
		Houfan		500		In the south of the wastewater treatment plant of the village	100
		Jingtang Village/ Qianfan		700		In the east of the wastewater treatment plant of the village	120
		Yujia		700		In the south of the wastewater treatment plant of	100

						the village		
				Maojia Village	200	In the south of the wastewater treatment plant of the village	120	

2. Water environment protection targets

This project is located in Zhuhu Lake Basin of Poyang County. Zhuhu Lake is part of the Water Source Protection and Conservation Zone of Zhuhu Lake, a Grade I protection Zone of Poyang Lake National Wetland Park. There are 7 concentrated drinking water sources in Zhuhu Lake Basin, i.e. Zhuhu Lake drinking water source protection zone in Poyang County (Yangmeiqiao Water Plant), the intake of Zhongtang Water Plant in Sishilijie Town, the intake of Yongchang Water Plant in Sishilijie Town, the intake of Pozhong Water Plant in Poyang County (in Gaojialing Town), the intake of Tuanlin Township Water plant, the intake of Shugang Town Water Plant and the intake of Zhuhu Township Water Plant. See the table below.

3. Ecological environment protection targets

See the table below.

Table 3-2 List of Biological Environment Protection Targets

Environment factor	Protection target	Overview of protection targets
ecological environment	biologically sensitive spots	Poyang Lake National Wetland Park, which was approved by the National Forestry Bureau as National Wetland Park in November 2008. The project is located at the east side of the park, and includes Zhuhu Lake. It is neighboring Water Source Protection and Conservation Zone of Zhuhu Lake and is 500m from Baishazhou Natural Wetland Exhibition Zone to the east and 1000m from Poyang Lake Cultural City to the north. No land field in the wetland is involved in this project.
	terrestrial plant	damaged plants due to permanent and temporary land occupation of the project
	wild animals	wild animals and birds within the area affected by the project

4. Social environment protection targets

See the table below.

Table 3-3 List of Social Environment Protection Targets

No.	Impact factor	Protection target
1	infrastructure	existing roads and buildings
2	traffic	the travel and safety of nearby residents during project construction
3	public facilities	water and electricity supply and other public facilities

Table 3-4 List of Water Environment Protection Targets

No.	Name of protection target	Involved water area	Area of protection zone	Volume of water intake (10,000 m ³)	Project content in the protection zone		Distance from the outlet of sewage stations to the boundary of the protection zone (m)	Water quality target	Water body function	Relationship between the outlet of sewage stations and protection targets
1	Water Source Protection and Conservation Zone of Zhuhu Lake of Poyang Lake Wetland Park	Zhuhu Lake	Water area of Zhuhu Lake	/	none		/	Category III	source of drinking water	Instead of directly flowing into the lake, water discharged from sewage stations will drain into Zhuhu Lake after treatment to reduce water pollutants.
2	Drinking Water source protection zone of Inner Zhuhu Lake in Poyang County	Zhuhu Lake	Water or land area within 500m around the intake belongs to Grade I Protection Zone while Grade II protection zone covers area within 2500m around the Grade I Protection Zone.	211.72	Wastewater treatment plant (s)	8 stations in Shizishan, Ligongnao, Potangxu, Meihu, Caojia Village, Zhongnao Village, Tangli Village and Bantangxu.	100	Category III	source of drinking water	There are 16 wastewater treatment plants in the protection zone. The outlets of these plants are 100m away from the Grade II protection zone of drinking water sources. There is no outlet within the Grade I and Grade II protection zone.
					man-made wetlands	6 wetlands (No. 46, 47, 48, 49, 81 and 82)	/			
3	water source protection zone of Zhongtang Water Plant in Sishilijie Town	Zhuhu Lake		3	Wastewater treatment plant (s)	7 stations in Caojiazui, Pantaozui, Hupen Village, Huangbiquan,	100	Category III	source of drinking water	

						Chenli Village, Wangjia and Zhanjia				
					man-made wetlands	4 wetlands (No. 24, 29, 31, and 90)	/			
4	water source protection zone of Yongchang Water Plant in Sishilijie Town	Zhuhu Lake		20	Wastewater treatment plant (s)	8 stations in Luye Village, Caojiazui, Pantaozui, Hupeng Village, Huangbiquan, Chenli Village, Wangjia and Zhanjia	100	Category III	source of drinking water	
					man-made wetlands	5 wetlands (No. 25, 26, 27, 28, and 91)	/			
5	water source protection zone of Pozhong Water Plant in Poyang County (in Gaojialing Town)	Zhuhu Lake		5.4	Wastewater treatment plant (s)	4 stations in Dazong Village, Zhuyedun, Luye Village and Caojiazui	100	Category III	source of drinking water	
					man-made wetlands	7 wetlands (No. 18, 19, 20, 21, 22, 23, and 88)	/			
6	water source protection zone of Tuanlin Township Water	Zhuhu Lake		3.8	Wastewater treatment plant (s)	6 plants in Pantaozui, Hupen Village,	100	Category III	source of drinking water	

	Plant					Huangbiquan, Chenli Village, Wangjia and Zhanjia				
					man-made wetlands	21 wetlands (No. 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 38, 39, 40, 41, 42, 43, 44, 95, 96, and 97)	/			
7	water source protection zone of Shugang Town Water Plant	Zhuhu Lake		30	Wastewater treatment plant (s)	One plant in Maojia Village	100	Category III	source of drinking water	
					man-made wetlands	14 wetlands (No. 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, and 99)	/			
8	water source protection zone of Zhuhu Township Water Plant	Zhuhu Lake		6	wastewater treatment plant (s)	3 plants in Dukou, Zhoujia and Caojia Villages	100	Category III	source of drinking water	
					man-made wetlands	10 wetlands (No. 1, 2, 3, 4, 5, 6, 83, 84, 85, and 86)	/			

3.2 Environmental Protection Standards

3.2.1 Environmental Quality Standards

(1) Ambient air

According to EHS, ambient air quality is subject to standards in national laws and regulations. The ambient air involved in the project is classified as Category II, therefore, the Category II standard in *Ambient Air Quality Standards* (GB3095-2012) is applied. See the table below.

Table 3-5 Ambient air Quality Standards

Item	1-hour Average	24-hour Average	Standard
SO ₂	500	150	Category II standard in <i>Ambient Air Quality Standards</i> (GB3095-2012)
NO ₂	200	80	
TSP	-	300	
PM ₁₀	-	150	

(2) Water environment

The water quality of Zhuhu Lake is subject to Category III standard in *Surface Water Environment Quality Standards* (GB3838-2002).

Table 3-6 Surface Water Environment Quality Standards (mg/L, excluding pH)

Item	temperature	PH	DO	fecal coliform	permanganate index	COD	BOD ₅
Standard value	A greatest temperature rise ≤ 1 and a greatest temperature decrease ≤ 2	6~9	≥ 5	≤ 10000	≤ 6	≤ 20	≤ 4
Item	NH ₃ -N	total phosphorus	total nitrogen	copper	zinc	fluoride	iron
Standard value	≤ 1.0	≤ 0.05	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 0.3
item	manganese	selenium	arsenic	mercury	cadmium	(hexavalent) chromium	lead
Standard value	≤ 0.1	≤ 0.01	≤ 0.05	≤ 0.0001	≤ 0.005	≤ 0.05	≤ 0.05
Item	cyanide	volatile phenol	petroleum	anionic surfactant	sulfide	sulfate	chloride
Standard value	≤ 0.2	≤ 0.005	≤ 0.05	≤ 0.2	≤ 0.2	≤ 250	≤ 250
Item	nitrate						
Standard value	≤ 10						

Note: water temperature measures temperature changes caused by man-made factors. Total phosphorus, total nitrogen, fluoride, sulfide, chloride, and nitrate are calculated in P, N, F⁻, SO₄²⁻, Cl⁻, and N. The unit of fecal coliform is the number of fecal coliform per L.

(3) Acoustic environment

China's national acoustic environment standard limits and the acoustic guideline value in EHS are shown in Table 3-7.

Table 3-7 Acoustic Environment Quality Standards (dB (A))

<i>Acoustic Environment Quality Standards (GB3096-2008)</i>				Acoustic guideline value		
implementation area	type of function zone	daytime 6:00~22:00	nighttime 22:00~6:00	receptor	daytime 7:00~22:00	nighttime 22:00~7:00
Residential areas, hospitals, cultural and educational areas, scientific research design and office areas	Category 1	55	45	Residential areas, office areas and cultural and educational areas	55	45

Most areas of Zhuhu Lake Basin in Poyang County are rural residential areas. The *Acoustic Environment Quality Standards (GB3096-2008)* and acoustic guideline value in EHS are the same as the standard value of residential areas, but the time limit in the former is stricter than the later. Thus, Category I standard value in *Acoustic Environment Quality Standards (GB3096-2008)* is applied for this project.

3.2.2 Pollutants Discharge Standards

(1) Atmospheric pollutants

Monitored concentration limits for fugitive discharge in *Comprehensive Atmospheric Pollutant Emission Standards (GB16297-1996)* are applied for dust from construction. See Table 3-8 for details. Odor generated from the garbage transfer stations during the operation period is subject to Category II Standard of fugitive emission in *Odorous Pollutant Emission Standards (GB14554-93)*. See Table 3-9.

**Table 3-8 Comprehensive Atmospheric Pollutant Emission Standards (excerpt)
(unit: mg/m³)**

Pollutant	Monitored concentration limits for fugitive discharge	
Particulate matter	Monitoring point	Concentration
	maximum concentration outside boundary	1.0

Table 3-9 Odor Discharge Standards (unit: mg/m³)

Pollutant	Monitored concentration limits for fugitive discharge (new construction, reconstruction and expansion)
NH ₃	1.5
H ₂ S	0.06

(2) Water pollutants

After the construction of the project, domestic sewage will be collected by the pipeline network and treated by wastewater treatment plants. The quality of water drain into Zhuhu Lake shall meet the wastewater discharge standard of the wastewater treatment system in lakeside limited development area in the *Wastewater discharge standard of Poyang Lake Eco-economic District in Jiangxi Province (DB36/852-2015)*. See Table 3-10 for details.

Table 3-10 Wastewater Discharge Standards (unit: mg/L, excluding pH)

Standard	Maximum concentration limit of water pollutants						
	COD	SS	NH ₃ -N	TP	TN	animal and plant oil	petroleum
wastewater discharge standard of the wastewater treatment system in lakeside limited development area in the <i>Wastewater discharge standard of Poyang Lake Eco-economic District in Jiangxi Province</i> (DB36/852-2015)	50	10	8	0.5	15	1	1.0

(3) Noise

Standards for Ambient Noise Emission at Construction Site Boundary (GB12523-2011) is applied for all construction noises while noise at boundary produced by wastewater treatment plants during the operation period is subject to Category I standard in *Emission Standards for Industrial Enterprises Noise at Boundary* (GB12348-2008).

Table 3-11 Standards for Ambient Noise Emission (unit: dB (A))

Item	<i>Emission Standards for Industrial Enterprises Noise at Boundary</i> (GB12348-2008)	<i>Standards for Ambient Noise Emission at Construction Site Boundary</i> (GB12523-2011)
		Category 1
daytime	55	70
nighttime	45	55

(4) Solid waste

Standard for Pollution Control on the Storage and Disposal Site for General Industrial Solid Wastes (GB18599-2001) is applied. Hazardous waste in the monitoring lab shall meet *Standards for Pollution Control at Hazardous Waste Storage Site* (GB18597-2001) and relevant safety policy requirements of EHS and World Bank.

4 Environmental Management Plan

4.1 Environmental Management Agencies and Responsibilities

Setup of the project's environmental management agencies is provided in Figure 4-1 and Table 4-1. Roles and responsibilities and staff establishment of agencies under the project are summarized in Table 4-2.

Table 4-1 Agencies under Environmental Management System

Nature	Name	Roles and Responsibilities
Management	PPMO	Designates an environmental manager to be exclusively responsible for environmental protection activities during planning, design and implementation, make sure work procedures meet domestic and World Bank requirements for environmental assessment and environmental management, incorporate EMP into bidding documents and contracts, and coordinate and supervise EMP implementation.
	County PMO	Designates staff to be exclusively responsible for routine environmental supervision and management during project implementation and operation, environmental acceptance and routine monitoring after project completion to reduce adverse environmental impacts of the project to the lowest possible or acceptable levels and maximize environmental benefits of the project; provide funding needed for carrying out environmental protection activities and take charge of sorting out and archiving relevant documentation.
	Project Owner	Designates staff to be exclusively responsible for environmental management during project operation.
supervision	World Bank Supervision Mission	Sends an environmental specialist to supervise and review ECOP implementation.
	Various-level Environmental Protection Administrations	Supervise and inspect to ensure work procedures meet Government of China (GOC) requirements for environmental management and pollution control measures during project implementation meet GOC requirements for environmental protection.
implementation	Civil Works Contractor	Appoints a site environmental engineer to implement environmental protection and soil and water conservation measures specified in contract clauses and the bidding document, prepare and submit monthly environmental reports during construction, following requirements of the World Bank and local environmental protection administrations for environmental protection.
Consulting service	EIA Institute	Prepares project environmental report.
	Design Institute	Prepares feasibility study and construction design
	Environmental Supervision Agency	Supervises route construction activities of the contractor.
monitoring	Environmental Monitoring Agency	Qualified environmental monitoring agency takes charge of environmental monitoring during project construction and operation.

Figure 4-1 Organizational Framework of Environmental Management



Table 4-2 Roles and Responsibilities and Staff Establishment of Agencies under Environmental Management System

Agency	Type	Staff Establishment (No. of People)	Roles and Responsibilities
Various-level Environmental Protection Administrations	Supervision	A few	<ol style="list-style-type: none"> Undertakes whole-process environmental monitoring and management in accordance with law, including approval of Project EIA (or sub-project EIAs), environmental monitoring and management during project implementation and operation.
World Bank	Supervision	1	<ol style="list-style-type: none"> Sends supervision missions every year to supervise project implementation; Reviews implementation of the project's Loan Agreement and EMP.
PPMO	Management	1	<ol style="list-style-type: none"> Supervises EMP implementation; Supervises and coordinates enforcement of domestic and World Bank requirements for environmental management; Submits relevant reports to the World Bank every six months; Inspects environmental protection activities of project counties (cities); Coordinates with other relevant authorities to address significant environmental issues; Engages panel of external environmental specialists to review environmental protection activities.
County PMO	Management	1	<ol style="list-style-type: none"> Supervises implementation of sub-project environmental management rules and institutions; Incorporates environmental protection measures in the EMP into construction contracts; Employs supervision engineer and supervises and coordinates its work (including qualification, responsibilities and management); Organizes EMP implementation; Organizes special-subject study or relevant investigations; Properly documents and compiles complaints during construction and operation, clarifies to the public result of addressing complaints and addresses public complaints; Reviews environmental supervision and environmental consulting reports; Submits quarterly reports (statements) to PPMO; Signs off on site checklists submitted by the contractor and supervision engineer,

Agency	Type	Staff Establishment (No. of People)	Roles and Responsibilities
			<p>verifies environmentally sensitive issues and archives the checklists;</p> <p>10. Receives environmental supervision mission (including World Bank supervision mission).</p>
Project Owner	Management	1	<ol style="list-style-type: none"> 1. Supervises implementation of sub-project environmental management rules and institutions; 2. Supervises and coordinates work of supervision engineer (including qualification, responsibilities and management); 3. Organizes special-subject study or relevant investigations; 4. Properly documents and compiles complaints during construction and operation, clarifies to the public result of addressing complaints and addresses public complaints; 5. Reviews environmental supervision and environmental consulting reports; 6. Submits quarterly reports (statements) to PPMO and county PMO; 7. Signs off on site checklists submitted by the contractor and supervision engineer, verifies environmentally sensitive issues and archives the checklists; 8. Receives environmental supervision mission (including World Bank supervision mission).
EIA Institute	IEA	A few	<ol style="list-style-type: none"> 1. Visits project sites and conducts EIA; 2. Prepares EMP.
Environment supervision agency	Consulting	1-2	<ol style="list-style-type: none"> 1. Supervision engineer is employed separately by PPMO or county PMO; 2. Supervises and inspects domestic sewage treatment, production wastewater treatment, implementation of soil erosion, waste gas, dust and noise control measures, disposal of production and domestic garbage and epidemic control; 3. Fills out on a regular basis all checklists in the annexes of ECOP; 4. Proposes and follows up on solutions to rectify environmental issues/ problems encountered by the contractor during construction, including issuing rectification notices and checklists and archiving relevant documentation; 5. Submits to county PMO weekly implementation progress reports.
Contractor	Implementation	many	<ol style="list-style-type: none"> 1. Develops environmental protection measures to be implemented during construction;

Agency	Type	Staff Establishment (No. of People)	Roles and Responsibilities
			<ol style="list-style-type: none"> 2. Accepts supervision and inspection of all aspects of environmental protection by supervision engineer, World Bank and various-level environmental protection administrations; 3. Sets up a feedback mechanism and completes rectification within 3 working days after receiving rectification notice (or within 10 working days when addressing of issues/problems needs coordination by management agencies); 4. Prepares, together with supervision engineer, prior to construction commencement and submits to county (city) PMO a construction site checklist; 5. Submits to county PMO weekly implementation progress reports.
Environmental Monitoring Agency	Monitoring	A few	<ol style="list-style-type: none"> 1. Undertakes environmental monitoring during implementation and operation following environmental monitoring plan, archives and submits to county PMO monitoring reports.

4.2 Environmental Management Tasks at Different Project Stages

As shown in Figure 4-2, environmental management tasks differ in different stages of project implementation.

The most important task in the EMP is to ensure all environmental protection measures proposed are truly effectively implemented, including 1) incorporation of EMP environmental protection measures into design and construction contracts; 2) supervision through environmental engineer over implementation by the contractor of environmental protection measures during construction and review of effectiveness and implementation of environmental protection measures; 3) inspection, reporting and archiving mechanisms in the EMP. Inspection of routine activities is carried out to reflect the timeliness and effectiveness of these activities.



4.3 Environmental Supervision

4.3.1 Purposes of Supervision

During project implementation, environmental supervision engineer shall follow requirements in environmental protection design, conduct environmental supervision during construction, carry out all-round supervision and inspection of implementation of environmental protection measures by construction units and effectiveness of these measures, and address and resolve in a timely manner environmental pollution incidents.

4.3.2 Roles and Responsibilities of Environmental Supervision Engineer

The environmental supervision engineer shall follow national and local governments' guidelines, policies, decrees, laws and regulations on environmental protection and supervise contractors to implement environmental protection-related articles in their contracts. Main roles and responsibilities are to:

- (1) prepare environmental supervision plan and develop subjects and items of

-
- environmental supervision;
- (2) take charge of reviewing environmental protection articles in tendering and bidding documents;
 - (3) conduct supervision over contractors to prevent and mitigate construction-induced environmental pollution and destructions to farmland and wild flora and fauna, as well as prevent fire;
 - (4) carry out all-round supervision and inspection of implementation of environmental protection measures by construction units and effectiveness of these measures, building on survey and monitoring data; and address and resolve in a timely manner environmental pollution incidents;
 - (5) conduct all-round inspection of cleaning and restoration of dump sites and construction “footprints” by construction units, including side slope stability, restoration of construction footprints, afforestation and afforestation rate;
 - (6) be responsible for implementing environmental supervision, reviewing relevant environmental reporting, and working out requirements for construction management corresponding to results of air quality, ambient air and noise monitoring to minimize adverse environmental impacts of construction; and
 - (7) Maintain good supervision documentation during daily work, prepare supervision report and participate in completion acceptance.

4.3.3 Procedures for Implementing EMP during Construction by Environmental Supervision Engineer

Environmental supervision is an important component of environmental management and is relatively independent. Therefore, an independent and qualified environmental supervision agency shall be established. In compliance with contract articles and national environmental protection law, regulations and policies, the agency shall supervise, review and evaluate implementation of environmental protection measures by construction units, and timely identify and rectify construction activities in violation of contract articles and national environmental protection requirements. The environmental supervision engineer shall inspect construction site at least once a week, fill out and archive environmental protection checklist, propose plans for addressing relevant environmental issues/problems of construction units with their construction activities and monitor implementation of these plans, and report every six months to environmental chiefs of PMOs and environmental specialist of the World Bank. Procedures for environmental supervision during construction are provided in Figure 4-3.

Figure 4-3 Environmental Supervision during Construction



4.4 Environmental Management Plan and Environmental Impact

Mitigation Measures

Details of EMP and mitigation measures are indicated in table 4-3.

Table 4-3 Environmental Management Plan and Environmental Impact Mitigation Measures

Sub-project/activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
preliminary preparation							
Tendering and bidding	---	1. Incorporate EMP into tendering and bidding documents; 2. Incorporate EMP into contracts with contractors, environmental supervision engineers and environmental protection contracts so as to ensure the effective implementation of all environmental protection measures.	---	---	---	PPMO, County PMO	---
Before Construction	Social environment	1. Establish special office of land acquisition and formulate land acquisition and resettlement plan. According to relevant national and local policies for land acquisition and demolition, strictly carry out compensation plan for land acquisition; 2. Timely inform the public of information about construction plan, environmental impacts, construction road, interim public traffic lines, etc; 3. If municipal services (including water, electric power, telephone line and bus line, etc.) need to be interrupted due to	---	---	---	PPMO, County PMO	---

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervising Agency
		<p>the construction, notice shall be posted at construction site, public traffic stops, as well as affected areas at least five days in advance.</p> <p>4. Design optimization: efforts will be made in reducing acquired land area involved in the project in designing stage. Advanced environmental protection measures should be taken to avoid the secondary pollution.</p> <p>5. On the basis of consultation with the affected mass, migrants' living conditions will not decline due to the project construction as provided by relevant policies.</p> <p>6. Preferential payment policies will be formulated and implemented for the poverty group.</p> <p>7. Construction period of laying pipelines should be shortened as much as possible to minimize impacts on neighboring shops and households. Compensation may be made if possible.</p> <p>8. Sewage of all the communities and households in the project area should be connected at the very source.</p> <p>9. Taking the</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		<p>well-developed water system and abundant water volume in the project area into consideration, drainage project should adapt to local conditions to ensure quality and service life of the project.</p> <p>10. It is proposed that consultation should be conducted with residents occupying the wetland to facilitate restoring farmland to lakes and improving ecological system in the wetland.</p> <p>11. The Code of Economic Conduct in the Lake Area will be issued.</p> <p>12. Scientific forces will be integrated to promote the parallel development of ecological protection and economic development in the Lake Area.</p> <p>13. Participatory activities will be carried out.</p> <p>14. Environmental knowledge and public health education training shall be conducted.</p> <p>15. Institutional capacity building: it is proposed that we should enhance relevant social and security safeguard training of World Bank projects for project administrators and constructors.</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		16. A follow-up management mechanism will be set up for the project.					
Land Occupation	Land Acquisition and Resettlement	1. In the planning stage, when optimized selection for schemes was conducted, much consideration was put into the impact of project construction on the local socioeconomic, which was set as a key factor in the optimized selection for schemes; 2. Design was optimized. To reduce the demolition immigrants, existing national and local roads were used to connect planned construction area. 3. The design was optimized to occupy wasteland and state-owned land and reduce the occupancy of arable land.	---	—	Included in resettlement cost	Design institute and County Project Management Office	PPMO and County Bureau of Land and Resources
Design of pipeline sub-project	Pipeline leakage	1. In accordance with the specific situation of the project county, select appropriate pipe, guarantee its quality and service life; 2. The ground foundation of drainage networks project shall meet the designed mechanical demands; otherwise, it shall be processed accordingly; 3. The foundation construction shall follow strictly the design drawing in	---	---	---	design institutes	PPMO, County PMO, County EPB, County Water Bureau

Sub-project/activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		terms of its width, thickness and strength, and guarantee the quality.					
Design of man-made wetland and ecological sewage interception ditches	Invasion of foreign species	<p>1. In planting artificial wetland and ecological sewage interception ditches, local tree species and bushes shall be selected, and introduction of foreign invasive tree varieties is forbidden;</p> <p>2. In water ecological restoration, local native species shall be selected as the main species, which can meet the requirements of biodiversity and is inductive to build a stable ecological system;</p> <p>3. Select species that can remarkably improve ecological system so as to meet the requirement of water purification.</p>	----	----	-----	design institutes	PPMO, County PMO, Project owner, County EPB, County Forestry Bureau
Construction Period							
Pipeline sub-project	Common impacts caused by construction	Adopt measures in <i>General Environmental Regulations on Construction Activities</i> (see annex 1)	TSP, Noise	See details in monitoring plan	50	contractor	Environmental supervision agency, PPMO, County PMO, Project owner, County EPB
	Service interruption (including water, electricity, and public traffic)	1. Inform the public of service interruption (including of water, electricity, fuel gas, and public traffic)	—	—	2	contractor	Environmental supervision agency, PPMO,

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
	etc.)	lines) at least five days ahead by putting up a notification at project site, public traffic stops, as well as affected residents and enterprises; 2. On the basis of proper construction organization, ensure construction progress, shorten construction period as much as possible, guarantee safe construction and complete the construction as quickly as possible so as to restore municipal services.					County PMO, Project owner, County EPB
	Obstruction to traffic and traffic safety	1. Before construction, contractors shall inform the public of construction schedule, and provide the information on construction and construction period on construction nameplate; 2. Warning board shall be placed at the entrance of each construction section, each crossroad, each road turn, each change of traffic lane, and each entrance of traffic aisle to inform people of entrance into construction area, and of traffic restrictions such as speed limit, height limit, etc; 3. In principle, construction is	—	—	28	contractor	Environmental supervision agency, PPMO, County PMO, Project owner, County EPB

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		<p>banned between 22:00 and 06:00. Construction activities that must be carried out at night shall be approved by relevant local environmental protection department and negotiation in advance with local residents shall be achieved. In addition, noise reduction measures shall be implemented (such as installing sound barriers) to minimize the impact of construction noise on local residents;</p> <p>4. For engineering with construction period of more than 30 days, the boundary of construction site shall be enclosed and have color plate enclosure, measures shall be adopted according to local conditions; the enclosure shall be at equal to or more than 2.5m/ 3m at construction site of common areas/ key areas respectively;</p> <p>5. The enclosure shall be set up straight, orderly, clean, beautiful, and damage-free, with the appearance harmonious with surrounding environment;</p> <p>6. The enclosure constructed on road shall be within 5m</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		<p>range of visibility at crossroad; straight and rigid enclosure of metal mesh panel shall be set up without blocking the visual line of drivers and pedestrian, and in the precondition of guaranteeing traffic safety; no article shall be allowed to stack within 5m range of visibility;</p> <p>7. In case the enclosure is equal to or less than 5m from residence, or the construction point is equal to or less than 15m from sensitive buildings like residence, hospital and school, etc., proper measures shall be taken to lower the noise, such as raising the enclosure, etc., the enclosure in sensitive areas shall be up to 3m high; and the scope of 5m outside the enclosure shall be kept clean;</p> <p>8. It is forbidden to stack materials, tools, and earthwork, etc. within the scope of 1m inside the enclosure;</p> <p>9. It is forbidden to use the enclosure as retaining wall or the support of other facilities and equipment;</p> <p>10. When construction site is neighboring to access to residential</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		<p>areas, try to minimize impacts on travel of vehicles and nearby residents. One-way construction shall be adopted, and completed as quickly as possible, and the construction site shall be covered timely by earth. If the work cannot be completed on the very day, steel plates shall be used to cover ditches so as to guarantee the safe passing of pedestrian and vehicles;</p> <p>11. Employ full-time “traffic director”, and establish working team to ensure traffic safety and civilized construction, guarantee the implementation of traffic support measures, manage and maintain the measures during construction period, direct the traffic on the construction section, and assist in solving the traffic problems during construction period;</p> <p>12. During construction period, vehicle and personnel in and out of the construction site shall observe traffic rules strictly and obey the directions of traffic administrations, accept inspection and examination of</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervising Agency
		<p>traffic administrations and construction bureau. Once problems affecting traffic are found, rectification shall be conducted immediately;</p> <p>13. During construction period, safe and civilized construction shall be guaranteed, and measures to prevent disturbing residents, in particular, dust pollution control, noise pollution control, mud and earthwork management measures shall be implemented effectively. The construction unit shall communicate in advance with enterprises, institutions and residential areas along the construction site and try to win their understanding and support, so as to guarantee the smooth progress of construction;</p> <p>14. Incorporate supporting traffic measures into construction organization design. Prior to construction, take the initiative to contact traffic administrations, introduce and report the project profiles, construction scheme, total plane layout and materials used,</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervising Agency
		<p>and earthwork transportation plan. Ask traffic administrations to give support and guidance to improve the transportation plan and formulate detailed rules for the implementation;</p> <p>15. In case hidden well cover is opened or raised for construction on urban road maintained open to traffic, folding construction curb fender shall be adopted at the boundary of construction area;</p> <p>16. It is forbidden to use red and white flag, safety isolation rope, or other materials to replace the construction curb fender;</p> <p>17. The setting of construction curb fender surely makes the long-side section of channel steel on the foundation face towards construction area; in case construction passageway is set up between construction curb fender and construction area, the passageway shall be equal to or more than 0.6m wide;</p> <p>18. Never remove construction curb fender before the road construction takes interim passing measures or the engineering is</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervising Agency
		<p>completed;</p> <p>19. In key areas, road pipeline shall be constructed by means of “excavating a section, paving a section, and renovating a section”, and the whole pipeline shall never be excavated simultaneously;</p> <p>20. The construction unit shall observe the license regulations on construction period strictly, and never execute construction by occupying road or exceeding the licensed construction period;</p> <p>21. Interim road shall be set up according to regulations for construction occupying rural road and impacting the travel of vehicles and pedestrian; the construction unit shall build up solid, flat and continuous pedestrian shortcut with safety edge enclosure in order to guarantee the safe passing of the pedestrian;</p> <p>22. The construction site shall be closed, and infants and children are forbidden to enter the construction area;</p> <p>23. The construction unit shall adopt sheet flattening method for construction in case the ditch or pipeline</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		<p>slot is excavated, and the work cannot be completed on the very day;</p> <p>24. The supporting and consolidation scheme shall pass safety argumentation, and shall be reported to construction bureau for approval; the steel plate covering road shall be at least equal to or more than 0.03m thick; the edge of the steel plate and metal slope rack adopted shall be burnished to remove sharp edges and burrs, in order to ensure the safety of personnel and vehicles;</p> <p>25. Metal shape shall be adopted for supporting and consolidating the lower end of covering steel plate in case the excavation width of ditch (pit) is equal to or more than 0.8m.</p>					
Sewage treatment station, man-made wetland, and ecological sewage interception ditches	Impacts on quality of drinking water	<p>1. Inform the construction workers of Zhuhu Lake water body functioning as drinking water, and involving concentrated drinking water source protection zone, and Wetland Park Water Source Protection and Conservation Zone of Zhuhu Lake, enhance awareness of construction workers on water</p>	COD, BOB ₅ , NH ₃ -H, SS	—	20	contractor	Environmental supervision agency, PPMO, County PMO, Project owner, County EPB

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervising Agency
		<p>source protection and environmental protection, make strict rules to constrain construction workers' hygienic behaviors and prohibit swimming in the water;</p> <p>2. Prohibit setup of quarry, storage site of waste, construction camp, etc. in concentrated drinking water source protection zone, which shall be set at furthest possible point from the concentrated distribution area of farmland irrigation ditches;</p> <p>3. Set up necessary temporary drainage ditch to discharge wastewater from construction. The wastewater from construction shall be treated in settling pond and recycled;</p> <p>4. In excavating an area with rainwater or road surface runoff, build temporary settling pond to subside sand. Set up geotextile fence at the outlet of the settling pond to intercept sand for a second time. After construction completion, the settling pond shall be filled;</p> <p>5. Interim road during construction shall drain smoothly</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		<p>and prevent storm from carrying large amount of sand into Zhuhu Lake;</p> <p>6. Dumping of wastewater, waste materials, waste earthwork, garbage and other solid waste is prohibited;</p> <p>7. Slurry generated during the construction shall be disposed in the settling pond via mud pump and to be solidified through drainage and evaporation. It is prohibited to dump the slurry into Zhuhu Lake;</p> <p>8. Wastewater generated from washing machinery and equipment, after disposed by oil-separating sedimentation tank, can be used for watering the construction site to reduce dust. It shall not be discharged into nearby water body and further pollute Zhuhu Lake;</p> <p>9. During the construction, the on-site ground shall be kept clean. Prevent wastewater or pollutants from entering the ditches, thus leading to the penetration of wastewater;</p> <p>10. Try to construct the infrastructure in the non-flood season to reduce influence of shallow</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		<p>groundwater level on the construction;</p> <p>11. Inspect and maintain construction machinery regularly to prevent leakage of oil;</p> <p>12. The construction camp shall rent houses of villagers; domestic sewage from the construction personnel shall be disposed via existing domestic sewage treatment system nearby and direct discharge of sewage water into Zhuhu Lake is strictly prohibited;</p> <p>13. Anti-seepage and anti-loss measures shall be conducted in accordance with relevant requirements for temporary garbage storage room.</p>					
	Impacts on ecology	<p>1. Prevention measures for impacts on beasts and amphibians</p> <p>①During construction, the subproject shall be constructed by stages, and there shall be sufficient intervals among the stages, so as to provide enough space for the beasts and amphibians to avoid disturbance;</p> <p>②During construction, wastewater shall be discharged to the side as far away as possible from the</p>	—	—	2	contractor	Environmental supervision agency, PPMO, County PMO, Project owner, County EPB

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		<p>nature reserve, so as to reduce impacts of wastewater on beasts and amphibians;</p> <p>③During construction, the mixing system, sand feeding system and other relevant machinery shall be installed with silencers, and sound insulation room or blimps shall be set up, so as to reduce noise; in addition, the machinery equipment shall be inspected and the equipment shall be maintained regularly in strictly accordance with relevant operation requirements, so as to reduce noise caused by faulty lubrication and to reduce impacts of noise on beasts and amphibians;</p> <p>④Construction workers shall be informed and educated to enhance their awareness of wildlife protection, put an end to the occurrence of hunting, and reduce human impacts on beasts and amphibians.</p> <p>2 Prevention measures for impacts on birds</p> <p>According to analysis of impacts of construction activities on birds in the nature reserve, the following</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		<p>measures shall be taken:</p> <p>①During construction, as few construction tasks as possible shall be arranged in time ranges when birds protected by the nature reserve gather (from October each year to March the next year); while in time ranges when the birds migrate away from the nature reserve, construction shall be intensified, so as to complete the works on time;</p> <p>②During time ranges when the birds under protection gather, night construction shall be avoided ;</p> <p>③During construction, the mixing system, sand feeding system and other relevant machinery shall be installed with silencers, and sound insulation room or blimps shall be set up, so as to reduce noise; the machinery equipment shall be inspected and the equipment shall be maintained regularly in strictly accordance with relevant operation requirements, so as to reduce noise caused by faulty lubrication; in addition, the transportation vehicles shall be restricted from</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		<p>honing, so as to reduce impacts of noise on birds;</p> <p>④The construction living quarters shall be away from the nature reserve as far as possible, and shall be installed with curtains to shield light of illuminating lamps, and to reduce impacts of light at night on birds;</p> <p>⑤During construction, management of construction activities and workers shall be enhanced, publicity of environmental legislation shall be reinforced, knowledge manuals on birds in the nature reserve shall be worked out, knowledge shall be popularized within the area, so as to enhance awareness of construction workers on bird protection, and to reduce impacts of human disturbance on birds;</p> <p>4. Select native plants whenever possible, and prohibit the introduction of foreign species.</p>					
Operation period							

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervising Agency
Management and maintenance of man-made wetland and ecological sewage interception ditches	-----	<p>1. Adjust the water level according to various ultimate situations like rainstorm, flood, drought, and icing period, etc., prevent damming at water inlet end and submerging at water outlet end;</p> <p>2. Adjust the water level in case of short-lived flow of artificial wetland;</p> <p>3. Fill water into artificial wetland after planting of plants, and adjust the water level at the early stage in order to promote the development of root system of plants;</p> <p>4. After establishment of plant system, ensure to provide sewage continuously, and guarantee the density and positive growth of aquatic plants;</p> <p>5. Supplement seedling, clear off weeds, harvest plants at proper time, and control plant diseases and insect pests, etc. according to the growth of plants. Herbicide and insecticide, etc. are prohibited;</p> <p>6. For sewage treatment of large-scale artificial wetland, the arrangement of devices for bio-energy utilization of plants shall be considered;</p>	-----	-----	30	Project owner	PPMO, County PMO, County EPB, County Water Bureau, County Forestry Bureau, County Sanitation Department

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervision Agency
		<p>7. Take heat preservation measures for constructed wetland to ensure the water temperature to be at least 4°C;</p> <p>8. Test the depth of frozen soil in constructed wetland periodically to command the operating status of constructed wetland system;</p> <p>9. Strengthen pre-treatment, and relieve the pollution load of constructed wetland system;</p> <p>10. Control the concentration of suspended solids in the sewage entering into constructed wetland system;</p> <p>11. Adopt intermittent operation mode properly;</p> <p>12. Change local base material of constructed wetland system.</p>					
Sewage treatment station and supporting pipeline networks	Pipeline leakage causes water pollution	1. Pipeline shall be dredged timely and damaged pipeline shall be replaced to prevent the running, spilling, leakage of wastewater from polluting nearby water body and underground water.	—	—	Listed in construction cost	Project owner	PPMO, county PMO, county water bureau, and EPB
	Risks prevention	1. Before pulling out the inspection shaft, a warning sign shall be set up in advance, barriers shall be removed to guarantee smooth traffic; and	—	—	Listed in construction cost	Project owner	PPMO, county PMO, county water bureau, and EPB

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervising Agency
		<p>non-operation personnel shall be evacuated before opening the cover.</p> <p>2. The cover of the inspection shaft shall not be pried by steel chisel and anvil in order to avoid spark and cause burns and explosion.</p> <p>3. Using electric machine to pump and drain sewerage, and check whether electric machine, power supply, line and knife switch have leakage or not to avoid electric shock.</p> <p>4. Operating personnel should use natural ventilation to remove harmful gases such as carbon monoxide, carbon dioxide, hydrogen sulfide, methane before dredging, and use instrument to detect, and conduct pit operation after confirming harmless and safe. Operators under pit shall wear anti-static clothing, and shall not wear hard metal objects such as a key.</p> <p>5. Operators above the pit shall hold seat belts in hands and contact with under-pit staff at any time.</p> <p>6. After finishing clearing work, ditch cover shall be recovered and repaired in a timely manner; and warning</p>					

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10, 000 yuan)	Implementing Agency	Supervision Agency
		signs or protection shall be set up in case of failing to finish the very day.					
	Maintenance and management	<p>1. Operators should receive occupational training and hold related certificates.</p> <p>2. Clarify the responsibilities of each position, design each processing procedure, operation and maintenance of major facilities;</p> <p>3. Strengthen routine laboratory analysis; operating personnel shall grasp change of water quality according to laboratory analysis and change operation conditions so as to achieve optimal operation conditions and reduce running fee;</p> <p>4. Establish a complete management organization and formulate a set of complete management measures;</p> <p>5. Build a relatively advanced automatic control system;</p> <p>6. Maintain and repair often or regularly according to management system so as to maintain equipment in good condition;</p> <p>7. The inspection shaft shall be cleared and treated at regular intervals, checked frequently and repaired timely to</p>	—	—	—		

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10,000 yuan)	Implementing Agency	Supervising Agency
		<p>ensure that wastewater interception pipe and inspection shaft are kept in good condition;</p> <p>8. Garbage, sewage and sundries shall not be poured into inspection shaft, and debris shall not be piled on the inspection shaft, and blow-off line shall not be rebuilt without permission.</p> <p>9. The cover plate of inspection shaft shall be closely covered to prevent the occurrence of stink and accident.</p> <p>10. Fire use shall be prohibited nearby the inspection shaft.</p> <p>11. Sludge taken out of the inspection shaft shall be transported to the professional treatment plant designated by municipal sanitation competent department, and documented properly to avoid cross contamination.</p>					
Monitoring premises	Waste acid (HW34), waste alkali (HW35), and waste organic solvent (HW42)	<p>1. Hazardous waste shall be stored separately in impermeable and leakage proof sealed containers with clear color signs;</p> <p>2. Hazardous waste containers shall be stored in an impermeable and leakage proof temporary storage room;</p>	—	—	9	Project owner	PPMO, County PMO, County EPB

Sub-project/ activities	Potential impact	Mitigation Measures	Monitoring Item	Monitoring Frequency	Cost (10, 000 yuan)	Implementing Agency	Supervision Agency
		<p>3. Hazardous waste shall be collected, transported and treated by organizations with permit for operation of hazardous wastes and the treatment fee shall be paid;</p> <p>4. Permit for hazardous waste transfer and duplicate forms for transfer of hazardous waste shall be implemented;</p> <p>5. Abandoning and littering hazardous waste shall be prohibited during transportation;</p> <p>Dumping and piling hazardous waste or mixing hazardous waste into domestic sewage or domestic garbage shall be prohibited; No one shall collect, store, transport or treat hazardous waste without an operation permit or in violation of the rules on permit for operation of hazardous wastes.</p>					
	Domestic garbage	Domestic garbage shall be collected and classified, cleared regularly by sanitation departments and transported to domestic garbage landfill for treatment.	—	—	1		

5 Environmental Monitoring Plan

5.1 Objectives of Monitoring

Environmental monitoring is conducted during the construction period and the

operation period; the objectives are to 1) have an all-round and timely understanding of the pollution of the proposed project, 2) know the degree and scope of impacts of the project on local environment and the dynamic environmental quality, 3) report information timely to EPB and provide scientific basis for environment management of the project.

5.2 Implementation of Monitoring

Based on the environmental impact evaluation results, sensitive spots with possible obvious pollution are chosen as monitoring spots. Considering the pollution in the construction and operation period, surface water environment, ambient air, acoustic environment which are heavily influenced by the environment are selected as medium for monitoring. Monitoring items are thus decided by pollution features in engineering analysis. Monitoring analysis methods in *Technical Specifications for Environmental Monitoring* of the Ministry of Environmental Protection are used and evaluation standards follow the relevant standards in EIA. Environmental monitoring agencies, county PMO and project owners respectively take charge of monitoring, construction, and operation. And various-level environmental protection administrations are the supervisors.

5.3 Environmental Monitoring Plan

The environmental monitoring plan of Poyang sub-project is shown in Table 5-1.

Table 5-1 Environmental Monitoring Plan of Poyang Sub-project

Monitoring Period	Medium	Location and Number of Monitoring Points	Item	Frequency	Unit Cost (10,000 yuan/round)	Annual Cost (10,000 yuan/year)	Stage Cost (10,000 yuan/year)	Monitoring Agency	Responsible Agency	Supervision Agency
Construction period (5 years)	ambient air	Two monitoring points: construction areas of Zhuhu Township, and Tuanlin Township	TSP	2 rounds/year, 1 day/round, once/day	0.25	1	5	Qualified agency	Project owner	Poyang county EPB
	noise	Two monitoring points: construction areas of Zhuhu	LeqdB (A)	6 rounds/year, 1 day/round, twice/day (once at	0.04	0.48	2.4			

Monitoring Period	Medium	Location and Number of Monitoring Points	Item	Frequency	Unit Cost (10,000 yuan/round)	Annual Cost (10,000 yuan/year)	Stage Cost (10,000 yuan/year)	Monitoring Agency	Responsible Agency	Supervision Agency
		Township, and Tuanlin Township		daytime and nighttime, respectively)						
Subtotal (10,000 yuan)							7.4			
Operation period (3 years)	outlets of 35 sewage treatment stations	COD, BOD, NH ₃ -N, total phosphorus, total nitrogen		1 round/year, 1 day/round, once/day	0.5	17.5	52.5		Project owner	Poyang County EPB
	Water quality automatic monitoring sites and automatic monitoring and reporting sites of the project	Water temperature, pH, DO, COD, BOD, permanganate index, NH ₃ -N, total phosphorus, total nitrogen		Regular check	---	--	---			
	Subtotal (10,000 yuan)							52.5		
Total (10,000 yuan)							59.9			

6 Personnel Training

6.1 Objectives of Training

Objectives of environmental management training are to ensure smooth and effective implementation of environmental management activities, enable relevant staff to familiarize themselves with contents and procedures of environmental management, enhance capacity of environmental management staff, and ensure effective implementation of environmental protection measures. Environmental capacity building is mainly targeted at environmental managers and environmental supervision engineers and training for them is part of the project's technical support. During project implementation, training is also provided to contractors and construction workers. Before construction is initiated, all construction units, operation

units and construction supervision engineers are required to participate in compulsory training on environment, health and safety.

6.2 Training and Training Participants

The training is organized by PPMO for PMO environmental managers, project environmental management coordinators and supervision engineers before and during the construction of the project. Environmental technical experts shall take charge of the training. They can invite environmental protection specialists from universities and scientific research institutes, environmental protection designer of design institute and experts from EIA institute and supervision agencies to lecture.

The participants are all staff from PPMO and county PMOs, all environmental supervision staff, representatives from environmental monitoring agencies, and representatives from key contractors, etc.

6.3 Training Contents

- 1) World Bank environmental safeguard policy, domestic environmental protection laws and regulations, and knowledge about and application of environmental standards;
- 2) Environmental management models and environmental articles in the Loan Agreement of the project;
- 3) EA and EMP of the project;
- 4) Environmental management regulations of the project, especially those for the construction period;
- 5) Roles and responsibilities of and relationships among environmental management staff, environmental supervision staff, environmental monitoring staff, and contractors;
- 6) Preparation of environmental management report, environmental supervision report, environmental monitoring report and contractor's monthly report.

6.4 Training Program

Funding for training during JPESTP implementation would be incorporated into the project budget and funding for training during operation would be included in the O&M cost. Capacity building and training program is summarized in Table 6-1.

Table 6-1 Capacity Building and Training Program

Subject	Participant	Contents	Time s	Day/ Time	No. of Participant s/ Times	Budget (10,000 yuan)
Construction Period						
Environmental protection laws, regulations and policies	County PMOs, project owners, construction units	I Environmental protection laws and regulations	1	1	3	2
		II Environmental policies and plans	1	1	3	
		III Environmental	1	1	3	

Subject	Participant	Contents	Times	Day/Time	No. of Participant s/ Times	Budget (10,000 yuan)
		management at the World Bank				
EMP implementation	Construction units, project owner	I Roles and responsibilities for environmental protection during construction	1	0.5	4	2
		II Main tasks of environmental protection during construction	1	0.5	4	
		III Main contents of environmental protection during construction	3	0.5	4	
		IV EMP (including ECOP)	2	0.5	4	
		V Improvement or amendment of EMP	1	0.5	4	
		VI Internal monitoring methods, data collection and processing , etc.	1	0.5	4	
Subtotal during construction						4
Operation Period						
Environmental monitoring, inspection and reporting	Project owner	Inspection of environmental protection facilities, ecological restoration and environmental quality monitoring and report preparation	2	1	2	2
Environmental protection facilities and measures	Project owner	I. Rules and specifications for ensuring environmental safety	2	1	2	2
		II Emergency preparedness plan	2	1	2	
Subtotal during construction						4
Grand Total						8

7 Environmental Management Plan Cost Estimation

It is estimated that the total cost of the EMP of this project is about 2.099 million yuan.

Table 7-1 List of the Cost of Project EMP (unit: 10,000 yuan)

Cost of Environmental Management	Cost of Environmental Monitoring		Training fee	Total cost of EMP implementation
	Construction period	Operation period		

142	7.4	52.5	8	209.9
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8 Information

For the purpose of carrying out environmental management, necessary information sharing is needed among PMOs, owners, contractors and operators and all staff within these entities, which also need to disclose relevant information to external parties (stakeholders and the general public). Internal information sharing can be carried out through meetings and internal bulletins, but a formal meeting needs to be held every month and all information sharing activities shall be recorded and archived. External information sharing is carried out biannually or annually. Information sharing activities with partners shall be recorded and archived.

9 Documentation

To ensure effective operation of environmental management system, the project owner must organize to establish a sound documentation system and maintain records on the following:

- (1) Requirements of laws and regulations;
- (2) Relevant review and approval documents for the project;
- (3) Environmental media and relevant environmental impacts;
- (4) Training;
- (5) Supervision, verification and maintenance activities;
- (6) Monitoring data;
- (7) Effectiveness of corrective and precautionary measures;
- (8) Information of relevant entities;
- (9) Examination and verification
- (10) Review and evaluation

In addition, necessary control is needed for the above records, including identification, collection, categorization, archiving, storage, management, maintenance, storage period, and disposal of these records.

10 Reporting

During project implementation, the contractors, operators, monitoring agencies, environmental supervision engineers and PMOs shall record and report in a timely manner to pertinent departments project progress, EMP implementation and environment quality monitoring results. Specific tasks include:

- (1) Environmental Supervision Engineer of the project documents in detail EMP implementation by month and submit in a timely manner weekly and monthly reports to the project owner and respective county PMO, which shall cover implementation of environmental protection measures, status of environmental monitoring and monitoring data;
- (2) The project owner or operator documents in detail project progress and EMP implementation by quarter, submits in a timely manner quarterly report to PPMO and provides a copy to the provincial environmental protection bureau (EPB);
- (3) After completing monitoring activities, the monitoring agency submits in a timely manner monitoring report to the project owner (operator) and environmental supervision engineer;

(4) County PMO submits in a timely manner project progress report to PPMO and provides a copy to the provincial EPB. Such report (e.g. monthly report, quarterly report or annual report) must cover EMP progress, such as EMP implementation progress and effectiveness and especially environmental monitoring results;

(5) In the event of incidents in serious violation of environmental protection regulations, the environmental supervision engineer and county PMO shall report such incidents to the local environmental protection administration and to higher level environmental protection administrations when necessary;

(6) The project's EMP implementation report for each year must be prepared and submitted to the World Bank by March 31 of the next year. The report mainly includes the following:

- a) Implementation of training program;
- b) Project progress, for instance, the construction progress of sewage treatment station, waste transfer station and lengths of pipelines already paved;
- c) Implementation of environmental protection measures, status of environmental monitoring and key monitoring results;
- d) Whether there are public grievances; if incurred, such grievances, their solutions and degree of public satisfaction shall be recorded;
- e) EMP implementation plan for the next year.

11 Public Grievance Redress and Project Change Mechanisms

1. Public Grievance

In the EIA process of the proposed project, views and comments of the public shall be collected through convening discussion meetings and distributing questionnaires. The public could offer their views and comments or lodge their complaints through attending discussion meetings, filling out questionnaires, sending letters, faxes or emails to or phoning the project owner or EIA institute, or through local EBPs and petition offices.

During the construction and operation periods, the public could offer their views and comments or lodge their complaints through sending letters, faxes or emails to or phoning the project owner or EIA institute, or through local EBPs and petition offices.

Immediately after receiving complaints about environment related issues/problems or rectification notices issued by government administrations, the EIA institute, contractor or project owner shall work together with the design institute and other relevant agencies to organize site visits and investigations, disclose rectification plans and implement appropriate rectification measures to address environment related issues/problems.

2. Environmental Requirements in Case of Project Changes

Based on environmental monitoring reports and inspections by supervision agencies, mitigation measures in the EMP would be adjusted and environmental management activities would be further improved.

During inspection, if significant deviations from EMP contents are identified, or project changes result in significant adverse environmental impacts or significantly

increase the number of people affected by these adverse impacts, PPMO shall immediately consult environmental authorities and the World Bank and set up an environmental assessment team to carry out additional environmental assessment or additional public consultation, if necessary. If the EMP is revised, the implementing agency and contractor also need to be informed of the revisions to ensure that they follow the revised version.

Annex1 General Environmental Management Regulations on Construction Activities

1. Overview

First, the construction unit and construction personnel shall implement mitigation measures proposed in this regulation to prevent inconvenience to or influence on the lives of local residents, and to reduce the project impacts on the environment during construction and operation periods;

Second, remedial measures which cannot be effectively carried out during construction shall be implemented when the project is completed:

1) Vegetation landscape of all affected areas shall be timely rehabilitated via grass planting and afforestation, etc;

2) Rubbles and silt left by waterway construction shall be cleaned up to ensure smooth water flow in drains and culverts;

3) Waste gravels shall be cleared and remaining construction materials shall be properly disposed in all construction sites;

4) The borrow area shall be restored.

2. Construction personnel's Code of Conduct and Environmental Standards

This section shall be combined with national and local laws and regulations, being a guideline for construction personnel's behavior. Before breaking ground, the construction unit shall develop project construction plans, in which detailed rules for the implementation based on the specification shall be clarified. Only after engineer-in-charge's approval of the plan shall the construction begin.

2.1 Prohibited Behaviors

The following behaviors are prohibited at the construction site or in surrounding areas:

1) Logging outside the construction site;

2) Hunting, fishing, capturing wild animals, and picking plants;

3) Using unapproved toxic materials, including lead-based paint and asbestos, etc;

4) Influencing other art buildings and architectures of historical value;

5) Triggering house fires;

6) Drunk constructing.

2.2 Traffic

Selection of routes to the construction site shall be approved by the engineer-in-charge. Appropriate vehicles shall be chosen according to local road level and load capacity shall be limited to avoid damage to local roads and bridges. For damage to local roads and bridges caused by overload, the construction unit shall be responsible for the repair under the consent of the engineer-in-charge.

Vehicles with heavy emissions or strong noises should not be used. At completed areas, noise reduction devices shall be installed under normal operation.

During the implementation of the contract, the construction unit, under engineer-in-charge's consent, may take necessary traffic control measures.

2.3 Construction Personnel and Construction Camp

Whenever possible, the construction unit shall recruit local workers and offer them appropriate training.

The construction camp shall be set at the place easy to rent local houses. Domestic sewage cannot be discharged arbitrarily but disposed via surrounding existing sewage treatment system to avoid affecting nearby rivers.

The construction unit shall establish a set of system and methods for on-site construction materials storage and generation and disposal of solid waste.

The construction unit shall provide substitute fuel while prohibit the use of wood in the camp for cooking or heating.

The on-site layout scheme shall be approved by the engineer-in-charge.

The construction unit should ensure that the construction site, warehouses, storage yards, and manufacturing equipments are not set within 500m to the river. Pollutants running into the river, especially the leakage via land or surface water during the rainy season, shall be avoided; lubricant should be recycled; in surrounding areas channels shall be dug out, at the exit of which settling pond or oil collecting pond shall be set up.

When preparing molding construction materials, construction personnel are prohibited to use wood to heat up.

Production and living areas shall be set independently in accordance with the unit's bidding section. Living areas, based on actual construction conditions, shall be set at a high location among the bidding section. The construction camp consists of living and office welfare facilities, constructing and processing plants, construction warehouses, simple repair stations and other ancillary facilities.

2.4 Waste Management and Soil Erosion

Solid waste, sanitation and hazardous waste can be effectively controlled by implementing the following measures:

2.4.1 Waste Management

1) Reduce the generation of wastes which require treatment and disposal;
2) Identify and classify the generated wastes. Were there hazardous wastes, then storage, collection, transportation and disposal must be conducted in accordance with appropriate procedures.

3) Identify and arrange treatment zones and clearly label them with what materials and substances are allowed for storage.

4) The construction unit must not dispose any waste in any environmentally sensitive area.

5) Construction wastes (including excavated soil) shall be transported to the designated disposal sites (shall be 300m away from the rivers, creeks, lakes or wetlands). Solid waste recycle-and-classify system shall be set up at designated disposal sites to dispose wastes, scrap metal, waste engine oil and the rest construction materials generated during the construction.

5) Comprehensive classification and recycling of recyclable wastes (scrap iron, scrap steel and materials packing bags sold to scrap yards; waste bricks used as materials for road base) shall be conducted. Wastes that cannot be recycled shall be timely transported to the designated construction waste dump site. During the process, sealed transportation shall be ensured and scattering be avoided. When temporary stacking is needed, waterproof, windproof and other measures shall be conducted.

6) For recyclable wastes, the recycling shall be conducted only after on-site identification and assessment and approval of the engineer-in-charge.

During the construction, any residue or sludge stacking on the ground near the construction site should be removed immediately. The stacking area should then be restored to the level approved by the engineer-in-charge.

Throughout the construction period (including preparation, maintenance, demolition and residue clean-up periods) and under the guidance of engineer-in-charge, there shall be a schedule for transportation, and measures to emergencies should be considered.

Inside the construction area, garbage bins for domestic wastes which have daily clearing, collection and classification shall be set, and the transportation of wastes commissioned to the Sanitation Department.

2.4.2 Soil Erosion Control:

Rationally choose the construction period and try to avoid rainy season or construction in raining days. Set up construction enclosure surrounding the work site to prevent construction materials and wastes from leaking into the surface water.

Set up earthen drainage ditch around the construction site on the basis of its terrain conditions. And set up an earthen grit chamber at the outlet of the ditch, slowing down the water and settling sand.

Combine key control with surface protection, and engineering measures with phytomeasures. Emphasize in engineering measures to realize its quick effect and guarantee function. Phytomeasures are auxiliary ones for soil and water conservation, conserving soil and water in a long term and stable manner, meanwhile afforesting and beautifying ambient environment.

Protect leaf layer and organic matters of the land surface and backfill them to the damaged areas to promote the growth of native plants.

Cover the eroded barren areas with native grasses and trees, or harden the soil surface of such areas.

Proper erosion control measures shall be conducted before the rainy season, in order to better carry out the next works. Corresponding erosion measures shall be prepared at each construction point upon the completion of their subprojects.

In all construction sites, there shall be sedimentations control facilities to slow down the water, change the flow direction and settle silts before the vegetation is restored. Such facilities include material piles, stone pathways, settling pits, straw bales, hedgerows and sludge piles, etc.

Use ditches, berms, grass fences and stone piles and other measures to prevent the water from rushing into the construction site or affect on-site work.

Maintain and continue to adopt erosion control measures till the vegetation is fully restored.

Spray water on earthen roads, excavation areas, filling areas and earthwork areas if necessary to reduce wind erosion.

2.4.3 Protection Area:

Identify and designate the equipment protection area (at least 15m away from rivers, streams, lakes and wetlands); fuel shall be stored in an appropriate location, which shall be admitted by the engineer-in-charge.

Make sure all equipments are used only within the designated protected area; never dump the used oil on the ground, or into the water, sewer or drainage system.

All spilled wastes and collected oil shall be disposed in accordance with standard environment procedures or guidance. Fuel storage and backfilling areas shall be set 300m away from the intersection of drainage buildings and important water bodies, or be set under the guidance of the engineer-in-charge.

2.5 Earthworks and Side Slope Excavation and Filling

Reasonably arrange the earthworks, especially the work during the rainy season. During the construction, the side slope shall be kept solid and firm so as not to interfere other areas outside the construction area. In particular, continuous construction shall be conducted during the rainy season to complete as soon as possible the excavation and filling of the same section. Try to avoid slope erosion caused by interruption of construction due to rainy days and other reasons.

Build intercepting ditch and drainage ditch at the top and the bottom of the slope

and plant grass or other plants according to the drawings to protect the slope from erosion. The Intercepting ditch shall be located higher than the slope being excavated to reduce the runoff so as not to erode the slope.

Excavated soils and stones and other materials that cannot be utilized shall be transported to the designated location after obtaining the consent of the engineer-in-charge.

The disposal site cannot be set at the place which may cause landslides, nor should it affect other agricultural plants or private lands. In addition, prevent piling materials from rushing into the surface water through rainfalls or other media. Drainage ditch shall be set up around the stacking area under the guidance of the engineer-in-charge.

2.6 Borrow and Storage Areas

Consent of the engineer-in-charge shall be obtained when opening new borrow areas at the land surface, river or utilized lands. The borrow area shall not be located in places which may damage natural or artificial drainage facilities. River borrow areas shall not be located in places which may erode or destroy the riverbed, or tend to bring a lot of sand to the downstream.

The construction unit shall ensure that all used borrow areas have a firm and solid side slope and bear a neat and level ground. No stagnant water shall be left in the drainage ditch so as not to attract mosquitoes.

Sand and gravels excavated from the river should be transported far enough for stacking. The depth of excavation of each borrow area shall not be greater than one-tenth of the width of the river, to avoid drying up rivers or eroding or damaging the riverbed. It needs the engineer-in-charge's consent to borrow soil from which the vegetation will be destroyed. When doing this, use effective dust treatment equipment and try to avoid environmentally sensitive spots or residential spots.

Each Borrow area and spoil area shall meet the following requirements:

1) Identify and classify borrow and spoil areas, and ensure that the distance between them and sensitive areas (e.g. high and steep slopes, easy-to-erosion land, areas where waste water directly goes into the sensitive water) is larger than 15m.

2) Ensure that the soils are all excavated in admitted and designated borrow areas.

3) The topsoil of newly excavated borrow areas shall be retained and be backfilled into the hole after excavating usable soils and restore the areas into flat lands or slopes; build terraces on some steep slopes to prevent soil erosion.

4) The excess topsoil shall be compacted on which vegetation shall be planted. Topsoil or residues containing organic matters are allowable for covering the surface in suitable areas to facilitate the restoration of vegetation. Native plants are easier to grow.

5) Prevent soils from rushing into the drainage ditch if there had already been one in this construction area.

6) Once the work is completed, all the waste residues generated during the construction should be cleaned from the site.

2.7 Wastewater Control

1. Construction Wastewater

Construction wastewater: the wastewater disposed by settling pond can be used for mixing concrete and watering to reduce dust, and cannot be discharged into nearby water bodies; slurry generated during the construction shall be disposed in the settling pond via mud pump and to be solidified through drainage and evaporation, and the slurry cannot be discharged into nearby water bodies; wastewater generated from

washing machinery and equipments, after disposed by oil-separating sedimentation tank, can be used for watering the construction site to reduce dust, and cannot be discharged into nearby water bodies.

Drainage shall be taken into full account in terms of the layout of the construction site, which shall also be away as far as possible from the river. Ensure that the construction site, warehouses, storage areas of diesel oil and bitumen, and facilities for manufacturing bitumen are more than 500m away from the river. Prevent pollutants from entering the river when operating the facilities, and avoid the leakage via land or surface water during the rainy season.

During the construction, the on-site ground shall be kept clean. Prevent wastewater or pollutants from entering the ditches, thus leading to the penetration of wastewater.

If on-site oil storage is needed, then anti-seepage treatment must be conducted in the warehouse. Measures should be carried out for storage and use in order to avoid the phenomena of evaporating, emitting, dripping leaking, or polluting water bodies.

Try to construct the infrastructure in the non-flood season to reduce influence of shallow groundwater level on the construction.

2. Domestic Sewage

Domestic sewage from the construction personnel shall be disposed via surrounding existing residential sewage treatment system, and cannot be discharged arbitrarily. Anti-seepage and anti-loss measures shall be conducted in accordance with relevant requirements for temporary garbage storage room.

2.8 Noise and Dust Control

To control noise and dust, the construction unit shall meet the following requirements:

1) Adopt advanced construction techniques; use wet process for crushing gravels and concrete; be equipped with dust collection device; control vehicle speed and exhaust emission from cars and coals; spray water at the construction area when needed (4 to 5 times a day is available); construction teams shall use liquefied petroleum gas, electricity and other clean energy; enhance afforestation of the construction site and strengthen labor protection for construction personnel. All these will reduce the negative impacts on ambient air.

2) At the inner side of entrance and exit for vehicles transporting materials and spoil, a car washing platform shall be established, surrounded by barriers to prevent the leakage of wastewater from washing cars. Before leaving the site, the tires and body of vehicles must be washed in the washing platform. Any sludge is not allowed to be attached to vehicles' surface. Materials and spoil shall not exceed the upper edge of the vehicle ledge during transportation, and the vehicle hopper shall be covered with a tarpaulin or be sealed.

3) Concrete mixing station and asphalt mixing station cannot be set inside the construction site; use commodity concrete and asphalt.

4) Transporting vehicles, bulldozers, excavators and other vehicles shall slow down when passing by villages or entering the construction site. Furthermore, regular repair and maintenance should be conducted to ensure vehicles' normal function and to reduce exhaust emissions.

5) Set up dust-proof barriers around the work area, especially at places close to residential areas, hospitals and schools.

6) Try to minimize the generation of dust and particulate matter in order to avoid the impact on the surrounding residential and business practices; focus on protecting vulnerable populations (such as children, the elderly, etc.).

7) Set up warning signs and use low-noise equipment at acoustic environment sensitive sections; control noise source, media of noise transmission, and traffic noise; offer construction personnel anti-noise earplugs; reasonably arrange construction time and other measures.

8) Reasonably arrange construction time according to *Standards for Ambient Noise Emission at Construction Site Boundary* (GB12523-2011). Simultaneous operation of a large number of high-noise equipments and construction at sensitive time shall be avoided whenever possible. Try to arrange daytime operation of high-noise equipments and reduce nighttime transportation. Construction at night (22:00 - 6:00) is prohibited. Construction activities that must be carried out at night shall be approved by relevant local environmental protection department and negotiation in advance with local residents should be achieved. In addition, noise reduction measures shall be implemented (such as installing sound barriers) to minimize the impact of construction noise on local residents.

9) The speed of all construction vehicles outside the work site must not exceed 25 km/h.

10) The speed of vehicles inside the construction site must not exceed 15 km/h.

11) Try to keep the noise lower than 90 decibels of the machinery and equipment.

12) More stringent measures shall be carried out in sensitive areas (including residential areas, hospitals, nursing homes, etc.) to prevent harsh noises.

13) Appropriate measures shall be adopted to reduce the influences of construction noise and vibration on ambient environment.

2.9 Social Impact

Scientifically arrange the construction site and minimize the occupation of land. Temporary occupied area will be restored according to its original land using type after construction is completed.

Reasonably arrange temporary stacking areas of earthworks and stones which shall be away from environment sensitive spots like residential spots and schools, etc.

Timely inform the public of the construction plans, environmental impact statement, construction access roads, temporary bus route, demolition announcement and other information.

Limit nighttime construction. When construction at night is necessary, ensure the schedule is clear and reasonable and inform affected residents in advance to let them take necessary precautions.

When public facilities (such as water pipes, electricity system, telephones, bus routes, etc) cannot work properly due to the construction, affected residents shall be informed at least five days in advance through the form of notice posting at the construction site, bus stops and the affected areas.

2.10 Construction Safety

Responsibilities of the construction unit include protecting every individual surrounding the site, namely to avoid impacts on individual's personal safety and property caused by the construction. The construction unit has the responsibility to comply with national and local safety regulations and take all necessary measures to avoid accidents. Measures may include:

1) Setting up noticeable safety signs at construction access roads and the entrance and exit of the construction site;

2) Dispatching personnel to guide the traffic near schools in the students' rush hour;

3) Setting up sufficient traffic warning signs (including painting, frames and

markers, etc.), road signs and guardrails to ensure the safety of pedestrians during the construction period;

4) Providing safety training to all construction workers before the construction is initiated;

5) Providing construction workers with and force them to use personal protective equipment and clothes (such as goggles, gloves, masks, dust cover, and helmet, etc.);

6) Equipping each site with a safety information bulletin; warning signs shall be set up in the chemicals storage warehouse;

7) Requiring all workers to know the safety information about various materials and clarify to the construction personnel the possible risks for them and their families (especially for pregnant women or families planning a pregnancy) when using these materials, and encourage workers to share relevant information;

8) Making sure that the waste oil or other toxic materials are disposed by specially trained workers;

9) Suspending the construction when encountering heavy rains or other emergencies;

10) Ensuring that the electrical equipment and machinery shall be able to withstand a certain level of earthquake.

2.11 Disposal of Cultural Relics and Heritage Sites during Construction Period

During excavation and construction, if heritage sites, historic sites, human remains, grave yard or individual graves were found, disposal shall be conducted according to the following procedure:

1) Stop construction activities at the discovery site;

2) Draw and mark the discovery location and area;

3) Protect the site to prevent any possible damage to cultural relics. When movable cultural relics or sensitive fossil remains were found, personnel shall be set to ensure their safety until the local relevant government departments or national cultural relics management department take over the charge;

4) After cultural relics were found, the finder shall, within 24 hours, inform the patrolling supervision engineer who will be in charge of contacting local relevant government departments or national cultural relics management department;

5) Before deciding follow-up works, the local relevant government departments or national cultural relics management department will charge for the protection and conservation of the discovery site and cultural relics. Experts from the national cultural relics management department will prepare preliminary assessment on the cultural relics based on related cultural relics assessment criteria, namely from aspects of aesthetic, historical, scientific, social and economic value, to analyze the value and significance of the discovery;

6) Local relevant government departments and national cultural relics management department will decide how to handle the discovery, which includes how to modify construction plan (for example, when immovable cultural relics with cultural or archaeological sense were found), and how to save, repair and utilize the heritage sites, etc.;

7) Local relevant government departments shall deliver written materials to the project manager and inform treatment decisions on the cultural relics;

8) In order to protect the safety of cultural relics and heritage sites, the construction shall be resumed only after obtaining permission of local government or the national cultural relics management department.

2.12 Hazardous Waste

If hazardous waste or suspected hazardous waste (asbestos-containing substances

generated from disposal of construction waste) might be generated in the construction site, the construction unit needs to develop a hazardous waste management plan, which, after engineer-in-charge's approval, applies to all personnel involved in disposal and transportation work. Works to clear and dispose hazardous construction waste shall be conducted by specially trained personnel in accordance with national and provincial regulations or universally accepted procedures.

2.13 Health Service and HIV/AIDS Education

The construction unit shall provide workers with basic first aid services and emergency facilities, including medical devices and mode of operation for personal use. Injured workers shall be treatable before being sent to the hospital.

The construction unit has the responsibility to develop a plan to prevent the spread of sexual diseases (especially HIV/AIDS) among workers.

The construction unit shall add health plan outline into its construction plan, offering workers advice to keep healthy during the construction. The outline shall be approved by engineer-in-charge before the construction is initiated.

3 Environmental Supervision Measures

The engineer-in-charge/construction supervisor shall ensure the implementation of above requirements. Non-compliance of the contract will lead to suspension of the construction or other sanctions until the issue has been resolved under the engineer-in-charge's satisfied manner. The construction unit shall also follow relevant national and local regulations related to environment, public health and safety.

Annex 2 Checklist of Construction Site before Commencement of Work

Serial No.	Environmental Problem	Check Result (Marked with “√”)	Remark
1	Whether the project involves natural habitat, material culture resources, involuntary resettlement and other World Bank safeguard policies	Yes <input type="checkbox"/> No <input type="checkbox"/> Not Involve <input type="checkbox"/>	
2	Whether there are important vegetation and trees within the scope of project land occupation	Yes <input type="checkbox"/> No <input type="checkbox"/> Not Involve <input type="checkbox"/>	
3	Whether project construction road will cause significant impacts on going out of surrounding residents	Yes <input type="checkbox"/> No <input type="checkbox"/> Not Involve <input type="checkbox"/>	
4	Whether there are the public (residential community, school, hospital, office area, etc.) vulnerable to the impacts of work construction nearby the project	Yes <input type="checkbox"/> No <input type="checkbox"/> Not Involve <input type="checkbox"/>	
5	May cause the deterioration in the quality of life of nearby town	Yes <input type="checkbox"/> No <input type="checkbox"/> Not Involve <input type="checkbox"/>	
6	Whether project construction needs to interrupt municipal services (including water, electric power, telephone, bus line, etc.)	Yes <input type="checkbox"/> No <input type="checkbox"/> Not Involve <input type="checkbox"/>	
7	Whether project construction needs demolition	Yes <input type="checkbox"/> No <input type="checkbox"/> Not Involve <input type="checkbox"/>	
8	Whether the project will be affected by flood during rainy season	Yes <input type="checkbox"/> No <input type="checkbox"/> Not Involve <input type="checkbox"/>	
9	Whether land outside project areas is temporarily occupied	Yes <input type="checkbox"/> No <input type="checkbox"/> Not Involve <input type="checkbox"/>	
10	Whether electric power, telecommunications and other municipal service lines are involved within and nearby the scope of project construction	Yes <input type="checkbox"/> No <input type="checkbox"/> Not Involve <input type="checkbox"/>	
11	Whether there is surface water body within and nearby the scope of project construction	Yes <input type="checkbox"/> No <input type="checkbox"/> Not Involve <input type="checkbox"/>	
Others		Yes <input type="checkbox"/> No <input type="checkbox"/> Not Involve <input type="checkbox"/>	

Annex 3 Checklist of Construction Site Environment

Checklist of Construction Site Environment for World Bank-financed Poyang County Water Environment Management Project					
Name of project		Name of Work Site			
Contract Number and Name		Check Result (Marked with “√”)			Remark
Inspect Item		Yes	No	Not Involve	
1. General Requirements	1.1 Whether effective measures for preventing and controlling atmospheric pollution, water and soil pollution and noise pollution as well as for improving environmental health are in place in construction organization design of the project				
	1.2 Whether environmental protection, environmental health management and inspection system for construction site are established				
	1.3 Whether environmental protection, environmental health management and inspection for construction is recorded				
	1.4 Whether operating personnel are provided with necessary protective equipment and effective occupational-disease-prevention measures are taken				
	1.5 Whether the personnel engaged in occupational-disease-inductive operation are provided with regular physical exam and training (with relevant physical exam certificate and training record)				
	1.6 Whether diet health, sunstroke prevention, cooling, cold protection, warmth keeping, gas poisoning prevention and epidemic prevention for operating personnel are in place in combination with seasonal characteristics				
	1.7 Whether education training and assessment for operating personnel at construction site contain laws and regulations relating to environmental protection and environmental health (with related records and documents)				
	Others (shall specify)				
2. Site Layout and Temporary Facilities Construction	2.1 Whether the construction area at the construction site is clearly separated from office area and living area and whether relevant isolation measures are taken				
	2.2 Whether the construction area is neat and orderly				
	2.3 Whether the access of the construction site is marked with enterprise name or enterprise logo, whether the visible place of main access is set with project profile plate meeting the requirements				
	2.4 Whether the public is informed in advance when the construction needs to interrupt municipal services (including				

Checklist of Construction Site Environment for World Bank-financed Poyang County Water Environment Management Project					
Name of project		Name of Work Site			
Contract Number and Name		Check Result (Marked with “√”)			Remark
Inspect Item		Yes	No	Not Involve	
	water, electric power, telephone, bus line, etc.)				
	2.5 Whether the existing building and infrastructure are utilized as temporary facilities of the construction site				
	2.6 Whether newly built temporary house is reasonable in land occupation and meets safety and fire control requirements (with related certificates)				
	2.7 Whether the construction of temporary facilities uses clay bricks				
	2.8 Whether oil, chemical solvent and other items stored at the construction site set special warehouse and warning signs				
	2.9 Whether anti-seepage treatment is made for the ground of oil and chemical warehouse, and whether such emergency treatment materials as absorption bag/sands/bits of wood are in place in the warehouse				
	2.10 Whether collective staff dormitory is set in unfinished building				
	2.11 Whether temporary facilities are demolished within one month upon completion of the construction work				
	Others (shall specify)				
3. Operating Conditions and Environmental Safety	3.1 Whether enclosed color steel fence with the height of no less than 2.5m is set at the construction site, and whether the height of sensitive section is no less than 3.m				
	3.2 Whether the construction site sets qualified bulletin board, indicating environmental protection and civilized construction system, and disposal process for emergencies, etc.				
	3.3 Whether the construction unit takes protective measures to ensure the safety of buildings, structures and underground pipelines adjacent to construction work				
	3.4 Whether tall scaffolding, tower crane and other large machinery and equipment at construction site keep a safe distance from overhead transmission conductor, and whether high voltage line adopts insulating material for safety protection				
	3.5 Whether mandatory safety protection measures are taken for sidewalks and vehicle access surrounding construction work, and whether lighting indicating device is set in the nighttime				
	3.6 Whether visible safety warning sign meeting national standard is set at dangerous section of the construction site				

Checklist of Construction Site Environment for World Bank-financed Poyang County Water Environment Management Project					
Name of project		Name of Work Site			
Contract Number and Name		Check Result (Marked with “√”)			Remark
Inspect Item		Yes	No	Not Involve	
	3.7 Whether the construction site adopts corresponding safety technology measures based on season change to achieve civilized and safe construction conditions				
	3.8 Whether fire extinguishing equipment is kept in good condition, and whether escape way is without obstruction				
	Others (shall specify)				
4. Dust Pollution Control	4.1 Whether construction site road reasonably utilizes the existing or proposed road in and surrounding the site				
	4.2 Whether hardening treatment is made based on its usage when constructing new road, and whether the road section producing dust controls dust by sprinkling				
	4.3 Whether materials are piled up together at construction site				
	4.4 Whether the second location selected to pile up materials is reasonable				
	4.5 Whether site material storage area, processing area and large mould storage area are flat and solid				
	4.6 Whether fine particle granular materials and the materials easy to float in the air at construction site adopt sealed storage, and whether shielding measures are taken for their handing and transportation				
	4.7 Whether covering, solidifying or greening measures are taken for earthwork piled up together				
	4.8 Whether spoil is utilized or transported to designated disposal sites				
	4.9 Whether bare ground at office area and living area of the construction site controls dust by sprinkling and is greened and beautified based on the actual situation				
	4.10 Whether earth, waste and construction garbage are transported using closed vehicles				
	4.11 Whether the facilities washing vehicles are set at the access of the construction site, and whether the road between vehicle washing facilities and the exit of the site is paved with concrete, asphalt, straw mattress or broken brick hardcore to avoid bringing silt out of the site				
	4.12 Whether the construction site uses ready-mixed concrete and ready-mixed mortar				
	4.13 Whether dust prevention and dust removal measures are				

Checklist of Construction Site Environment for World Bank-financed Poyang County Water Environment Management Project					
Name of project		Name of Work Site			
Contract Number and Name		Check Result (Marked with “√”)			Remark
Inspect Item		Yes	No	Not Involve	
	taken when conducting concrete and mortar mixing operation				
	4.14 Whether earth backfill, transportation and other construction that may produce dust pollution are prohibited in the weather with force four wind				
	Others (shall specify)				
5. Harmful Gas Emission Control	5.1 Whether all kinds of wastes are burned at construction site				
	5.2 Whether construction vehicles and mechanical equipment are kept in good condition, and whether the exhaust gas emitted meets the emission standard provided by the state				
	5.3 Whether decoration materials adopt building materials qualified through the verification of legal detection unit (with certificate of conformance)				
	5.4 Whether wood board and other wood materials used for interior decoration are prohibited from using asphalt, coal tar class anti-corrosive and moisture-proof finishing agent.				
	5.5 Whether the kitchen in living area is installed with lampblack treatment facilities as required				
	Others (shall specify)				
6. Water Pollution Control	6.1 Whether sedimentation tank is set at the place washing mixer foreground and transport vehicles at construction site				
	6.2 Whether wastewater is directly drained into municipal sewage pipe network or river				
	6.3 Whether wastewater is recycled or used for dust suppression through sprinkling after secondary precipitation				
	6.4 Whether sediment disposal is conducted when sediment in sedimentation tank reaching 1/4 depth of the tank, whether sediment in sedimentation tank is cleared and transported to designated place				
	6.5 Whether the canteen sets separation tank, and whether qualified cleaning unit is entrusted to timely clear it away				
	6.6 Whether closed waste food bin is set outside the canteen and is cleared away in a timely manner				
	6.7 Whether septic tank of temporary toilet set at construction site conducts anti-seepage treatment				
	6.8 The construction site shall set drainage ditch. Whether waste water is drained into municipal sewage pipe network or river after				

Checklist of Construction Site Environment for World Bank-financed Poyang County Water Environment Management Project					
Name of project		Name of Work Site			
Contract Number and Name		Check Result (Marked with “√”)			Remark
Inspect Item		Yes	No	Not Involve	
	precipitation, and whether drainage ditch is smooth				
	Others (shall specify)				
7. Noise Pollution Control	7.1 Whether the requirements of construction time is strictly followed				
	7.2 Whether surrounding residents are informed of nighttime continuous construction, and whether related formalities for nighttime continuous construction are handled				
	7.3 Whether shielding, closing and greening measures for noise absorption and noise insulation purposes are taken for the construction site				
	7.4 Whether low noise equipment are adopted and maintenance for the equipment is well conducted				
	7.5 Whether the equipment producing noise are set at the side far away from residential community				
	7.6 Whether noise reduction measures such as enclosing are taken to the equipment producing noise				
	7.7 Whether such measures as speed limit and no honking are taken for construction vehicles				
	7.8 Whether the equipment (air compressor, electric generator, etc.) producing noise are placed in enclosed equipment room				
8. Waste Control	8.1 Whether the construction site sets enclosed refuse storage area, and whether construction waste and domestic garbage are stored separately and cleared away and disposed according to the provisions				
	8.2 Whether corresponding container or pipe transportation are adopted for the removal of construction waste in buildings				
	8.3 Whether wastes produced from construction, demolition and site cleaning are disposed separately, recovered and recycled				
	8.4 Whether construction waste cleaning unit holds waste disposal qualification and business license approved by relevant authority				
	8.5 Whether abandoned oil and chemical solvent are stored in a centralized way, and entrusted to qualified unit for disposal				
	8.6 Whether construction equipment has obvious oil spatter				
	8.7 Whether the construction camp has set enclosed refuse storage area to collect the workers' domestic garbage, which shall be timely cleared away as required.				

Checklist of Construction Site Environment for World Bank-financed Poyang County Water Environment Management Project					
Name of project		Name of Work Site			
Contract Number and Name		Check Result (Marked with “√”)			Remark
Inspect Item		Yes	No	Not Involve	
	8.8 Whether septic tank is timely cleared and buried with land upon completion of the construction				
	Others (shall specify)				
9. Soil Erosion and Control	9.1 Whether utilize the existing legal borrow area and the waste abandoning place determined by local sanitation department				
	9.2 Whether newly built borrow area obtains approval from relevant authority, and whether protective measures are taken to the side slope of borrow area				
	9.3 Whether surface soil is cleaned and stored to ensure that it is used for vegetation restoration upon completion of the construction				
	9.4 Whether intercepting ditch and headrace are built to lead water flow formed in rainy season away to avoid the washout of surface runoff to work				
	Others (shall specify)				
10. Preservation of Cultural Relics	10.1 In case cultural relics or suspected cultural relics is found during construction period, the construction shall be immediately stopped and the site shall be well protected, while at the same time reporting to local administrative department of cultural relics for disposal, the construction can be resumed only after disposal of relevant department				
	Others (shall specify)				
11. Vegetation Protection	11.1 Whether such behavior as cutting down trees outside construction site exists				
	11.2 Whether the layout of construction site is reasonable (judging from the point of the damage caused by work implementation to vegetation)				
	11.3 Whether effective measures are taken for the vegetation damaged and bare soil caused due to the construction to avoid soil erosion and loss (adopting such measures as covering with gravels, planting fast-growing grass, etc.)				
	11.4 Whether original vegetation area destroyed is restored or reasonably greened upon completion of the construction				
	11.5 Whether alien species are introduced when conducting ecological restoration and greening for vegetation				
	Others (shall specify)				

Checklist of Construction Site Environment for World Bank-financed Poyang County Water Environment Management Project					
Name of project		Name of Work Site			
Contract Number and Name		Check Result (Marked with “√”)			Remark
Inspect Item		Yes	No	Not Involve	
12. Risk Prevention	12.1 Whether accident prevention plan is formulated				
	Others (shall specify)				
13. Occupational Health	13.1 Whether warning signs or warning instructions are set at operating post, equipment and place vulnerable to occupational hazards				
	13.2 Whether operating personnel wear ear plugs for hearing protection when conducting high noise construction work				
	13.3 Whether anti-corrosive and waterproof operation in basement where good natural ventilation cannot be guaranteed are equipped with mandatory ventilation facilities. Whether the operating personnel wear respirator or protective mask in the workplace with toxic or harmful gases				
	13.4 Whether the operating personnel wear dust mask in the workplace with dust				
	13.5 Whether the operating personnel wear protective mask, goggles, gloves and other personal protective equipment when conducting welding operation				
	13.6 Whether the construction site is equipped with sunstroke prevention and cooling supplies when conducting high temperature operation, and the work-and-rest timetable shall be reasonably arranged				
	Others (shall specify)				
	14. Hygiene and Disease Control	14.1 Whether staff meals, drinking water and rest area at construction site are in compliance with health standards (with health certificate)			
14.2 Whether dormitory, canteen, bathroom and toilet are equipped with ventilation and lighting facilities, and maintained by special personnel					
14.3 Whether construction site dormitory meets the requirement of setting open type window; the beds in the dormitory shall not exceed two layers, a wide bed for a number of people is strictly prohibited					
14.4 Whether the canteen obtains effective sanitary license issued by relevant authority, whether canteen workers hold effective health certificate					
14.5 Whether the canteen is located far away from toilet, refuse					

Checklist of Construction Site Environment for World Bank-financed Poyang County Water Environment Management Project					
Name of project		Name of Work Site			
Contract Number and Name		Check Result (Marked with “√”)			Remark
Inspect Item		Yes	No	Not Involve	
	storage area, toxic and harmful pollution sources				
	14.6 Whether the canteen sets independent food preparation room and storage room, whether the lower part of door leaf sets rat guard no less than 0.2m				
	14.7 Whether toilet, sanitation facilities, drainage ditch and damp area are regularly disinfected (with related records)				
	14.8 Whether the living area sets closed container with regular fly killing and timely clearing				
	14.9 Whether the construction site sets health center, equipped with health kit, commonly used drugs and bandage, tourniquet, neck collar, stretcher and other emergency equipment				
	14.10 When construction personnel develop infectious diseases, food poisoning and acute occupational poisoning, whether it is timely reported to the epidemic prevention department and competent department in charge of construction of the locality, and disposed according to relevant regulations stipulated by the epidemic prevention department				
	Others (shall specify)				
15. Traffic Safety	15.1 Whether safe driving is emphasized on drivers and safety education & training is carried out regularly				
	15.2 Whether driving time is limited, and drivers take turns in driving; whether driving on dangerous road and in dangerous time is avoided				
	15.3 Whether the parts used for vehicle maintenance are approved by the manufacturer, and whether vehicle parts are purchased timely for maintenance purpose				
	15.4 Whether separation of people and vehicles are achieved				
	15.5 Whether cooperate with local community and competent authority to improve road signs and strengthen the visibility of road signs				
	15.6 Whether traffic safety and pedestrian safety education are carried out in the communities surrounding project construction and the communities nearby school				
	15.7 Whether materials are purchased locally as far as possible				
	15.8 Whether drivers operating the vehicles hold driving license				
	Others (shall specify)				
Others (shall specify)					

Checklist of Construction Site Environment for World Bank-financed Poyang County Water Environment Management Project				
Name of project		Name of Work Site		
Contract Number and Name		Check Result (Marked with “√”)		Remark
Inspect Item		Yes	No	Not Involve
The construction stage when inspecting: _____ Date of inspection: _____				
Time of inspection: _____				
Weather record: _____				
Signed by on-site inspector: _____ Signed by environmental supervisor: _____				
Description: ① The problem observed, unqualified situation described, corrective and preventive actions and suggestions put forward can be filled in remark.				
② If it is found through on-site inspection that measures are unqualified and need to be improved, environmental supervisor shall immediately issue “Environmental Rectification Notice” to the contractor and record the serial number of “Environmental Rectification Notice” in Remark. The detailed corrective actions carried out by the contractor shall be recorded separately.				
③ As for the specific subproject and environmental problems, local environmental situation and construction content can be combined to make appropriate adjustment to this form and to adopt appropriate environmental protection measures.				

Annex 4 Environmental Rectification Notice

Environmental Rectification Notice	
No.:	_____
Contract No. and name:	_____
Name of subproject:	_____
Name of Work Site:	_____
Current construction stage:	_____
The problems existing in on-site inspection:	
Checked by: _____ Date: _____	
The contractor analyzes the reasons and formulates rectification plan:	
Contractor in charge: _____ Date: _____	
Opinion of environmental supervisor:	
Responsible person on environmental supervisor side: _____ Date: _____	
Opinion of competent department of environmental protection (when necessary):	
Contact person: _____ Date: _____	
Modification deadline:	
Completed as of _____	
Contractor in charge: _____ Date: _____	
Responsible person on environmental supervisor side: _____ Date: _____	
Conclusion after review:	
Rechecked by: _____ Date: _____	

Map 1 Emergency Handling Flow Chart in case of Discovering Cultural Relics



