

# Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

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Appraisal Stage | Date Prepared/Updated: 13-Feb-2018 | Report No: PIDISDSA21694

## BASIC INFORMATION

### A. Basic Project Data

Country China	Project ID P159870	Project Name Zhejiang Qiandao Lake and Xin'an River Basin Water Resources and Ecological Environment Protection Project	Parent Project ID (if any)
Region EAST ASIA AND PACIFIC	Estimated Appraisal Date 12-Feb-2018	Estimated Board Date 23-May-2018	Practice Area (Lead) Environment & Natural Resources
Financing Instrument Investment Project Financing	Borrower(s) People's Republic of China	Implementing Agency Zhejiang Provincial Construction Department	

#### Proposed Development Objective(s)

To strengthen integrated pollution and watershed management and increase access to improved water supply in selected landscapes in support of Zhejiang's program for the protection of Qiandao Lake and Xin'an River Basin.

#### Components

Component 1: Landscape Management Improvement  
 Component 2: Water Resources Management Improvement  
 Component 3: Institutional Capacity Building, Monitor and Project Management

#### Financing (in USD Million)

Financing Source	Amount
International Bank for Reconstruction and Development	150.00
Local Govts. (Prov., District, City) of Borrowing Country	143.46
<b>Total Project Cost</b>	<b>293.46</b>

#### Environmental Assessment Category

B - Partial Assessment

#### Decision

The review did authorize the preparation to continue

Other Decision (as needed)

## **B. Introduction and Context**

### Country Context

The availability of fresh water in China is around 2,100 m<sup>3</sup>/year/person, less than one third of the global average, and because between 60% and 80% of total precipitation occurs in the rainy season, water availability varies considerably by year. This precarious situation has been exacerbated by both China's rapid economic growth, increases in water consumption, rising pollution discharges, and ecosystem degradation. Realizing that access to adequate supplies of good quality water are fundamental to sustainable development and social well-being, the Government of China (GoC) has placed water resources management and environmental protection at the top of the political agenda, it has also put in place measures to ensure that environmental stability is not jeopardized by future economic development.

The approach to developing and managing the nation's water resources, pollution control and forest ecosystem protection is embodied in The Resolution of China State Council for Acceleration of Ecological Civilization Progress (the Resolution). This resolution, issued by the State Council of China in April 2015, states that, by 2020, China's ecological environment will be improved by reducing the discharge of main pollutants, and that water quality in over 80% of key water basins and lakes must reach minimum legal standards; the quality of drinking water is to be improved; over 1.4% of additional forest cover will be created (over 2015 levels) and biodiversity degradation will be controlled.

To help the GoC move ahead with this agenda, the World Bank has partnered several important initiatives to tackle air and water pollution, including water resources management. It helped formulate the China Country Water Resources Assistance Strategy which reviewed major water resource challenges and priorities and laid the groundwork for a comprehensive World Bank-supported water resource management program. This program provided the basis for the China Country Water Resources Partnership Strategy (2013–2020), and set out a road map for cooperation between partners committed to improving integrated water resources management, and especially the need to improve water quality.

### Sectoral and Institutional Context

The 572 km<sup>2</sup> Qiandao lake (or Thousand Islands Lake) is located on the western Zhejiang



Province, near to its boundary with neighboring Anhui province. The lake came into being in 1959 with the construction of a 105-meter-high dam across the Xin'an River in Jiande county, with more than 90% of the lake being located behind the dam in Chun'an county and less than 10% in Jiande city in Zhejiang. The immense size of the Xin'an river basin makes it an important source of water for the Yangtze River Delta system. The ecological and economic importances of the facility has grown over time due to the lake's water becoming the main source of potable water for Chun'an, Jiande and Hangzhou Cities as well as other cities along the river; it is also an important source of hydro-electricity, production and tourism. Accompanied with rapid economic development in China, urbanization, intensive agricultural production, improved living conditions and tourism continue to increase pressures on the environment of Qiandao Lake.

Recognizing the importance of the lake and its increased pollution pressures, the Government has developed and implemented the "Integrated Plan for Water Resources and Eco-Environmental Protection in the Basin of Qiandao Lake and its Upstream Xin'an River (The Plan)". The Plan identified the main challenges and issues facing the Qiandao Lake and its catchment, which include: i) the large amount of pollutants being released into the lake from various sources with many coming from agriculture production, industrial and domestic waste water; ii) the resilience of the ecosystem in the lake's watershed is being weakened by forest pest attacks and poor forest management, which are undermining the forest's capacity to retain water and control erosion; and iii) the insufficient river management infrastructure, which prevented building adequate water and river management capacities in soil and water erosion, and flood control, as well as the lack of long-term mechanism encouraging sustainable nature resources and pollution management.

The Plan sets the key actions to address the challenges facing the lake and its basin. Over past years, the Government focus has been on the treatments for pollution produced by industrial, domestic waste water (in improving waste water treatment facilities in urban and rural settlements) and concentrated livestock farms. Recent studies<sup>1</sup> have confirmed that these efforts have borne fruit in that industrial and domestic water pollution has been reduced and the relevant pollution discharges into the lake is now insignificant. However, non-point sources of pollution from agriculture crop production remain high. High levels of pollution from agricultural sources are largely the result of poorly managed manure disposal, and the excessive and careless use of fertilizers and herbicides in areas, soil erosion from crop tillage, degraded and pest damaged plantations, fire damaged land, as well as from poor river infrastructure with increased sediments, phosphorus and nitrogen release to rivers.

Effectively reducing the non-point sources of pollution in watershed areas of the lake is

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<sup>1</sup> Nanjing Institute of Geography – Qiandao Lake Water Environment Carrying Capacity



challenging to the Zhejiang Government, which needs to introduce integrated landscape pollution management and watershed restoration best practice. This would include long-term sustainable natural resources management mechanisms to deal with the challenge. Considering that the Bank has rich international and national experience in the relevant aspects, the Zhejiang Provincial Government has requested the Bank's support to develop and demonstrate cost effective and sustainable technical and institutional models capable of reducing pollution through better watershed management in selected areas, with the experience and lessons learned being used to scale up successful interventions elsewhere in the lake's catchment.

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

Development Objective(s) (From PAD)

The PDO is to strengthen integrated pollution and watershed management and increase access to improved water supply in selected landscapes in support of Zhejiang's program for the protection of Qiandao Lake and Xin'an River Basin.

Key Results

The PDO results indicators would be: (a) Nitrogen pollution loads reduced in project areas; (b) Phosphorus pollution loads reduced in project areas; (c) Decrease in soil erosion in project areas; and (d) People provided with access to improved water supplies. These indicators have been chosen because nitrogen, phosphorus and sediments are key pollutants in the lake, and poor access to potable water is a water quality issue faced by many rural people.

### **D. Project Description**

The project is designed to demonstrate integrated watershed management practices, to improve water quality and ecosystem functions in catchments of Qiandao Lake and Xin'an River. The proposed project activities aim at reducing the main pollution loads by helping farmers reducing fertilizer and pesticide use, improving and extending the capacity of waste water treatment plants, strengthening flood and soil erosion control facilities, piloting wetland management, rehabilitating and replanting pest infested and fire damaged monoculture plantations and abandoned sites with mixed broadleaf species to enhance forest ecosystem resilience, providing piped water supplies to rural communities, and upgrading the system of water quality monitoring in the lake and its catchment. In cooperation with The Nature Conservancy (TNC), payments for ecological services (PES) will also be piloted within the project areas. It is expected that the experience and lessons learned of those initiatives will be scaled up in support of the Government Integrated Plan for Water Resources and Eco-Environment Protection in the Qiandao Basin.

To achieve the project development objectives, the project includes the following three components:



**Component 1: Landscape Management Improvement.** This component will support:

(a) **Low Impact Crop Production** to promote:

- (i) Soil nutrient management, which would finance the development and dissemination of basic soil nutrient management plans to determine optimum fertilizer application; and the use of low impact measures to improve application and utilization efficiencies of fertilizers to reduce the pollutions discharge to watersheds;
- (ii) Integrated pest management (IPM), which would finance upgrading pest monitoring and early warning systems; and promoting IPM practices to promote biological pest prevention and control including the use of insect traps, lights and natural predators for the key cropping systems, and for the acquisition of low impact pesticides and related equipment; and
- (iii) Conservation agriculture practice, which would finance low impact pilots to demonstrate the use of low impact soil tillage and minimum tillage practices for the main crops in the catchment areas, the aim being to reduce soil erosion, run-off and nutrient loss.

To compliment this, the subproject will finance the use of conservation tillage /soil erosion control measures including keeping vegetation barriers (such as grasses), setting ecological interception ditches and limited soil tillage for farming activities; collecting and recycling 90% of used agro-chemical containers in project areas; banning the use of toxic herbicides and insecticides and applying IPM in crop sites; encouraging the adoption of organic agricultural practices by using 24,080 tons of slow release formula fertilizers and 14,1300 tons of organic fertilizer for tea gardens, fruit trees and mulberry trees, as well as agriculture crops. Incentive payment mechanisms would be used to discourage the over-use of agro chemicals. With the joint efforts made under the project, the efficiency of the use of pesticides and chemical fertilizer will be improved with the use of TN and TP being reduced.

(b) **Livestock Waste Management (LWM).** The sub-component would provide incentive payments to participating farms in improving the facilities for LWM. These facilities would provide for the safe collection and treatment of the manure of 22 existing small-scale pig and chicken farms with pollution discharge largely reduced. The project will finance small-size civil work and equipment procurement on manure collection, storage, fermentation facilities, as well as the laying of pipe to transfer the liquid livestock manure to farm land.



(c) **Forestry Eco-System Protection.** This sub-component would improve the ecological environmental functions of plantations in the Qiandao catchment by rehabilitating and replanting pest infested and degraded monoculture plantations and a small area of bare mountainous sites. This would be achieved by establishing diversified native species to form a mixed forest structure. It would also improve fire prevention and control operations. The component would focus mainly on the areas around the lakeshore, between the shoreline and the first ridge, where most degraded and monoculture forests are located and where most fires occur. It would also finance enrichment planting in the degraded plantations in the selected eight catchments. Around 20 planting and enrichment forest management models have been developed and will be used. It is estimated that around 12,730 ha of degraded and damaged forest areas would be rehabilitated and replanted. The mixed species structure with diversified species being promoted under the project will convert degraded forest monocultures to resilient, ecologically stable mixed stands of indigenous broadleaves to reduce runoff, enhance water storage capacity, strengthen pest resistance and reduce fire hazard.

To improve fire prevention and reduce erosion along existing roads, support would also be provided to upgrade 21 km of forest road and fire protection access, as well as to improve forest fire monitoring and communication facilities (such as telecommunications, towers and fire detection equipment). In addition, the project will support piloting a small-scale wetland management in a selected watershed to demonstrate how wetland management can reduce pollution from agricultural land and villages around the wetland; it would also contribute to restoring the ecological functions in the watershed.

**Component 2: Water Resources Management Improvement** This component would support:

(a) **Wastewater Management.** This sub-component will finance the expansion of an existing domestic wastewater treatment plant (WWTP) to increase its capacity of wastewater treatment in rural areas. To make full use of the WWTP's capacity, and to improve its operational efficiency, the combined sewer will be replaced by separated sewer systems, and the sewer network will be expanded to collect domestic wastewater from under-served areas. The estimated wastewater generation from the relevant areas will reach 30,000 m<sup>3</sup>/day by 2030.

(b) **Water Course Improvement.** This subcomponent will support: (a) the improvement of water courses through the rehabilitation of 137 km river embankments, dredging 50 km river channels, and the rehabilitation of 106 small overflow weirs in the selected 8 watersheds as part of integrated pollution and erosion landscape management. It will also support certain rehabilitation of embankments and dredging of river channels in the lakeshore area in Chun'an county; and (b) the repair of 12 crop-field access bridges across selected water course in townships of Jiande city. Different from the traditional practice, water course improvements, greening and landscaping will be adopted to increase water infiltration in project watersheds,



expand water storage capacity, reduce peak run-off, lower non-point sources of pollution discharge, stabilize river bank slopes, reduce Total Suspended Solid (TSS) discharges into Qiandao Lake from drainage channels along river banks. The proposed ecological embankment will enable converting part of the water course into a grassed waterway, which will then help to reduce gully erosion in those areas of concentrated flow, thereby reducing sediment movement downstream and improving water quality. Having vegetation in a grassed waterway will also act as a filter to remove sediment-attached pollutants, and nutrients from the runoff.

(c) **Potable Water Supplies in Rural Areas.** The subproject would expand the existing piped network to provide potable piped water to around 218,000 rural inhabitants in 19 township in project area, all of whom presently depend on supplies from antiquated and poorly managed installations. To maintain costs at acceptable levels, the project would focus its efforts in village clusters rather than widely dispersed, isolated settlements where costs would be prohibitive. Project activities will include eight new village (clusters) supplies and offtakes together with raw water main and drinking water distribution pipe developed, as well as further 8 villages (clusters) water supply system updated and expended. It is expected that the project will increase the percentage of inhabitants in the project area having access to potable water from 36% to 84% with 62,300 new household connections.

### **Component 3: Institutional Capacity Building, Monitoring and Project Management**

This component would finance technical assistance, training, research/studies, extension, awareness raising, monitoring and evaluation, as well as the project management. More specifically, it would support:

(a) **Technical assistance and training.** It will finance the institutional strengthening and capacity building of provincial project management office (PPMO) and project county PMOs, as well as project implementation units (PIUs) and farmers by providing technical assistance and training and workshop to the relevant staff and farmers on implementing technical design, adopting new technologies and effective project management.

Given the inter-provincial nature of the causes of water pollution in Qiandao lake and the Xin'an river, the project will promote inter provincial collaboration between the Anhui and Zhejiang provinces, through organizing training and workshops in knowledge sharing on effective integrated watershed management in particular in the dissemination of the lessons learned from the project to broad river basin management.

(b) **Study and Research program.** Several study and research activities are planned. In particular, given that the project aims to support implementing the Zhejiang Xin'an River and Qiandao Lake Water Resources and Ecological Protect Plan, the project will finance analytical and advisory work aimed at improving the effectiveness of the Plan implementation. This study aims





to provide clear recommendations to the Zhejiang Government on how to improve the effectiveness of the Plan implementation in Zhejiang.

(c) **Monitoring and Evaluation.** The project will finance the monitoring to the project implementation progress; its implementation quality and performance, including technical and institutional support systems; the achievement of PDO; and its environmental and social impacts. It will also support strengthening the Qiandao Lake water and catchment-wide monitoring system, especially regarding to detecting trends in pollutant levels, their passage through the catchments, their points of origin and their causes, as well as water quality through financing additional monitoring stations, equipment and facilities, and improved systems and methodologies for data collection and analysis.

Collaborating with the Bank, The TNC will support payments for ecological service (PES) pilot within the project areas. A water fund will be developed and operated as an institutional platform by cities and conservation practitioners (including TNC) within the overall framework of the 'Payments for Ecological Services' concept. By mobilizing innovative sources of funding, the water fund will help communities improve water quality by bringing water users together with the objective of collectively promoting upstream sustainable low impact agriculture land management practice to reduce pollutions under the set project technical framework.

## **E. Implementation**

Project Leading Groups (PLGs) were established at provincial and county governments respectively, which are led by a secretary general/vice governor and comprise members from key line agencies to provide overall guidance on project design and management, financing and coordination for project implementation. Project management offices (PMOs) were also established at the provincial and county levels, which have the overall responsibility for project management. The state owned Chun'an Qiandao Lake Construction Group and Jiande Xinshui Construction Co. LTD. are selected by Chun'an county and Jiande city governments as project implementation units. They are responsible for organizing project activities under the leadership of the CPMOs, including supporting from lines of relevant agencies.

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## **F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)**

Located in the two project counties, Chunan and Jiande in Zhejiang Province, Qiandao Lake is the largest freshwater artificial lake in Yangtze River Delta. The Lake came into being with the construction of Xin'anjiang Reservoir, which covers a total water surface of 573 km<sup>2</sup> and 1,078 islands. It is the important sources of drinking water, hydro-electricity and tourism for local economy. The lake and river's catchments are located in part areas of Anhui and Zhejiang provinces, mainly consisting of land use for forestry, agriculture and rural and urban settlement. Based on the national government approved "Integrated Plan

for Water Resources and Eco-Environmental Protection in the Basin of Qiandao Lake and its Upstream Xin'an River", the project is designed to demonstrate an integrated landscape management practice in the selected small watersheds within two counties of Zhejiang Province. The project area features warm and humid subtropical monsoon climate, sufficient sunshine and rainfall, developed water and farming system; and forest plays an important role to its ecological environment protection such as water retaining and erosion reduction. The project area is mainly in eight selected tributaries among total more than 100 tributaries flowing to the Qiandao Lake and Xin'an River, as well as in an afforested areas in lake shoreside area for forest ecosystem protection in two project counties. Majority of the people (80%) who live in the catchment areas are rural dwellers.

### G. Environmental and Social Safeguards Specialists on the Team

Zhefu Liu, Social Safeguards Specialist  
 Yiren Feng, Environmental Safeguards Specialist  
 Xiaodan Huang, Environmental Safeguards Specialist

### SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	By demonstrating the integrated landscape management approach in the watershed, the project is designed as environmentally friendly investments in Chun'an County and Jiande City of Zhejiang Province. It aims at the reduction of pollutants entering Qiandao Lake and Xin'an River and the improvement of local ecological environment. The proposed investments include small scale drinking water facilities in rural areas, integrated rehabilitation of selected small tributaries (including dredging , embankment reinforcement and greening, weir construction and rehabilitation), forest restoration and rehabilitation, improvement of wastewater collection and treatment for towns, non-point source pollution control through the improvements of agricultural practice and wastewater management, small-scale wetland restoration pilot, construction/rehabilitation of associated roads and small bridges, and



strengthening of local monitoring and evaluation system for water pollution sources and water quality. All these activities have been proposed to address the existing environmental problems in the basin based on the “Integrated Plan for Water Resources and Eco-Environmental Protection in the Basin of Qiandao Lake and its Upstream Xin’an River (2013-2020)” issued by the national government.

The project triggers OP 4.01 Environmental Assessment to ensure that it is environmentally sound. The anticipated adverse impacts resulting from proposed project activities will be limited to: (a) small-scale construction impacts, (b) temporary storage, transportation and disposal of dredged materials from numbers of secondary or even smaller tributaries of Qiandao Lake/Xin’an River and (c) adverse impacts associated with the operation of Shouchang WWTP, waste management system for livestock & poultry farms and constructed wetland. None of these anticipated adverse impacts are deemed significant or irreversible. Therefore, the project is assigned as a Category B project.

EA instrument for the project include: (a) an Environmental Impact Assessment (EIA); and (b) an Environmental and Social Management Plan (ESMP), including two Pest Management Plans (PMPs, respectively for agriculture and forestry activities), the Environmental Code of Practices (ECOPs) for roads, small-scale civil works and river works, and the Environmental Protection Guidelines for Plantations (EPGP). Additionally, key findings of a separate Social Assessment (SA) was also integrated into the EIA and ESMP.

Extensive public consultation and information disclosure has been conducted in the selected watersheds as part of EIA and ESMP following OP4.01, and the full text of EA reports were disclosed locally and at the Bank’s external website.

Under the project, Bank-financed investments will support the ecological protection and conservation of selected rivers and forests in the basin, thus the policy is triggered. It is not expected that the project

Natural Habitats OP/BP 4.04

Yes



			would have the potential to cause significant conversion or degradation of natural habitats. Instead, the project is anticipated with significant ecological benefits through pollution control and ecological improvement of the Qiandao Lake and its tributaries. For the limited ecological impacts expected during project implementation, adequate mitigation measures have been developed in the EIA and ESMP to ensure compliance.
Forests OP/BP 4.36	Yes		This policy is triggered. The rehabilitation of degraded forests and enrichment planting of conifer forests will have significant positive impacts on the health and quality of the forests. The proposed activities will be undertaken in ecological protection forest sites and the proposed project activities will not affect the rights and welfare of local communities and their level of dependence upon forests. The impacts of the forest restoration and rehabilitation have been assessed during the EIA process. A separate Environmental Protection Guidelines for Plantation (EPGP) was developed as part of the project ESMP to further enhance the ecological and environmental benefits of the project, as well as to avoid any potential negative impacts.
Pest Management OP 4.09	Yes		The proposed agricultural non-point source pollution control and forest restoration and rehabilitation activities involves the use of pesticides, therefore, the OP 4.09 is triggered. Two separate PMPs (respectively for agriculture and forestry activities) have been prepared in accordance with the Bank's safeguard policy on how to promote a safe, effective and environmentally sound pest management approach.
Physical Cultural Resources OP/BP 4.11	Yes		The EA and the RAP survey confirmed that the project will not affect any PCR except the relocation of 13 rural households' graves, which is viewed connecting to local tradition. All the compensation and relocation measures for those graves have been formally planned and developed in the RAP based on detailed survey and extensive consultation among the owners.
Indigenous Peoples OP/BP 4.10	No		TT conducted screening to the project area and had interviews to the municipal department in charge of ethnic minority affairs. The project area is Han population centralized area, which is majority in

		China, and there are no ethnic minority communities in the project area. The task team concluded that there are no Indigenous Peoples as identified by the Bank are present in, or have collective attachment to the project area. IP policy is not triggered.
Involuntary Resettlement OP/BP 4.12	Yes	There would be some collective land to be permanently required to serve for the project and some collective land to be used temporarily at the period of the project civil works. Therefore OP 4.12 was triggered and resettlement action plan was prepared to mitigate negative impacts on the resettlement. In case the project design is adjusted at the project implementation or some project components are added into the project at the project restructuring, resettlement policy framework is prepared to guide any additional resettlement works during the project implementation.
Safety of Dams OP/BP 4.37	Yes	The project will not finance construction or rehabilitation of any dam; however, the policy is triggered because the insufficient dam management and maintenance in the river/lake basin might threaten the Bank investments. Per this policy, the dam safety assessment has been conducted for fifty-seven project-linked dams in the relevant watersheds to avoid any potential negative impacts from improper dam management, and a detailed Dam Safety Action Plan has been accordingly prepared and integrated in the EIA and ESMP for future implementation.
Projects on International Waterways OP/BP 7.50	No	This policy is not triggered as the project does not involve trans-boundary rivers.
Projects in Disputed Areas OP/BP 7.60	No	This policy is not triggered as the project does not involve any disputed areas.

## KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT

### A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

Environment:

The project is assigned Category B because the adverse impacts of proposed investments are not deemed as significant and irreversible, which are mainly associated with the construction activities. However, the small-scale and disperse subprojects proposed under the project triggered all the six environmental safeguards policies, as detailed below.

**Environmental Assessment (OP4.01):** Environmental Assessment (EA) was conducted for the project in accordance with applicable Chinese laws and regulations and the World Bank safeguards policies. The project by design is a set of mitigation measures to address the existing environmental problems in the Qiandao Lake/Xin'an River basin area, and will bring about overall environmental and social benefits, including: (a) Reducing the pollutant discharge into the lake/river, e.g., annual reduction of 976.27 tons of Total Nitrogen (TN) and 934.95 tons of Total Phosphorus (TP) through the improvements of wastewater treatment and the decrease and better management of fertilizer application; (b) Completing the flood control system in rural areas covered by the project to resist the one-in-10-year flood event; (c) Reducing soil erosion and improving soil fertility in the project forests, and enhancing biodiversity in the lake/river watersheds.

The anticipated adverse impacts resulting from the proposed project mainly include: (a) general construction nuisance caused by construction activities (e.g. dust, noise, wastewater, solid waste, soil erosion and traffic disturbance); (b) Sediment dredging impacts (e.g., temporary disturbance to water quality) for the selected secondary or even smaller tributaries of Qiandao Lake/Xin'an River, and the disposal of sediment (approximately 109,700m<sup>3</sup> in total, classified as Grade I/II soil quality according to the sediment monitoring results); and (c) the operation of Shouchang WWTP, waste management system for livestock & poultry farms (odor and end products) and small constructed wetland (water quality and waste management). The project has integrated the preventive and mitigation measures into the project design, construction and operation in the EIA and ESMP to minimize the anticipated adverse impacts to an acceptable level or eliminated entirely, as detailed in A.4.

**Natural Habitats (OP4.04):** The project will finance the ecological protection and conservation of selected rivers and forests in the selected watersheds, thus the policy is triggered. The EA confirmed that no critical natural habitat was involved, and it is not expected that the project would have the potential to cause significant conversion or degradation of natural habitats. Instead, the project would reduce the discharge of pollutants into the lake/river and support the ecological improvement in the selected areas.

**Forests (OP4.36):** The rehabilitation of degraded forests and enrichment planting amounting to 12,730 ha in two project counties will have significant positive impacts to the health and quality of the forests. The proposed activities will be undertaken in ecological protection forest sites and the proposed project activities will not affect the rights and welfare of local communities and their level of dependence upon forests. Relevant negative environmental impacts are anticipated to be limited to site preparation and forest tending practice, which are site-specific and temporary, and the mitigation measures have been incorporated to the project design.

**Pest Management (OP4.09):** The proposed agricultural non-point source pollution control and forest restoration and rehabilitation activities involves the use of pesticides, therefore, the OP 4.09 is triggered.

**Physical Cultural Resources (OP4.12):** 13 rural households' graves in the project-affected areas need to be relocated with the project implementation, which is viewed connecting to local tradition and thus this policy is triggered.

**Safety of Dams (OP4.37):** The project will not finance construction or rehabilitation of any dam; however, the policy is

triggered because insufficient dam management and maintenance in the relevant river/lake watersheds might threaten the Bank investments. Fifty-seven dams were identified as linked to the project and assessed per the policy's requirements.

Social:

The project will require the permanent acquisition of 15.9 hectares of land in 22 villages, including 2.6 hectares of collective land in Chunam county and 13.3 hectares of collective land in Jiande city. The permanent land acquisitions in two cities will affect 134 rural families with 468 people, 71 families with 272 people in Chunam county and 63 families with 196 people in Jiande city. About 199.9 hectares of collective land, including 91.5 hectares of land in Chunam county and 108.4 hectares in Jiande city, will be used temporarily at the period of the project civil works, specific to the installations of pipelines. The temporary land uses will affect 3,313 rural families with 11,966 population. Avoidance to housing demolition and minimization to land acquisition are the elementary principle and requirement at the project preparation to reduce the impacts to the resettlement.

The TT undertook screening to the minority communities in the project area. The project area is Han population centralized area and there were no Chinese minority communities in the project area. Han population is not identified as ethnic minority by the Bank. The TT concluded that there are no Indigenous Peoples as identified by the Bank are present in, or have collective attachment to the project area. IPDP was not requested.

The task team conducted due diligence reviews and concluded that two local funded projects within nine and two years prior to the project identification were identified as linked project. Land acquisitions were carried out based on Chinese land law and Zhejiang provincial land regulation and there were no resettlement legacy issues were identified. The objective of the resettlement and the resettlement policies were confirmed their substantial compliance with the RAP inclusive of Bank requirements.

Resettlement policy framework was prepared to guide any resettlement activities during the modification of the project design and the project restructuring.

Gender analysis was done well. A disaggregated gender analysis in the affected village/community was undertaken by Hehai University with support from local agencies, listening to women's expectations, and collecting ideas and recommendations that were incorporated in the designs of the project. Gender disaggregated information were also collected and used in the RAPs to ensure that women's interests could be safeguarded during any resettlement implementation. The task team and resettlement monitoring institute will continue to monitor gender impacts during project implementation. The project is consistent with the Bank's approach to promote inclusion as a tool to help increase productivity and reduce disparities. The population currently living in rural villages is mostly comprised of women who have stayed back to take care of the family due to the migration of young and middle-age men. In this connection, the project SA has identified the training needs for women and the relevant trainings were designed under the project, so that they will receive technical assistance for the management and maintenance of their assets in particular the farming land.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area: Based on the nationally approved "Integrated Plan for Water Resources and Eco-Environmental Protection in the Basin of Qiandao lake and the Upstream Xin'an River", the project is designed to demonstrate an integrated landscape management practice in the Qiandao Lake/Xin'an River basin area, which will be likely replicated in the future. It will



bring about overall environmental and social benefits, contribute to sustainable development of the project counties and benefit local people by improving their living environment.

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

During project preparation, the EA team has worked with the project planner, the implementing agency, the FSR team and the RAP/SA team to conduct a comprehensive alternative analysis, taking into account technical, economic, environmental and social considerations. Attention has been paid to the analysis of with/without project scenario and different options for involved rural WTPs (including water treatment process, new construction/expansion, siting) and expansion of the existing Shouchang WWTP (mainly wastewater treatment process).

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

#### Environment

During project preparation, the environmental and social impacts of the proposed project have been thoroughly assessed with appropriate mitigation measures developed in a stand-alone ESMP. The ESMP specifies detailed mitigation measures to avoid, minimize or mitigate the project-related impacts, including:

- (a) To avoid and minimize the general adverse environmental impacts during construction, three Environmental Code of Practices (ECOPs), respectively for small-scale civil works, river rehabilitation works and roads, have been developed as part of the ESMP to be included into relevant bidding documents and contracts during project implementation.
- (b) The sediment dredging and disposal of dredged materials have been designed in an environmentally sound manner, including the selection of dredging method and dredging timing and the management of sediment storage sites and dewatering effluent. Due to the good results of river sediment monitoring in the project areas, the sediments will be disposed at the nearby designated disposal sites after dewatering.
- (c) Sufficient mitigation measures specific to the operation of Shouchang WWTP, waste management system for livestock & poultry farms and constructed wetland have been integrated into the ESMP to make sure that the subprojects are environmentally sustainable. In addition, due diligence has been conducted as part of the EA and confirmed the environmental compliance and following-up action plans of the linked facilities (such as Jiande Municipal landfill site and relevant livestock & poultry farms).
- (d) A separate Environmental Protection Guidelines for Plantation (EPGP) was developed as part of the project ESMP to further enhance the ecological and environmental benefits of the forest plantation/rehabilitation subproject, as well as to avoid any potential negative impacts.
- (e) The PMPs have been prepared in accordance with the Bank's safeguard policy on how to promote a safe, effective and environmentally sound pest management approach. Considering the features of different subprojects, two separate PMPs, respectively for agricultural and forest plantation activities, were developed to better suit them to the project activities.
- (f) For the relocation of thirteen graves in rural areas, all the compensation and relocation measures have been formally planned and integrated in the RAP based on detailed survey and extensive consultation among the owners.



During the relocation process, special attention will be paid to respect the local customs.

(g) Per the policy of OP4.37, the dam safety assessment has been conducted for fifty-seven project-linked dams in the watersheds to avoid any potential negative impacts from improper dam management, and a detailed action plan has been therefore developed for implementation.

## Social

Focus group discussions and key informant interviews were used to consult with potentially affected people, beneficiary groups in villages and obtain views and preferences regarding resettlement impacts and mitigation measures, including land compensation, and the resettlement budget has been arranged by the engaged city/county governments. These views and preferences were considered during RAP preparation and the potentially affected people agreed that the resettlement and rehabilitation measures planned under the RAPs were adequate to address and mitigate any adverse impacts. The SA results have also been used to refine the project design, including the participatory project planning process and project activities.

The arrangements for project preparation and implementation have been made at both provincial and local levels. The Provincial Project Management Office (PPMO) has been established within Zhejiang Provincial Construction Department through strengthening the existing PPMO of Bank financed Qiantang River Basin Small Town Environment Project, which has demonstrated strong capacity and good track records in the management of several Bank-financed projects over past two decades. The PMO's capacity of ensuring safeguards compliance during project preparation and implementation is justified as adequate. At local level, the PMOs have been established in Chun'an County and Jiande City within the relevant Development and Reform Commissions respectively, to be responsible for the project preparation and implementation. Capacity building for the city/county level PMOs will be part of the project training and technical assistant programs.

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

During the preparation of EIA/ESMP, key stakeholders have been identified to ensure the implementation of well-targeted and meaningful public consultation for the project. Two rounds of public consultation were conducted with the participation of public and identified key stakeholders. The first round took place during January-July 2017. The second round was carried out after the draft EA report was completed during August-November 2017. The project information was disclosed at project-affected communities and government websites before each round of consultation. The EA and ESMP incorporated countermeasures to address the concerns of consulted people. In addition, the grievance redress mechanism has also been proposed as part of the project ESMP for continuous public consultation during project implementation. The EIA and ESMP were disclosed locally and in the Bank inforshop on February 6, 2018.

For the social aspect, during the project preparation, public consultations were conducted with all the relevant stakeholders and the consultation process will be continuous by the expert team and the engaged city/county agencies during project implementation. The project information was disseminated to the potential project impact people including the displaced families. The preference, concerns and recommendations from the involved stockholders have been taken consideration in project design and operational arrangements. The social impact analysis and public consultation conducted during the project preparation made significant contributions to the preparation of the RAPs, the minimization or avoidance of any housing structural demolition and land acquisition, and

to bringing villages and farmer groups to participate in the resettlement planning and the project preparation processes. The social safeguard documents have been discussed locally and in the Bank Infoshop on February 6, 2018.

## B. Disclosure Requirements

### Environmental Assessment/Audit/Management Plan/Other

Date of receipt by the Bank	Date of submission for disclosure	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
05-Feb-2018	06-Feb-2018	

### "In country" Disclosure

China  
 06-Feb-2018

Comments

### Resettlement Action Plan/Framework/Policy Process

Date of receipt by the Bank	Date of submission for disclosure
05-Feb-2018	06-Feb-2018

### "In country" Disclosure

China  
 06-Feb-2018

Comments

### Pest Management Plan

Was the document disclosed prior to appraisal?	Date of receipt by the Bank	Date of submission for disclosure
Yes	05-Feb-2018	06-Feb-2018

### "In country" Disclosure

China  
 06-Feb-2018

Comments

**If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.**

If in-country disclosure of any of the above documents is not expected, please explain why:

**C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)**

**OP/BP/GP 4.01 - Environment Assessment**

Does the project require a stand-alone EA (including EMP) report?

Yes

If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?

Yes

Are the cost and the accountabilities for the EMP incorporated in the credit/loan?

Yes

**OP/BP 4.04 - Natural Habitats**

Would the project result in any significant conversion or degradation of critical natural habitats?

No

If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?

NA

**OP 4.09 - Pest Management**

Does the EA adequately address the pest management issues?

Yes

Is a separate PMP required?

Yes

If yes, has the PMP been reviewed and approved by a safeguards specialist or PM? Are PMP requirements included in project design? If yes, does the project team include a Pest Management Specialist?

Yes

**OP/BP 4.11 - Physical Cultural Resources**

Does the EA include adequate measures related to cultural property?

Yes

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?

Yes

**OP/BP 4.12 - Involuntary Resettlement**

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

Yes

**OP/BP 4.36 - Forests**

Has the sector-wide analysis of policy and institutional issues and constraints been carried out?

NA

Does the project design include satisfactory measures to overcome these constraints?

NA

Does the project finance commercial harvesting, and if so, does it include provisions for certification system?

No

**OP/BP 4.37 - Safety of Dams**

Have dam safety plans been prepared?

Yes

Have the TORs as well as composition for the independent Panel of Experts (POE) been reviewed and approved by the Bank?

NA

Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and training?

NA

**The World Bank Policy on Disclosure of Information**

Have relevant safeguard policies documents been sent to the World Bank for disclosure?

Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?

Yes



### All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?

Yes

Have costs related to safeguard policy measures been included in the project cost?

Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?

Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?

Yes

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#### APPROVAL

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