FAO/GLOBAL ENVIRONMENT FACILITY

PROJECT DOCUMENT

PROJECT TITLE: Piloting Provincial-level Wetland PA System in Jiangxi Province **PROJECT SYMBOL: (GCP/CPR/052/GFF)**	
Recipient Country/ies: China	**Resource Partner:** Global Environmental Facility (GEF)
FAO project ID: 613305	**GEF Project ID:** 4662
Government / other Counterpart(s): The Poyang Lake National Nature Reserve (PLNNR) under the Forestry Department of Jiangxi Province	
Expected OED (starting date): April 2014	
Expected NTE (End date): March 2019	
Contribution to FAO's Strategic Framework	**a. Strategic objective/Organizational Result:** SO 2 **b. Regional Result/Priority Area:** Regional Priority C **c. Country Programming Framework Outcome:** CPF Priority 4
GEF Focal Area/LDCF/SCCF: BD	**GEF/LDCF/SCCF Strategic Objectives:** BD-1
Environmental Impact Assessment Category(insert √): A B **C √**	

Financing Plan:		
GEF allocation:	USD	5,289,000
Co-financing:		
Government of China	USD	26,230,000
International Crane Foundation	USD	142,000
FAO	USD	320,000
Subtotal Co-financing:	**USD**	**26,692,000**
Total Budget:	**USD**	**31,981,000**

EXECUTIVE SUMMARY:

The project objective is to catalyse the management effectiveness of Jiangxi's wetland protected area (PA) system to conserve globally important biological diversity. The wetlands in Jiangxi Province provide a range of ecosystem services that underpin local economies and safeguard the livelihoods and lives of local residents, including: freshwater supply; fisheries and agricultural production; harvesting of plants for fuel, food and medicines; flood mitigation; sediment retention; nutrient cycling; recreation and nature-based tourism, etc. These ecosystem services are connected to varying degrees and are ultimately dependent upon the functioning and integrity of the overall ecosystem. The wetlands of Jiangxi also provide critical habitat for a host of globally significant species, including the largest concentrations of wintering water birds in East Asia (Siberian Crane, Oriental Stork, Swan Goose, Tundra Swan), the Chinese Water Deer, and the Finless Porpoise, among others.

Unfortunately, anthropogenic activities continue to diminish the ecological integrity and ecosystem services of Jiangxi's wetlands, and wetlands both within and outside of official protected areas remain vulnerable to internal and external threats. Wetland degradation and habitat fragmentation endanger the capacity of wetlands to mitigate and adapt to climate change. The project will address the barriers that currently inhibit the strengthening of the wetlands protected area system and overall wetlands

conservation in the province, notably the fragmented nature of the management of existing wetland PAs; limited operational capacities for wetland PA site management; and limited institutional capacities to manage a consolidated wetland PA system.

Institutional responsibilities and coordination mechanisms will be clarified at the provincial and protected area levels. Improved protected area management regimes will be established, with wetland PA managers gaining the experience and capacities (knowledge, tools, skills and resources) necessary to identify and address threats to wetlands integrity using ecosystem-level approaches, to motivate participation and support of sectoral agencies, the private sector, and local governments and communities; and to monitor and learn from the successes and failures of these activities and adjust management responses accordingly. The project will help to establish the first provincial level management framework for wetlands as well as demonstrating the first comprehensive wetland reserve management plans at three sites in the province, with potential for replication at numerous other PA sites.

The Project contributes to FAO's Strategic Objective 2 (SO-2) "Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner". SO-2's emphasis on "improving and increasing" in a "sustainable manner" reflects the broad, multi-sectoral nature of the approach adopted in project design. The Project contributes to the goals of the Program of Work on Protected Areas of the Convention on Biological Diversity and is strongly aligned with GEF BD-1. GEF funding will secure the above-mentioned globally important wetland biodiversity outcomes and provide benefits to communities relying upon these wetland ecosystems; in doing so, it will enhance the conservation and management of the habitats of endangered species including many endemics, as well as genetic and ecosystem diversity. By project close, the GEF investment will have catalysed the spending of over US$35 million in baseline resources and will have established a transformation from site-based wetlands management largely limited to a single provincial department, to ecosystem-based and integrated management of wetland reserves and bordering areas with the participation of numerous stakeholders. Over 216,431 hectares of Jiangxi's globally significant wetlands and associated species will benefit from these ecosystem-based management regimes.

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GLOSSARY OF ACRONYMS

AWP/B	Annual Work Plan and Budget
BD	Biological Diversity
CBD	Convention on Biological Diversity
CBPF	China Biodiversity Partnership and Framework for Action
CBPF-MSL	China Biodiversity Partnership and Framework for Action - Mainstreams of Life: Wetland PA System Strengthening for Biodiversity Conservation
CCICED	China Council for International Cooperation on Environment and Development
CES	Compensation for Environmental Services
CFAA	Country Financial Accountability Assessment
CFD	County Forestry Department
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
EA	Executing Agency
ECBP	EU-China Biodiversity Program
EHI	Ecosystem Health Index
FAO	Food and Agriculture Organization of the United Nations
FOMC	FAO Forestry Management Division
GEF	Global Environment Facility
GIS	Geographic Information System
GIZ	Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation)
GoC	Government of China
IA	Implementing Agency
IAS	Invasive Alien Species
IBRD	International Bank for Reconstruction and Development (see WB)
ICF	International Crane Foundation
IRBM	Integrated River Basin Management
IUCN	International Union for Conservation of Nature
IW	Inception Workshop
JFD	Jiangxi Province Forestry Department
JFDWPMO	Jiangxi Forestry Department Wetland Protection and Management Office
JPWPAMS	Jiangxi Province Wetland Protected Areas Management Strategy
JWPA	Jiangxi Wildlife Protection Administration
M&E	Monitoring and Evaluation
METT	Management Effectiveness Tracking Tool
MRLDC	Mountain-River-Lake Development Committee
NBCSAP	National Biodiversity Conservation Strategy and Action Plan

NBIS	National Biodiversity Information System
NDRC	National Development and Reform Commission, R.P. China
NEX	Nationally Executed
NGOs	Non-Governmental Organizations
NR	Nature Reserve
OFP	Operational Focal Point
PA	Protected Area
PES	Payments for Ecosystem Services
PIR	Project Implementation Review
PLNNR	Poyang Lake National Nature Reserve
PM	Project Manager
PMO	Project Management Office (PLNNR)
PoWPA	Program of Work on Protected Areas of the CBD
PSC	Project Steering Committee
PTC	Project Technical Coordinator
PWEPA	Poyang Lake Wetland Ecosystem Protected Area
SFA	State Forestry Administration
TCI	FAO Investment Centre Division
TOR	Terms of Reference
UNEP	United Nations Environmental Programme
UNDP	United Nations Development Programme
WB	World Bank
WWF	World Wide Fund for Nature

1. BACKGROUND

○ General and sectoral context

Overview of Wetlands and Wetlands Biodiversity in China

1. According to China's first wetland inventory (1996-2003), the total area of wetlands (greater than 100 ha) in mainland China amounts to 38.5 million ha, of which 36.2 million hectares are natural wetlands and 2.3 million hectares are artificial (reservoirs and ponds); China has the largest area of wetlands in Asia and the 4th most of any country in the world. China's wetlands are highly diverse and found in varying landscapes throughout the country, including coastal areas, inland plains and highland plateaus, river deltas and lakes, etc. The variety and size of China's wetlands harbour rich biodiversity: the country contains 32 of the 426 WWF global freshwater ecoregions, 17 of which lie entirely within China and thus are endemic to the country, as well as 6 of the Global 200 freshwater ecoregions (3 of which are entirely within the country). Overall, it is estimated that China's wetlands contain over 6,500 plant species representing 101 families, of which 100 species are endangered such as *Isoetes sinensis, Isoetes japonica, Glyptostrobus pensilis, Metasequoia glyptostroboides, Brasenia schreberi, Ranalisma rostratum*, and others. Coastal wetlands harbor some 5,000 plant species and 3,200 animal species, while inland sites have recorded 1,548 plants and 1,500 higher animal species. China's wetlands harbor 50 species of Ducks and Geese (*Anatidae*), representing 30% of the global total; 54% of all Asia's endangered wetland bird species; and 9 Crane species out of the global total of 15. In terms of amphibians, China ranks number 7th in the world and of the 326 species found in China, 88 are under threat of extinction. There are 770 species of freshwater fish (including many endemics).

2. Wetlands in China are also vitally important to the social and economic conditions in the country for the services they provide to the country, not the least of which is water supply for a large and growing population and the agricultural and industrial production on which it depends. Water is a precious commodity in China, and almost 40% of the population lives in regions facing water scarcity. Since the 1950s, China has constructed 86,000 reservoirs and drilled more than four million wells in an effort to increase water supplies. In comparison, efforts to conserve water have lagged behind, and wasteful irrigation practices, poorly managed water use, and rapid industrialization and urbanization have led to serious depletion of groundwater aquifers, loss of natural habitats and water pollution. Given the shortages of water resources in China, combined with the country's high population and fast development, the importance of wetlands in safeguarding water supply is significant. Wetlands also play many other critical roles with (frequently inter-connected) benefits for biodiversity and the human population, including water provisioning, purification, regulation and flood control functions; nutrient cycling; climate regulation; tourism and recreation; fisheries; etc.

Status and Trends of Wetlands and Wetlands Biodiversity in China

3. Natural wetland areas in China have declined significantly in recent decades. Many wetlands are being drained for agriculture, or impounded and cut off from each other by dams, sluice gates, polders and other hydrological infrastructure, eliminating migratory pathways and fragmenting populations of aquatic species. Rivers and connections between rivers and lakes are blocked by large-scale dams, changing water flows and chemistry and hindering fish migration paths. Upstream activities including pollution, water diversion for agriculture, deforestation, and overgrazing of grassland and desertification have reduced the quantity and quality of water flowing into wetlands and decreased wetlands' water retention capacity. Over 1.3 million hectares of lake surface have been lost to reclamation. Tourism at wetland sites has degraded wetland ecosystems through inappropriate construction of tourism facilities and destructive practices of visitors.

4. Since 1998, the Chinese Government has increased its support for the conservation and restoration of forest, grassland and wetland ecosystems, including the establishment of 2,538 nature reserves, which has helped to slow the deterioration of these ecosystems. However, much of the focus of this expansion of nature reserves has focused on safeguarding certain services, such as agricultural and forest production, water retention, and erosion prevention, and has neglected other services such as biodiversity and carbon

storage. Furthermore, sustainable wetlands management in China faces serious on-going challenges from the huge demand for socioeconomic development in the country, which is drawing upon a finite bank of ecological resources. Low awareness of ecosystem services and of effective ecosystem management strategies contribute to the decline of wetland ecosystems. As a result, percentages of endangered species for most taxa present within China's wetlands are among the highest globally: endangered wetland species such as fish (89% VU and above), amphibians (40% VU and above) and waterbirds (12% VU and above) are higher than for other terrestrial groups, and 88% of all fish species evaluated are categorized as threatened. The Yangtze Baiji Dolphin is now considered extinct, and many species such as the Finless Porpoise and alligators are in a critical situation and their populations continue to decrease.

The National Protected Areas System and Wetlands Protected Areas

5. China has an extensive national protected areas system that includes 2,640 PAs covering over 14.93% of the country's land surface. There are many different classifications of protected areas in the country, including nature reserves and national parks among others. Many protected areas in China have multiple official designations, and the statutory boundaries of these multi-designated PAs may be identical or varied. Nature Reserves (NRs) are considered to offer the highest level of protection within this system; NRs may be established and the National, Provincial, or Local (municipal and county) levels. The Ministry of Environmental Protection has oversight over the system of nature reserves, but they are managed by numerous different agencies. In general, National nature reserves, which must be designated by the State Council, harbour the most nationally and globally significant biodiversity and receive more funding.

6. In order to conserve wetland biodiversity, the Government of China has established 771 "wetland PAs" as a sub-system of the national PA network. The four categories of wetland PAs are: National Wetland Nature Reserve (99 sites); Provincial Wetland Nature Reserve (226 sites); Local Wetland Nature Reserve (228 sites); and National Wetland Parks (218 sites). National Wetland Parks are primarily designated for recreation and other uses, and are managed for wetland ecosystem protection and wise use of wetland resources; provision of recreation areas and promotion of public awareness, knowledge and understanding of wetlands. On the other hand, Wetland Nature Reserves (at all levels) are primarily designated for conservation, and are managed for the conservation of nationally and internationally significant biodiversity and the maintenance of wetland ecosystem services and ecosystem restoration. Nature Reserves may consist of three zones, a Core Area, a Buffer Zone, and an Experimental Zone (see Annex 7 for additional details), although many NRs do not include all three zones or fail to manage them according to these regulations.

Description of Jiangxi Province and critical Ecosystem Types and Services

7. Jiangxi Province is located in the south of China along the southern bank of the Yangtze River. The northern part of the province is dominated by Poyang Lake, which is connected to the Yangtze River, while the centre of the province is rolling hills and the southern, eastern and western borders are mountainous, so that almost the entire province is within the watershed that drains into Poyang Lake. Approximately 98% of run-off in the province goes into the Poyang Lake via five major rivers: the Gan, Fu, Rao, Xiu and Xin. The Gan River dominates the province, flowing across the entire length of the province from south to north. The total area of Jiangxi province is 166,900 sq. km., of which forests cover approximately 100,000 sq. km. and wetlands account for 36,700 sq. km. Jiangxi has a humid subtropical climate, with short, cool, damp winters, and very hot, humid summers. Average temperatures are about 3 to 9 °C (37 to 48 °F) in January and 27 to 30 °C (81 to 86 °F) in July. Annual precipitation is 1,200 to 1,900 millimetres, much of it falling in the heavy rains occurring in late spring and summer. At Poyang Lake, rainfall is plentiful, with 1426.4 mm of annual precipitation, but distributed unevenly. Precipitation from April to June accounts for approximately half of the annual precipitation, while precipitation during the wintering period of migratory birds (November to March) is much lower, especially during November to mid-January, which has only 9.9% of annual precipitation.

8. Wetlands in Jiangxi province provide a range of ecosystem services that underpin local economies, although many of these services are being depleted. Provisioning Services include freshwater supply; fisheries and aquaculture; agriculture, grazing and fodder for livestock; sand production; timber production; and harvesting of plants for fuel, food and medicines. Regulating Services include water regulation (e.g., flood mitigation), water purification and waste treatment, carbon sequestration, and climate and air quality

regulation. Supporting Services include sediment retention, nutrient cycling, biodiversity habitat, maintenance of genetic resources, and underlying primary production that supports life (plant growth). Cultural Services include recreation, nature-based tourism, research and education. These ecosystem services are connected to varying degrees and are ultimately dependent upon the functioning and integrity of the overall ecosystem.

9. Biodiversity and flood mitigation are by far the most important ecosystem services provided by wetlands in Jiangxi Province. The Poyang Lake region in particular is globally significant for biodiversity conservation, and increases flood security for the whole middle and lower reaches of Yangtze River. Surveys of the Poyang Lake region have recorded an average of 425,000 migratory water birds during the winter, with a peak count of 726,000 birds in 2005, and conservation efforts seem to be effective in preserving the bird populations. On the other hand, 20 fish species have disappeared from Poyang Lake in recent decades, and the finless porpoise is now classified as critically endangered. In addition, flood retention capacity has decreased by approximately 30% since the 1950s, largely due to the loss of 1,466 sq. km. of wetlands due to wetland reclamation during that time. In the 1950s, Poyang Lake had the capacity to store 19 to 21 billion cubic meters of water, which is equivalent to the flood retention capacity of the Three Gorges Dam; the lake reduces flooding both by storing water from the 5 rivers which flow into the lake, and also by taking in flood waters from the Yangtze river, which significantly attenuates the flood risk in the middle reaches of the Yangtze. Carbon sequestration by wetlands is also significant; current vegetation coverage estimates for the Poyang Lake region show at least 226,220 ha of wetlands that can contribute significantly to carbon sequestration and storage, with estimated primary production of 5.66 million tons each year and an estimated carbon storage rate per year of between 320,000 - 480,000 tons. However, it is estimated that the Poyang Lake region has lost 30% of its biomass in recent decades, which has reduced its carbon storage capacity. Unfortunately, many other critical ecosystem services provided by wetlands in Jiangxi Province are declining. The Poyang Lake region provides over 400 million cubic meters of freshwater / day, 600,000 tons of fish / year, and 48 million tons of sand / year, but all of these services currently show a downward trend.

The Protected Areas System in Jiangxi Province

10. There are 195 nature reserves in Jiangxi Province covering an area of 1,150,200 hectares (6.9% of the entire province); this system includes 8 national nature reserves (144,400 hectares), 28 provincial nature reserves (337,200 hectares), and 159 prefecture or county level nature reserves (668,500 hectares). The vast majority of these reserves (96% of the PA sites and 95% of the total area) are under the management of the Jiangxi Department of Forestry. The 26 wetland reserves in Jiangxi province cover approximately 350,000 hectares; of this total, 12 wetland reserves within the Poyang Lake region account for 190,157 hectares, including three key sites -- the Poyang Lake National Nature Reserve, Nanji Wetland National Nature Reserve, and the Duchang Provincial Migratory Birds Nature Reserve -- which together cover almost 50% of the lake basin and are the only operational reserves (with varying levels of capacity) in the Poyang Lake region. These 3 reserves, as well as the 9 county reserves in the Poyang Lake region, and 3 other county reserves elsewhere in the Province, all of which currently are "paper" reserves with minimal operational effectiveness and without any effective linkages to a larger network of PA, will be the focus of the proposed project.

○ Institutional, Policy and Legal Framework

National + Provincial Institutional Framework for Wetlands

11. The institutional framework governing wetlands and wetlands protected areas in China is complex. With regard to management of wetlands, biodiversity conservation and environmental protection in general, several institutions play a leading role:

12. The *Ministry of Environmental Protection (MEP)* has the overall administrative mandate for biodiversity conservation in China and is the primary government agency for Convention on Biological Diversity (CBD) issues. The MEP is the highest authority for the Nature Reserve (NR) system in China, and it has the authority to coordinate all ministries that manage NRs (e.g. through approval of new national-level PAs, boundary changes, monitoring and evaluation, permits), as well as the final authority to decide which

NRs are upgraded to the national level. The MEP also regulates pollution, including water pollution; oversees ecological protection; assesses environmental quality; and supervises nature reserves, wildlife protection and wetlands protection. In general, the MEP is not directly involved in PA management (apart from a few Nature Reserves that it established in the 1990s).

13. The *State Forestry Administration (SFA)* directly oversees and manages forests, wild flora and fauna, wetlands and the majority of China's nature reserves, including wetland Nature Reserves. SFA is responsible for the approval of new national wetland PAs, wetland conservation planning and zoning, and setting national wetlands standards and regulations. SFA has created a Wetland Conservation Management Centre (WCMC), which has a mandate to ensure technically sound management of wetlands nationally and acts as the focal point for the Ramsar Convention and administers Ramsar sites. A majority of all wetland PAs are under the supervision of the SFA.

14. The *Ministry of Agriculture (MOA)* is responsible for aquatic biodiversity, including mammals such as dolphins and porpoises, and for national aquatic wildlife PAs, including PA zoning, approval of new national PAs, approving changes in PA boundaries, and monitoring and evaluation. It is also responsible for the promulgation of fisheries resources protected areas, which often overlap with wetland nature reserves managed by the SFA. The fisheries resources protected areas, however, do not have any management authorities. The *Ministry of Water Resources (MWR)* primary responsibilities are the management of water resources through the issuance of water use permits (ecological water use control), and the establishment of PAs, including Nature Reserves, and water landscape and scenic areas. Other national agencies with important decision-making functions that impact wetlands include: *the State Oceanic Administration (SOA), the National Development and Reform Commission (NDRC), the Ministry of Finance (MoF), and the Ministry of Land and Resources (MLR).*

15. With regard to the specific management responsibilities for Wetland Nature Reserves (NRs), the MEP is the highest authority for the overall NR system in China, and it has the authority to coordinate SFA and other ministries that manage NRs and final authority to decide which NR are upgraded to the national level. The SFA is the single most important agency for site-level management[1], although a number of other institutions also manage / oversee specific wetland NRs, including the MEP, MWR, MOA, SOA, and MLR. Individual wetland protected areas may be designated at the national, provincial, county or municipal level, and any given NR is the responsibility of the local administrative units of these national agencies. These administrative units (e.g. Forestry Departments in the case of SFA) are located within the provincial (or autonomous region) and local governments (prefecture, county, etc.). Thus, while national institutions establish technical standards, provide technical support, manage the central wetland database, and ensure effective management of the overall national wetland PA system, it is the provincial and local authorities that are responsible for the management of provincial / local PA systems and the management of specific PA sites. Although there is no difference in overall management objectives between national and provincial NRs, national level NRs generally receive much higher government investment and are better resourced and recognized. As for local / county level PA unites, field staff and other Forestry staff are mostly hired through county administrations, with higher-level technical support coming from provincial bureaus. Provincial forestry departments and lower level wildlife management offices and protection stations undertake most wetland management functions for NRs in China. On the other hand, the management and administration of water resources, including hydrological engineering, flood control, and water and soil conservation, falls under the jurisdiction of Departments of Water Resources at multiple levels, and to a lesser degree also under agricultural bureaus including livestock, pasture and grassland bureaus and offices.

16. The multiplicity of institutions and agencies across different thematic areas and governmental levels with responsibility for wetlands, wetland protected areas, and related landscapes and ecosystems is the source of some confusion and complication, particularly as different sectors may have competing and overlapping areas of interest for conservation as well as development purposes. As a result, effective management and planning requires substantial horizontal and vertical coordination in order to coordinate activities across different protected areas and to work at a landscape or watershed level.

[1] SFA manages 54 out of 99 national NRs (88% of the total area) as well as 140 out of 226 provincial NRs (51.5% of the total area).

Jiangxi Province Institutions

17. Within Jiangxi Province, a coordination system for wetlands protection exists in the form of the Mountain-River-Lake Development Committee (MRLDC), which was established under the leadership of the Provincial Governor and includes the heads of various provincial government departments and agencies. The MRLDC has been successful in creating a comprehensive plan for ecosystem restoration, which was implemented by different government agencies; however the committee has lost much of its previous momentum and is currently not very active. A more active and effective coordination mechanism, though limited to the Poyang Lake region, is the *Poyang Lake Wintering Migratory Birds and Wetland Joint Protection Committee*, which includes representatives of: Provincial Forestry Department (Laws and Regulations Division, Wildlife Protection Administration, Wetland Protection and Management Office, Public Security Bureau); Provincial People's Congress; Office of the Politics and Law Committee; Poyang Lake National Nature Reserve; Municipal Forestry Bureaus (Nanchang, Jiujiang and Shangrao); and County Governments (Nanchang, Xinjian, Jinxian, Yongxiu, De'an, Gongqing, Xingzi, Jiujiang, Hukou, Duchang, Poyang and Yugan). Throughout the year, the Committee oversees comprehensive and systematic evaluations of wintering migratory birds and the wetland protection work of the governments and residents in the cities, towns and villages around the lake. The Committee organizes a conference each year, led by the Vice Governor of Jiangxi Province, to review protection activities from the previous year, to award agencies and individuals that have made notable achievements, and to plan for the work of the coming year. The annual conference and the evaluation and awards mechanism are effective tools for inspiring the conservation activities of governments and local villagers.

18. Day-to-day activities for wetland and wetland nature reserve management and conservation in Jiangxi Province are the responsibility of several institutions, most importantly the *Jiangxi Forestry Department (JFD)* and individual wetland nature reserves. The JFD has overall responsibility for wetlands and nature reserves in Jiangxi Province. Within the JFD, the *Jiangxi Wildlife Protection Administration (JWPA)* oversees all nature reserves in the province (national, provincial and county), as well as the wildlife within the reserves. The JWPA has four sections (Wildlife Protection Management, Nature Reserve Management, Wetland Protection and Management, and Central Office), employing a total of 22 staff. The JWPA does not directly manage nature reserve staff, but it does oversee the development of NR management plans; assessments of provincial NRs and the process to upgrade them to national nature reserves; and technical guidance for all the nature reserves. In addition, the JWPA creates the overall provincial nature reserve plan, which covers all national, provincial, and county nature reserves (the plan does not include wetlands outside of reserves). The JWPA's mandate includes nature reserve management; wildlife protection (both within and outside of nature reserves); law enforcement; wildlife industry development; surveys of wild animals, wild plants and wetlands; and public education and international exchange and cooperation. Another key office within the JFD is the *Jiangxi Forestry Department Wetland Protection and Management Office (JFDWPMO)*, which is responsible for all wetlands and wetland resources in Jiangxi (within and outside of protected areas) and employs 7 full-time staff. The JDFWPMO creates the overall provincial wetland protection plan, and carries out wetland protection and management activities, guidance and training for wetland nature reserves, public education, and law enforcement.

19. Other important provincial institutions include the *Jiangxi Environmental Protection Department*, which is responsible for overall environmental protection, including strengthening of nature reserves and pollution abatement; the *Provincial Development and Reform Commission*, which controls all provincial-level planning, including the province's Five Year Plans; and the *Jiangxi Province Department of Finance, Department of Agriculture, Department of Water Resources, and Department of Land and Resources.*

20. The management of nature reserves at the municipal or county level is similar to that of the provincial reserves. The roles of the local *Wildlife Protection Bureau (WPB)* and the local *Wetland Protection and Management Office (WPMO)* are the same as their provincial counterparts, with the former responsible for construction, management and planning of nature reserves, and the latter for wetland resources protection and management work. In cities or counties where there is no local WPMO, the local WPB is also in charge of wetland protection and management. For wetland nature reserves with their own staff, the nature reserves themselves are responsible for site-level management; for all other reserves, the local WPMO is responsible. At present, there are 9 city-level management institutions and 91 county-level

management institutions in Jiangxi Province. There are also 1,000 forestry stations in villages and small towns of Jiangxi, whose function is equal to management institutions at the village level. Each municipality and most counties also have a Municipal Development and Reform Commission and individual bureaus responsible for forestry, agriculture, environmental protection, water, and land.

21. Finally, individual wetland nature reserves are critically important institutional players for management and conservation of wetlands in Jiangxi Province. Wetland nature reserves (national, provincial and local) are managed for the conservation of nationally and internationally significant biodiversity and the maintenance of wetland ecosystem services and ecosystem restoration. National wetland nature reserves, of which there are two in Jiangxi (the Poyang Lake and Nanji reserves), are notable for the globally significant biodiversity they harbour and generally are larger and have the most resources, capacities and funding for wetlands conservation; the Poyang Lake reserve is under the authority of the Jiangxi Forestry Department and primarily funded by the provincial government, while the Nanji reserve is under the authority of the municipal Nanchang Forestry Bureau and funded by the municipal government. Provincial wetland nature reserves, of which there is only one in Jiangxi (Duchang reserve), are a step below the national reserves; the Duchang reserve is under the authority of the Duchang County Forestry Bureau and is funded by the county government. County wetland nature reserves, of which there are 20 in Jiangxi province, are overseen many county level forestry bureaus and financed (in theory) by county / local governments; in reality these are mostly "paper" parks with no dedicated staff of their own. Additional details on the wetland nature reserves in Jiangxi Province are provided in Annex 7.

Policy framework

22. Relevant national-level policies for wetlands conservation and management are described in Section 2.4. At the level of the Jiangxi province, the most important policy document is the Poyang Lake Ecological Economic Zone (PLEEZ) plan, approved by the State Council in 2009. The PLEEZ plan includes a wetland conservation strategy for the entire Poyang Lake region, which is defined as including three cities (Nanchang, Jingdezhen and Yingtan) and 38 counties (small cities or districts) within the municipal boundaries of Jiujiang, Xinyu, Fuzhou, Yichun, Shangrao and Ji'an, with a total area of 51,200 km^2; the area has a total population of 20,066,000. The PLEEZ plan divides the region into three zones: 1) a Core Protected Area, where no infrastructure development / industry is allowed; 2) a Controlled Development Area, with some restrictions such as a prohibition on polluting enterprises and a ban on pig raising within 3 km. of the core area boundary; and 3) an Efficient and Intensive Development Area, where the only restrictions apply to some heavy polluting industries (see Annex 7 for further details on these Areas). The Core Protected Area, which covers 5,181 km^2, is composed of grasslands and lake areas in the winter, and is entirely covered by the lake waters in the summer. The primary management objectives for this area are: (1) to maintain the water quality of the lake and wetland functions, and improve the habitats of the migratory birds; (2) to control economic activities such as sand mining, fishing and fish farming, including strict implementation of controls on sand mining, elimination of fish farming in specified forbidden zones of the lake, and prohibitions on land reclamation; (3) to implement grazing prohibitions and improve controls on the transmission of schistosomiasis; and (4) to strengthen the prevention of pollution from tourism and shipping, including sewage and pollutant treatment facilities for tourism facilities, anti-pollution devices on ships, and pollutant collection and treatment facilities at harbors and docks.

23. The implementation plan for the overall PLEEZ Plan puts forward six strategic tasks: 1) ecological construction and environmental protection; 2) development of environment-friendly industries; 3) major infrastructure construction; 4) building an ecologically civilized society; 5) promoting coordinated regional development; and 6) deepening the Reform and Opening Up Policy, so as to promote price reforms of water, electricity, mineral resources and other resource-based products, to develop an environmental tax for sewage, and to establish a water rights trading mechanism. The key elements of Task 1 are to protect Poyang Lake and the areas around the lake; to construct an ecological corridor (not yet defined) so that an integrated watershed management system can be established and environmental capacities and ecological functions can be improved; to construct demonstration wetland reserves and other wetland reserves; to restore wetland vegetation; and to control pollution (primarily non-point source agricultural pollution) coming from the five rivers that feed into Poyang Lake. The PLEEZ Plan demonstrates clear policy support at the provincial level for wetlands conservation; however it is important to note that there is no operating and financed mechanism for implementing the plan, so that it is essentially a policy document.

24. Other relevant provincial level policies and plans include the *12th 5-year Provincial Development Plan*, which promotes the ecological protection of Poyang Lake and specifies the need to establish an ecological compensation mechanism to fund conservation measures, including PA management. The *Jiangxi Environmental Protection Plan* has the goal of improving water quality, implementing a comprehensive water management plan, improving nature reserve management capacities, and promoting environmental monitoring for biodiversity protection and resource development and utilization. The *Jiangxi Forestry Plan* oversees the management of 220 forestry nature reserves, including 14 national level reserves, and includes actions to strengthen wildlife protection and nature reserve construction; control wild animal epidemic sources and monitor diseases; improve wildlife institutions at the city and county level and establish protection stations/bureaus in 11 municipalities; and establish a forest biodiversity monitoring information platform. Finally, various county and municipal level *comprehensive environmental improvement plans and water pollution prevention plans* are important at the local level for wetlands conservation and management.

Legal / Regulatory framework

25. At the national level, wetlands are managed through a variety of instruments. The Nature Reserve Law of the People's Republic of China (1994) guides the development and management of nature reserves, and the protection of the natural environment and natural resources. The Law on the Protection of the wildlife of the People's Republic of China (1989) covers the protection of endangered wildlife and the development and rational utilization of wildlife resources. Wildlife are protected under this law if they are deemed to be important and endangered terrestrial and aquatic species and/or beneficial in terms of economic or scientific value. The Water Pollution Prevention Law (2008) mandates the prevention and control of water pollution (it does not encompass ocean pollution). The Environmental Impact Assessment Law (2003) governs analysis, prediction and assessment of the potential environmental impacts from development / construction activities; related policies and measures to prevent or mitigate adverse environmental impacts; and the use of tracking and monitoring systems. The Fisheries Law (1986) is a basic law for managing social practices in the exploration, use, and protection of water resources and fisheries in China. Finally, the Water Law (1988; revised in 2002) governs the use, protection and management of water resources; prevention of water damage; the ownership of water resources; the collection of water and water resources fees; and flood control and response.

26. Wetland conservation and management in Jiangxi Province has a long tradition, with extensive legal support for protection of Poyang Lake dating back to the 1990s. In 1997, the Jiangxi Provincial Government promulgated an *Order on Migratory Water Bird Protection in Poyang Lake*, which was replaced in 2003 by the *Regulation on Poyang Lake Wetland Protection*, and then replaced again in 2012 by the *Regulation on Jiangxi Wetland Protection* (note: because this regulation was passed in 2012, this activity which was listed in the PIF document is no longer relevant).

2. RATIONALE

2.1 Problems and issues to be addressed

Geographic Context – Wetlands in Jiangxi Province

27. Of the 3.67 million hectares of wetlands in Jiangxi province (Table 1), approximately 1.16 million hectares are natural wetlands, and the remaining 2.5 million hectares are artificial wetlands. According to the Ramsar wetland classification system, there are 11 types of wetlands in Jiangxi province, of which rivers, freshwater lakes, seasonal freshwater lakes, floodplain, swamps, and hot springs are natural wetlands, and rice paddies, reservoirs, ponds, canals, and shelterbelt forests are artificial wetlands. Among natural wetlands, river wetlands (including reservoirs; there is some overlap in the classifications) and permanent freshwater lakes are the most extensive. Rice paddies are the dominant form of artificial wetlands; these are not only important for safeguarding food security, but also have important ecological functions as wintering grounds for migratory birds and for their flood retention functions. However, they are not classified as wetlands for conservation purposes.

Table 1: Summary of Jiangxi Wetlands

Wetland Category	Wetland Types	Number	Area (ha)	Number and Area of Nature Reserves	% of area protected
Nature Wetlands	Rivers & tributaries	2400	718,600*	15 (48,581 ha.)	6.8%*
	Floodplains	84	110,100		
	Permanent Freshwater Lakes	280	436,500	22 (276,277 ha.)	63.3%
	Seasonal Freshwater Lakes	30	10,300		
	Swamps		150,900		
	Hot springs	116	-		
	Sub-total		**1,166,100****	**37 (324858.7)**	**27.86%**
Artificial Wetlands	Reservoirs	9,280	367,800	2 (25,631)	6.97%
	Ponds	266,500	82,900		
	Canals	Many	30,600		
	Rice Paddies		1,994,700		
	Shelterbelt forests		28,200		
	Sub-total		**2,504,200**		
Total			**3,670,300**	**39 (350,489.7)**	

* Some river wetlands have been dammed and become artificial wetlands, but they are still counted here

** Total area of natural wetlands. This total is as listed in the official data; the figure is lower than the sum of the figures listed above because of reductions in wetland due to dam construction.

28. Located in the north of Jiangxi Province, Poyang Lake is China's largest freshwater body and has a total catchment area of 162,225 sq. km. Poyang Lake is naturally connected to the Yangtze River (along with Dongting Lake, it is the only large lake whose connection to the Yangtze river has not been cut off), and the mean annual runoff from Poyang into the Yangtze River is 143.6 million cubic meters (approximately 15% of the flow of the Yangtze). The Poyang Lake region is characterized by dramatic seasonal hydrological fluctuations: in addition to the five main tributaries that drain into the lake, Poyang also has a seasonal, reverse-flow system from the Yangtze River, which greatly contributes to the complexity of its yearly hydrological variation. In the summer, the lake has a surface area of more than 5,000 sq. km. Falling water levels during autumn months expose extensive mudflats and leave behind isolated sub-lakes, and the overall surface area of the lake decreases to around 3,100 sq. km. (there is significant annual variations in low and high water levels). These dramatic hydrological variations at Poyang Lake drive the ecological processes within the system and are directly responsible for producing a wide range of habitats that support rich biodiversity. Specifically, the seasonal changes in water levels create two, separate ecological phases of the wetlands at Poyang: one dominated by sub-tropical vegetation that is most productive during the summer, and another dominated by temperate vegetation whose primary growth period is during the winter. In the wet, summer months, much of the Poyang Lake region is covered by the lake itself, while in the dry, winter months, the lake recedes and extensive grasslands emerge, which provide ideal habitat for wintering birds. This variety of habitats and the overall environmental heterogeneity of the wetlands provide all the elements required to sustain the complex life processes of many species and thereby support rich plant and animal

diversity. This is especially evident in the role of the Poyang Lake region as the most important wintering ground for hundreds of thousands of migratory water birds, including Siberian Cranes, Oriental Storks, White-naped and Hooded Cranes and Swan Geese, which depend on the wetlands of Poyang Lake in winter.

29. The natural fluctuations in the area of lake and wetlands present several challenges to conserving the ecosystems of the Poyang Lake region. For example, the boundaries of the PLNNR and other wetland reserves incorporate the most important habitat for cranes, geese and other wintering water birds, but at any given moment, large numbers of these birds may be outside the boundaries of the reserves. While the natural changes in water levels and the vast extent of shallow wetlands in winter have provided abundant habitat for wintering water birds, the water levels change continuously based on inflows, outflows and even winds that can literally push the shallows across the lake basins. Thus, prime feeding habitats shift week by week and the birds constantly seek new feeding sites. In addition, variation in habitat between years can be as great as within years, depending of cycles of droughts, flooding, etc. Thus, for the water birds to be effectively conserved, conservation of wetlands and protection measures for birds must extend beyond the boundaries of the existing wetland reserves, either by expanding the area of the reserves or by implementing more effective management in areas outside of the reserves. The continuous changes in the landscape of the Poyang Lake region also create practical management challenges: a visitor who arrived at Poyang Lake in winter would find extensive meadows of grass and sedge surrounding shallow lakes and wide mudflats, with boat traffic limited to the rivers and the shrunken main body of the lake, and the vast shallow areas inaccessible for boats and yet too submerged for walking. Then, during the summer flood season, open water stretches across almost the entire region, with isolated areas of high ground (including many communities) that can only be reached by boat.

Wetland Protected Areas in Jiangxi Province

30. The project will focus much of its effort on strengthening the system of wetland reserves in Jiangxi Province. As noted above, there are 23 wetland reserves in Jiangxi province, of which 12 are located within the Poyang Lake region. Three of these sites, the Poyang Lake National Nature Reserve, Nanji Wetland National Nature Reserve, and the Duchang Provincial Migratory Birds Nature Reserve, are the only operational wetland reserves in the Poyang Lake region, and these will be the site of extensive project interventions to conserve globally significant biodiversity and to establish best practices and capacities that can be replicated and up-scaled throughout the province. In addition, 3 county reserves in the Poyang Lake region, and 3 other county reserves elsewhere in the Province, have been selected a priority sites for replication, and another 6 county reserves within the Poyang Lake region will benefit from various project activities (as detailed in Section 3.1).

31. The national wetland nature reserves have their own offices and staff, while provincial or county level reserves, with the exception of the Duchang Migratory Birds Reserve, have no offices or staff. At present, none of the wetland reserves in Jiangxi province have management plans; even the national and provincial level reserves only have general "plans" or strategies that were developed as a requirement of their being established. The national and provincial and reserves have completed internal zoning plans, which include the following: 1) Core areas (some lakes and surrounding grasslands), which have controls on persons entering these areas; restrictions on fishing and hunting; limits on research; and no development; 2) Buffer Zones (around the core areas), which allow for more research than in core areas, but still no development; and 3) Experiment zones (the remaining area of reserve), which allow some fishing and development (incl. tourism), but no pollution causing activities. As for financing of wetland reserves in Jiangxi, this is an on-going challenge as it is in most of China. Funding from the national government has been minimal, so that most reserves depend on funding from the Provincial and County Government, which have inadequate resources for this. National Reserves get some funding from the SFA, but only for specific projects (including infrastructure) and not for general operating expenses. Provincial Reserves, in turn, receive some funds from the provincial government, but most funding comes from county governments and is very minimal. For example, the Duchang Provincial Reserve, which is larger than the national level PLNNR, has a budget that is only 10% of the PLNNR's budget. County reserves are for the most part essentially unfunded and non-operational. The Jiangxi Wildlife Protection Administration provides professional guidance to all the reserves in Jiangxi. Additional details on the management of wetland reserves in Jiangxi Province, and on the specific wetland reserves targeted by the project, are provided in Annex 7.

Globally Significant Biodiversity

32. Jiangxi Province is part of the Yangtze Rivers and Lakes Freshwater Ecoregion as classified by WWF, and includes 15 Important Bird areas as identified by Birdlife International. The province is characterized as humid sub-tropical, with rich evergreen broadleaf forests that harbour many species endemic to south-eastern China. There are 5,115 plant species recorded in Jiangxi Province, representing 17% of all the plants species in China, including 563 species of mosses, 403 species in 49 families of ferns, 29 species in 8 families of gymnosperms, and 4,088 species in 210 families of angiosperms. Among these, 68 species are listed in the China Plants Red Data Book, and 55 are listed in the National Important Protected Species of Plants. The province is also home to 845 species of vertebrates, representing 13.5% of the animal species in China, including 105 species of mammals, 420 species of birds, 77 species of reptiles, 40 species of amphibians, and 203 species of fish. Among the animal species, 19 were listed as Class I and 68 as Class II in the list of National Wildlife Protected Species, and 98 species are listed in CITES. There are approximately 200 endangered animal species in Jiangxi province, including the Leopard (*Panthera pardus*), mainland serow (*Capricornis milneedwardsii*), Cabot's Tragopan (*Tragopan caboti*), Siberian Crane (*Grus leucogeranus*), Oriental Stork (*Ciconia boyciana*), Chinese Merganser (*Mergus squamatus*), and others. There are more than 7,100 species of insects in Jiangxi Province, with one listed as Class I and 5 listed as Class II in the list of National Wildlife Protected Species. Wetland ecosystems in Jiangxi support an estimated 476 species of plants, 45 species of mammals, 61 of amphibians and reptiles, 122 species of fish, and 15 species of mollusks. Two critically endangered fish species are protected under China's Class 1 designation: the Chinese sturgeon (*Acipenser sinensis*[2]) and the Chinese paddlefish (*Psephurus gladius*[3]), and an additional four species of mammals are listed as Class 2 species: Lesser Civet Cat (*Viverricula indica*), Pangolin (*Manis pantadactyla*), Chinese River deer (*Hydropotes inermis inermis)*, and Finless Porpoise (*Neophocaena phocaenoides;* listed a critically endangered by IUCN). Among the 310 bird species that rely upon Jiangxi's wetlands, 52 are considered either First or Second Class protected species in China and are priority conservation targets at the international level.

33. The Poyang Lake region is noted for its wintering water birds, aquatic mammals, and endemic fishes. The Poyang Lake region provides habitat for at least 1,692 species of animals and plants, including 327 species of hydrophytes, helophytes and hygrophytes, 319 species of phytoplankton, 205 species of zooplankton, 282 species of zoobenthos, 21 species of invertebrates, 136 species of fish, 40 species of amphibians and reptiles, 310 species of birds, and 52 species of mammals. Poyang is internationally famous for its birdlife and the food resources provided by the emergent and submergent aquatic plant diversity within the system is a major reason that hundreds of thousands of migratory birds travel to Poyang every winter. Over five years (1997-2001), Poyang Lake had the largest count of wintering water birds in all of East Asia, according to the Asian Waterbird Census. 99% of the world's critically endangered Siberian Crane (*Grus leucogeranus*), over 95% of world's endangered Oriental Stork (*Ciconia boyciana*) and over half of the world's threatened Swan Geese (*Anser cygnoides*) and White-naped Cranes (*Grus vipio*) winter at the Lake, which also support important populations of Tundra Swans (*Cygnus columbianus*) and other wintering birds. Poyang is irreplaceable for threatened and declining water bird species; for the Siberian Crane, the almost entire loss of the central and western flocks means that the future of the species depends on safeguarding the eastern flock. Many of the migratory bird species are protected in international agreements between the Government of China and the Governments of Japan and Australia. In recognition of the international significance of this region, the Poyang Lake Wetlands Ecosystem was declared a Global Ecological Region by World Wildlife Fund for Nature (WWF in 2000) and through the Poyang Lake NNR, became a member of the East Asian-Australasian Shorebirds Site Network (2006) and the NE Asian Crane Network (1997). Poyang Lake wetlands represent the largest and most important habitat for critically endangered fish species (Chinese Sturgeon and Chinese Paddlefish) as well as critically endangered aquatic mammals (Finless Porpoise and the Chinese Water Deer).

34. Populations of wintering migratory birds in Jiangxi province have either increased or stayed the same in the past decade (see Annex 6, Table 1); counts conducted in the Poyang Lake region in 2005, 2006, and 2008 have exceeded 400,000 water birds, presumably due to the intensive efforts at conservation and protection of these species in the Poyang Lake region. However, some other globally significant species

[2] IUCN Red List Category "Critically Endangered" or CR.
[3] Ibid.

have shown a significant downward trend. Classified as Critically Endangered, the population of the finless porpoise (*Neophocaena phocaenoides)* has declined to a mere 1,000 individuals; approximately 500 individuals in the mainstream of the Yangtze River; 450 in Poyang Lake; and 90 in Dongting Lake (2012 Yangtze Freshwater Dolphin Survey Report). The population in the mainstream of the Yangtze River was less than half of the number found in a similar survey in 2006, with food shortages and human disturbance such as increased shipping traffic major threats to their survival. The study also found that the rare species annual rate of decline now stands at 13.7 percent, which means that the Yangtze finless porpoise could be extinct as early as the year 2025. Lack of fishery resources and human disturbances including shipping traffic are among the key threats to the Yangtze finless porpoise survival. The report calls for all-year-round fishing ban for all river dolphin reserves, establishment of a national reserve in Poyang Lake, and ex-situ conservation reserves along the Yangtze. The Chinese River deer (*Hydropotes inermis inermis*), which has disappeared completely in 8 provinces in China and declined in several others, is now limited to a few remaining sites, one of which is the Poyang Lake Nature Reserve, where around 1,000-1,500 animals are present. Poaching and habitat destruction are major threats to this species, which is valued for its meat, and for use in traditional medicine.

Socio-Economic Context

35. The Poyang Lake region incorporates 11 counties grouped into 3 municipalities, with an estimated population of 13.7 million inhabitants (most of whom are in urban centres on the edges of the Poyang Lake region). For the most part, rural communities located in close proximity to Poyang Lake have per capita income levels that are well below the average for Jiangxi Province. It is widely believed by local residents that the existence of many wetland reserves, and the restrictions on socio-economic activities associated with these reserves, is a factor in the low income levels in the region, although a significant divide incomes in rural areas (as in the Poyang Lake region) and urban areas (Nanchang and many other areas of the province) is common throughout China. The income of residents in the lake region is tightly related to the wetlands; on average, 36% of the incomes of peasant households come from the economic activities related to Poyang Lake, and for the town of Wucheng, the figure is close to 90%. Because of restrictions to protect Poyang Lake wetlands, the number of industrial enterprises in the lake region is small, and most residents make a living from agriculture, fishing, and other uses of natural resources. The amount of available farmland is an important factor that directly influences the income of peasant households; in the Poyang Lake region, the amount of farmland per capita is only 0.045 hectares, which is just 42.4% of the national average, and lower than the minimum target of 0.053 hectares established by the Food and Agriculture Organization.

36. A survey during the project preparation phase of peasant households within 5 miles of Poyang Lake showed that 55.5% are engaged in economic activities closely related to wetlands, such as fishing (31.6%), aquaculture (21.8%), and herding (2.1%; this is quite limited due to grazing prohibitions to prevent bilharzia), while another 16.1% are engaged in agriculture (mainly traditional crops such as rice, peanuts, rape and cotton), and 28.5% in other employment. Persons engaged in aquaculture have the highest income levels in the region. More and more households have transitioned away from agricultural production because of the lack of available farmland and the low-income levels generated; few farmers have supplemented their income with other crops or aquaculture as the frequently hold on to traditional practices / crops, they do not understand well market opportunities, and they do not know how to make a full use of water resources to develop aquaculture or plant aquatic crops. Income levels for fishermen are higher than for farmers but declining, primarily due to reduced catches (probably due to over-fishing), but and possibly also from seasonal restrictions on fishing (although 67% of local inhabitants support fishing prohibitions and believe that they allow fish stocks to recover).

37. In summary, the livelihoods of many local residents depend heavily on use of wetlands and wetland resources. However, natural constraints (area of land available for cultivation; carrying capacities of fish stocks; threats from bilharzia) limit the intensity with which terrestrial and aquatic resources can be sustainably exploited in the Poyang Lake region and other wetland areas in Jiangxi Province. Already, local farmers are among the poorest residents in the Province, and fishermen are finding it increasingly difficult to make a living. Other modes of economic production (e.g. ecological tourism, aquaculture, etc.) hold some promise for local communities, if they can be developed in a sustainable and equitable manner. Additional details on socio-economic conditions and factors are provided in Annex 8.

Threats Analysis

38. As the baseline project description shows, there is considerable government and public support for environmental protection and the conservation of wetland biodiversity. The Government of China and the Jiangxi Provincial Government are highly supportive of wetland conservation and invest substantially in protected area management. However, there is growing evidence that conservation objectives are not being fully achieved through the existing protected area/nature reserve approach, and that Jiangxi's wetlands remain highly vulnerable to both external (e.g., pollution, water diversion, etc.) and internal (e.g., over-harvest of natural resources, habitat conversion, etc.) threats. The most significant cumulative impacts of the threats include: (a) increased fragmentation of wetland habitats and the loss of associated species; (b) reduced ecological functioning of wetland ecosystems, *e.g.:* reduced effectiveness of wetland areas to act as a buffer against climate change impacts, and; (c) reduced capacity of wetlands to provide key ecosystem services, notably flood control and food security (productive soils for seasonal agriculture and healthy sustainable fish stocks). In addition there are actual and potential human health hazards that need to be addressed to maintain public support for conservation objectives (e.g., the real threat of schistosomiasis and the potential threat of diseases associated with migratory waterfowl such as Avian Influenza H5N1).

Threat #1: Degradation and Loss of Wetlands Habitat

39. A variety of anthropogenic activities threaten the biological integrity and ecosystem functionality of Jiangxi's wetlands. The overall size of Poyang Lake, for example, declined after the 1950s due to land reclamation, although this was substantially reduced in the 1970s and has been banned since the 1980s. Nevertheless, urban expansion, tourism development and agricultural expansion continue to threaten to reduce and fragment the remaining areas of wetlands in Jiangxi province, particularly in those areas of Poyang Lake that are located closer to the provincial capital of Nanchang. Although tourism represents a conservation opportunity by increasing incomes for protected areas and providing alternative livelihoods for local residents (some of whom engage in unsustainable resource use), tourism also poses potential threats in terms of visitor impacts (particularly the disturbance of migratory birds) as well as possible large-scale tourism developments / infrastructure that could encroach on sensitive habitats, increase visitation beyond sustainable levels, and pollute sensitive wetland ecosystems.

40. Human management and alteration of the natural hydrological systems of the Poyang Lake region poses a potential significant threat to many of the most important wetland areas in Jiangxi province. There are risks from the construction of upstream dams (primarily for hydropower) in the Poyang Lake watershed (approx. 95% of Jiangxi Province), which could also create changes to wetland ecological dynamics in the Poyang Lake region (though likely at a smaller scale than the potential sluice gate). Increased off-take for agricultural and human use also has the potential to impact wetlands functioning throughout the province. However, the most important potential management impact is the proposed Poyang Lake Water Control Program, which includes the possible construction of a sluice gate between Poyang Lake and the Yangtze river. If approved and built, the sluice gate will be kept closed during the dry season (winter months), primarily to retain a high enough level of water in the lake to provide for industrial, agricultural and other human uses. However, the sluice gate also has the potential to substantially change wetland ecological dynamics, particularly in the timing and degree of the lake's water level, which in turn could impact inter-tidal areas, vegetation zones and the availability of food resources for migratory birds; and could produce eutrophication in parts of Poyang Lake. At present, the national government is carrying out public consultations on the proposed Poyang Lake Water Control program in 5 provinces.

41. Studies have shown that summer water levels must be suited to growth of the plants that many migratory birds feed on, and that during winter, the birds require shallow water or wet mud so that they can access the tubers. If the water is too deep, or alternatively if areas become dry mud, cranes and other bird lose their food sources. Siberian Cranes, for example, primarily feed at water depths < 30 cm; if the construction of a sluice gate were to result in keeping the water levels higher in the winter at levels currently being considered, almost all current habitat would be deeply submerged and tubers unavailable to the cranes, and the few remaining areas of forage would be in areas where human disturbance is high. Similarly, the Oriental Stork specializes in feeding on fish that are injured or trapped where water levels are dropping and shallow. Significant changes in winter water levels could remove this favored habitat as well. Given that the

availability and condition of alternate habitats within the lower Yangtze River floodplain is declining, the loss of Poyang Lake as foraging habitat due to high winter water levels could have catastrophic impact on a suite of threatened and declining species.

42. If constructed, the sluice gate also would constitute a seasonal impediment to the migration of the Yangtze Finless Porpoise (*Neophocaena phocaenoides asiaeorientalis)* between Poyang Lake and the Yangtze River. The Yangtze Finless Porpoise has rapidly declined in recent years, from an estimated 2700 in 1991 to 1800 in 2006; the estimated 450 in Poyang Lake thus represent one fourth of the entire population that faces growing threats from fish nets, boat collisions, pollution and water management projects. The Finless Porpoise is an aquatic mammal and depends on sonar reflection to navigate and feed, and thus it is very sensitive to barriers in its path. The proposed dam may prevent the Finless Porpoise from moving between the Yangtze River and Poyang Lake, and thus fragment their distribution.

43. Industrial pollution and agricultural nonpoint source pollution (pesticides, fertilizers, livestock wastes) are common problems facing most wetland areas in China, including Jiangxi province. Agricultural pollution is a significant and growing threat to wetlands in the province; *The Report on the Sustainable Development in Jiangxi Province 2012* identifies the production and emission of agricultural nonpoint source pollutants and large-scale herding operations as sharply increasing and as significant factors influencing water quality in Jiangxi Province (in the past two years, the percentage of heavy contaminated water bodies during the dry season at Poyang Lake has been markedly increased). Surveys of peasant households engaged in agricultural production show that the use of chemical fertilizers and pesticides has increased markedly and that spending on fertilizers and pesticides has doubled in recent years. Industrial and urban pollution is also impacting wetlands, most notably in the Nanji Nature Reserve, which is located at the mouth of the Gan River directly downstream from the city of Nanchang, as well as mining operations further upstream.

44. Invasive species pose another threat to native biodiversity and ecosystem functions in Jiangxi's wetlands. A survey in the PLNNR found 19 species, 16 genuses, and 12 families on invasive plant species, among them *Solvia anthemifolia, Daucus carota, Geranium carolinianum* and *Alternanthera philoxeroides*, each of which cause serious harm to wetlands by reducing water flows and quality, preventing light penetration and oxygenation of the water, crowding out native plant species, and creating favorable habitat for breeding mosquitoes. Various species of reeds and poplars have been planted extensively in wetland areas of Jiangxi province, with negative impacts on wetland functioning. The roots of poplars raise the ground level and thereby eliminate grasses that need deeper water, which some species (especially some migratory birds) depend on for forage. Reeds frequently crowd out native vegetation. Invasive animal species also pose threats to wetlands: the red swamp crayfish (*Procambarus clarkii*), which is native to North America but is now found in lakes, rivers and even paddy fields in most provinces of China, threatens native crayfish and macrophytes through predation, grazing activity and the spread of diseases, and is an important pest of wet-seeded rice fields. In addition, the crayfish accumulates heavy metals and other pollutants in its organs and body tissues and transmits them to higher trophic levels.

45. Sand excavation has increased significantly in Poyang Lake since 2001 (when it was banned in the Yangtze river), with significant impacts on flood mitigation capacity, water levels, navigation, pollution, erosion and sedimentation / water quality. Dredging increased due to the rapidly rising demand for sand in order to support construction in the lower Yangtze River economic zone. It is estimated that the natural level of sediment deposit in Poyang Lake is 9 million tons per year, and yet the approved level of sand mining is 64 million tons per year, as county governments control the permitting process and derive income from the licensing these operations. Dredging is mainly concentrated in the region between Hukou and Sand Hill in northern Poyang Lake. Studies have indicated that noise, oil pollution, turbidity and decreased habitat caused by dredging could seriously affect the propagation, growth and subsistence of fish in Poyang Lake, and may decrease the available light for photosynthesis of *Vallisneria*, and consequently cause a decrease or disappearance of the food source of Siberian Cranes. Dredging also modifies the topography and removes the sediments of the lake, and may reduce the winter water levels and result in increased hydrological gradient and stream velocities upstream, which in turn might enhance erosion upstream.

Threat # 2: Overexploitation of Wetlands Species

46. The inhabitants of Jiangxi Province have always harvested a variety of plants and animals from wetland ecosystems. Even today, local markets and restaurants are filled with products harvested from wetland areas, including protected areas. The harvest of wetland resources is both for subsistence and market purposes, and in many cases is highly commercialized. Of the rural households surveyed during the project preparation phase, 55.5% are engaged in agricultural activities closely related to wetlands, such as fishing, aquaculture, and herding. A great number of wild plants have substantial economic value, and are often harvested with little regard for negative impacts on wetland ecosystem health. For example, commercial harvesting of grasses and other plants reduces food sources for migratory birds. Although the protection of migratory birds is the most important objective of wetland reserves in the Poyang Lake region, the poaching of these birds continues to be a major problem both within and outside of the reserves. One of common practice is the use of illegal "skynets" of 4 to meters height and usually 80 to 100 meters long (although some have been found that stretch over 5 kilometers in length!), which catch a wide variety of birds. In 2009, 185 of these nets were found in Jiangxi Province, which held among others individuals of 2 first-class and 56 second-class protected bird species; the discovery of these nets led to 23 administrative investigations and the punishment of more than 50 persons. Another practice is the setting out of poison for birds; although this practice primarily targets ducks and geese, it frequently results in the deaths of other bird species as well, including cranes and storks. The fact that these birds are sold for human consumption even after being poisoned further strengthens the need to eliminate this practice.

47. Fishing levels in Poyang Lake began to be unsustainable in the 1980s. At that time, fishermen began to employ new, destructive and unsustainable methods of fishing, including dynamite fishing, fishing with poisons, and extensive use of traps constructed of bamboo poles and nets, which greatly increased catches. Because of this overfishing, fish stocks are becoming younger and smaller and today it is difficult to find individuals over 3 years old. Another practice that has contributed to fisheries decline is known locally as "dig the autumn lake"; in this practice, fishermen dig drainage causeways around ponds and small lakes during the dry season in order to rapidly drain these water bodies. By placing nets across the openings, and harvesting any fish remaining in the area after it has been drained, they are able to harvest every individual, thereby preventing any reproduction of the fish stocks. In the early 1990s, the national fishery department carried out a general survey of fish in Poyang Lake that found 158 kinds of fish. The flagship Chinese River Dolphin or Baiji *(Lipotes vexillifer)* has disappeared completely from Poyang Lake, and is now considered to be functionally extinct. Other species, such as Reeve's shad (*Tenualosa reevesii*) and the Yangtze finless porpoise (*Neophocaena phocaenoides)* are near extinction, and numbers of black carp, grass carp, chub, bighead and other species have decreased significantly.

Threat # 3: Climate Change Impacts to Wetlands

48. Climate change poses an emerging and significant threat to biodiversity and wetlands ecosystem functioning in Jiangxi Province. Climate measurements in the Poyang Lake region, including temperature, precipitation, and flood incidents, have shown a small degree of change since 1950 but a more pronounced degree of change since 1990. The climate of Jiangxi province shows a slight degree of change since 1950 and more significant change since 1990, such as increasing temperature and precipitation and more incidence of torrential rain and flooding. Average temperatures between 1991-2003 and 1998-2003 were 0.42o C and 0.75o C higher respectively than for 1961-1990. The temperature increase is significantly concentrated in the northern region, with the Rao River basin increasing most significantly, followed by the Poyang Lake area, and the lower reaches of its tributary rivers. Meteorological data from 1961-2006 also showed a slight overall increasing trend in annual precipitation, but more problematically, the trend of uneven distribution of precipitation in time has intensified, and since 1990 the heavy rains in summertime have increased significantly. Even more worrying, the dry season in the Poyang Lake region is starting earlier and lasting longer; during the 2012-2013 dry season, 8 of the 9 lakes in the Poyang Lake reserve suffered from critical levels of water loss. Temperature changes may pose a threat to the growth of the aquatic plants upon which migratory birds are highly dependent. Hydrological regimes will alter with changing precipitation patterns, which will impact the extent and timing of aquatic plant growth as well as habitat niches for other species. Given the other threats to ecosystem functioning in the wetlands of Jiangxi province, the impacts of climate change may well push some ecosystems and ecosystem services beyond the point at which they can continue to function for the benefit of biodiversity and human communities.

Long-Term Solution

49. The project proposes the establishment and management of a system of wetland PAs as part of an integrated strategic response to the threat of the ongoing degradation of wetland habitats in Jiangxi Province. In the current context established by China's new NBCSAP, this approach is timely and strategic for securing wetland conservation objectives in the medium-term as well as paving the way to for future mainstreaming action. However, the achievement of an improved network of effectively managed wetland PAs is currently hampered by the following barriers.

Barrier Analysis

The fragmented nature of the existing wetland PAs in Jiangxi province

50. An analysis of the existing wetland PAs in Jiangxi Province shows that PA coverage of wetlands includes 2 national (55,700 ha), 1 provincial (41,100 ha) and 20 county (119,631 ha) nature reserves. However, only the national and provincial reserves have any active management; even those county wetland reserves that are overseen by forestry bureaus have no dedicated staff and typically fail to carry out basic functions such as patrolling, monitoring, scientific research, public education, and community co-management. This mirrors the overall condition of all nature reserves in the Province; of the 205 nature reserves in Jiangxi, only 10 have their own management authority, 27 are managed by forestry bureaus, and the remaining 168 nature reserves have no management authorities at all. At present, existing laws and regulations covering wetland reserves have no provisions requiring reserves to create management plans, or to have a minimum level of staffing and operations. In addition, while there is interest in ecological compensation as a way of increasing local community support for conservation and developing new public-private partnerships, the lack of any operational standards for a wetland ecological conservation compensation program inhibits the development of this approach. Legal, policy and institutional frameworks are also insufficient with regard to coordination and strategic planning for wetlands conservation and management of wetland protected areas in the province. While some individual reserves have management plans, there is no regional or provincial plan or strategy for coordinated management of wetland PAs. Furthermore, individual PA management plans are not incorporated into provincial economic development planning, which constrains the ability of PAs to raise funds for management plan implementation and results in frequent conflicts with other government agencies and local institutions (particularly since many different agencies continue to enjoy varying degrees of regulatory authority within wetland reserves, and in most cases there are no management agreements to clarify the roles and responsibilities of these agencies). Institutional capacity (staffing, skills and tools) for coordinating a stronger wetland PA system is under-developed. National and Provincial agency budgets are stable or growing but there is no mechanism for coordinating PA investments to achieve maximum impact for biodiversity conservation. An inadequate level of understanding of the value of ecosystem services generated by wetland ecosystems also undermines the rationale for strengthening conservation measures for wetland ecosystems.

51. The effectiveness of the wetland PA system is further hampered by the lack of a strategic vision on how to improve wetland ecosystem conservation in Jiangxi Province. The baseline for wetland protected areas in Jiangxi Province is defined by financial support for three areas: operations and infrastructure, reduction of internal threats (particularly threats to migratory birds), and, to a lesser extent, habitat restoration. These investments are helping to improve wetlands conservation in select locales and for selected species, but they are failing to comprehensively address the root causes of wetlands degradation that must be mitigated in order to maintain and restore wetlands as functioning natural ecosystems. For instance, there has been almost no progress made to address basin level external threats such as degraded upstream water quality and quantity. There are no formal mechanisms for inter-agency action at the provincial level to guide wetlands conservation and planning, and private and government stakeholders inside and outside of protected areas are not consulted, regulated, and/or mandated to take actions to support the survival of remaining wetland ecosystems. The existing Poyang Lake Wetland Management Coordination Committee has managed to greatly improve migratory bird protections in the reserves within the Poyang Lake region, but it also suffers from structural weaknesses, including the fact that the chair and members of the committee all come from within the Provincial Forestry Department and have been unable to secure the participation or

cooperation of other key departments such as the Provincial Agriculture Department and the Provincial Industry and Commerce Department or local NGOs.

Limited operational capacities for wetland PA site management

52. The overall capacity of the national and provincial PA authorities to proactively manage or respond to key threats and pressures facing existing wetland PAs in Jiangxi is generally limited, although there are a few localized 'centers' of capacity within the Provincial Department of Forestry and at the 2 national and 1 provincial wetland reserves. There is insufficient staffing and financing for effective enforcement and compliance at all of the county wetland reserves in the province, while the national and provincial level reserves also face funding constraints, particularly for general operating expenses. Wetland PA staff are lacking capacity in areas including wetland protection and monitoring, wetland restoration approaches and techniques, the use of GIS and databases to guide and support management decisions, public education, and implementation of community co-management processes. The ecological integrity of some wetland habitats that have been, or are currently, under unsustainable management regimes is increasingly degrading due to limited skills and institutional capacities to rehabilitate and restore these areas. There are few coordinated strategies for, and limited coordinated implementation of, effective conservation strategies for wetland species of concern, notably migrating waterfowl species. None of the existing wetland reserves, including the 3 reserves that will form the initial Poyang Wetlands Ecosystem Protected Areas (PWEPA) network, are currently operating with coherent and strategic management plans that lay out concrete conservation objectives and standards, nor is there substantial coordination among different wetland reserves (including conservation plans for key species whose habitat ranges across the reserves as well as surrounding wetland landscapes). There are a number of key knowledge gaps to support operational decision-making for ecosystem-based management in wetland PAs, notably ecosystem health requirements for different wetland habitats under different management regimes; cost-effective restoration and rehabilitation measures for different wetland vegetation types; and habitat requirements for key faunal species. One major constraint to informed decision-making is a lack of data on the relationship between water levels and plant communities and its impact on the foraging dynamics of priority migratory bird species.

53. The existing wetland PA system in the province also suffers from a lack of clear objectives and processes for the implementation of co-management, outreach and communications with local communities and institutions. PA staff generally have limited experience in participatory management, public involvement and conflict resolutions with resource users, and enforcement activities often result in the aggravation of conflicts with local communities. This problem is particularly acute for wetland reserves, because unlike forest reserves (whose areas were managed almost entirely by local governments prior to being incorporated into reserves), a majority (greater than 60%) of the area of wetland reserves in Jiangxi province were a "common property resource" for local residents before being integrated into reserves, and local communities and institutions retain some use rights and interests in the resources of wetland reserves. For example, during the dry winter season, the Poyang Lake reserve includes 9 separate lakes; and the Poyang Lake reserve only has complete control over 2 of these lakes (Great Lake and Sha Lake, totalling 4,400 hectares). The other 7 lakes, which cover a total of 18,000 hectares, have a more complicated ownership pattern. According to *The Provisions of Migrant Birds Protection of the Poyang Lake Nature Reserve* and *The Regulations of Protecting Poyang Lake Wetland*, the Poyang Lake reserve should have the administration and use rights of these 7 lakes as well, but in practice, local rural economic bodies maintain use rights of the 7 lakes and provide leases to aquaculture, fishing and other operations. Finally, the lack of involvement of local stakeholders in wetland PA activities means that PAs are poorly placed to contribute to or support socio-economic development of local communities.

Limited institutional capacities to manage a consolidated wetland PA system

54. The collaboration and cooperation among national, provincial and county PA authorities in the management of PAs in the wetland biome, although highly variable in time and space, is often characterized by a number of inefficiencies and lost opportunities. The prospects for collaboration and cooperation among PA authorities in the planning, establishment and operation of a network of wetland PAs are constrained by a lack of information and information sharing mechanisms as well as limited understanding of wetlands ecosystem functions and the need for ecosystem-level management approaches among policy makers, resource managers, and local residents. The lack of adequate information and data for effective planning and

management is due in part to the absence of any consolidated database and environmental information system for wetland PAs in the province; a lack of interest or understanding of the benefits of sharing information among different wetland reserve management agencies; and limited fora to share and disseminate information and best practices. Information sharing is even more inadequate with productive sector and other stakeholders; sharing of data on water quality, hydrology, agricultural pollution, etc. is infrequent and cumbersome; in addition, such data is rarely made available to the public. Information sharing and analysis is also constrained by limited technical capacities and equipment, and the lack of uniform data formats and compatible data sharing platforms. Levels of understanding about wetlands, the importance of their ecosystem services, and their linkages with forests, agriculture, hydrological management, etc., remain quite low in Jiangxi province, in part because the province has done little so far to take an overall ecosystem approach to wetlands management and conservation. As a result, some stakeholders who should be more involved in wetlands conservation (such as agriculture and forestry sectors) remain unaware of the need for their participation, while other sectors (such as local governments and private businesses) continue to see wetlands reserves only as a source of potential conflict with their goals. Finally, Jiangxi province has one of the least developed networks of local NGOs and social organizations in the country, which has limited their participation in and support for wetland PA management and outreach to the general public and decision-makers.

2.2. Project justification – incremental reasoning (GEF projects)

Scenario without GEF Resources

55. In the baseline scenario without GEF financing, the management of wetland protected areas in Jiangxi Province will continue to be site based, focused almost entirely on a few sites, and mostly limited to research, monitoring, and infrastructure development.

56. Funding of activities within wetland protected areas will focus almost entirely on the Poyang Lake National Nature Reserve, the Nanji National Nature Reserve and the Duchang Provincial Nature Reserve, all located in the Poyang Lake region. Over the next five years, the Jiangxi Forestry Department will provide US$12,060,000 to fund the operating expenses of the Poyang Lake National Nature Reserve (PLNNR), Jiangxi Wildlife Protection Administration and Jiangxi Forestry Department Wetland Protection and Management Office. An additional US$1,250,000 will be invested in the operating expenses of the Nanji Wetland National Nature Reserve and Duchang Provincial Nature Reserve. The Jiangxi Forestry Department will provide US$3,000,000 to fund the Construction of 6-7 New Field Stations for the PLNNR, which will increase the number of nature reserve staff in the field to conduct monitoring, protection and conservation activities. The Office of the State Council - Three Gorges Project will provide US$6,110,000 for projects to strengthen conservation at the PLNNR and the Nanji Reserve, including management capacity improvements, bird and habitat protection, wetland protection and restoration, and rare species rescue and breeding. The National Development and Reform Committee (NDRC) will provide US$1,600,000 to establish a Protection and Management Station and enhanced facilities and equipment such as signs and roads. The PLNNR and Nanji Reserve have submitted a number of other large projects to the SFA for implementation in the next few years, but as of yet these have not been funded (see Annex 13, Table 1 for details).

57. Wetlands within the Poyang Lake region also will benefit from a number of research and monitoring programs. The Poyang Lake Lake-Wetland Comprehensive Research Station, managed by the Nanjing Institute of Geography and Limnology and the Chinese Academy of Sciences, will spend US$4,032,258 over the next five years to conduct long-term monitoring of lake and wetland resources in the Poyang Lake region, focusing on the impact of the Three Gorges Project on water environmental change processes, on wetland ecosystem structure and function, and on basin-wide comprehensive management. The Jiangxi Department of Water Resources spent US$4,645,161 on the Poyang Lake Basic Geographic Survey Project, to carry out a geographic and plant survey covering an area of 5,000 sq. km. of the Poyang Lake region and establish a basic geographic database. The Office of the State Council Three Gorges Project Construction Committee is spending US$1,420,000 for the project Ecological Environment Monitoring System Poyang Lake, which will track observation of changes in key elements (waters, river beaches, etc.) of Poyang Lake's

hydrology and water quality and the long-term evolutionary process of species diversity in the operational process of the Three Gorges Reservoir impoundment and seasonal water adjustment. The International Crane Foundation will spend US$142,000 on four projects: The Poyang Lake Cranes and Large Waterfowls, Water Level and Aquatic Plants Ecological Relationship Research project will provide inputs in establishing a new baseline survey of biodiversity and ecological health of the Poyang Lake Wetlands Ecosystem, and will shed light on ecologically viable minimum and maximum water levels; the Poyang Lake Small Lake Research Project will seek to understand wetland environmental conditions necessary to promote the protection of Siberian Cranes, other water birds and their habitats; the Poyang Lake Wintering Migratory Birds Survey will monitor the number, distribution and dynamic situation of the Poyang Lake Wintering migratory bird populations in order to promote the protection of Siberian Cranes, other water birds and their habitats; and the ICF and the PLNNR will work jointly to develop an online version of existing databases on ecological factors in the Poyang Lake region. And finally, some recently concluded baseline related efforts are also relevant to this project. The Jiangxi Department of Water Resources recent supported the Poyang Lake Basic Geographic Survey Project (~US$4,600,000), which carried out a geographic and plant survey covering an area of 5,000 sq. km. of the Poyang Lake region and established a basic geographic database. The National Development and Reform Committee (NDRC) provided ~US$500,000 for waterbird and habitat conservation; wetland restoration; and fixed monitoring sample lines for birds.

58. Jiangxi Province does have a vision for making other wetland PAs operational, but as of now this vision has not been funded. The provincial 12th Five Year Plan (2011-2015) call for the establishment of 23 new wetland nature reserves and wetland parks, for strengthening existing wetland protected areas, and for conserving other wetland areas throughout the province. The 12th Five Year Plan include the objective of the effective protection of 70% of all natural wetlands in Jiangxi Province, as well as the effective protection of 80% of wetlands defined as nationally important. Under the baseline project however, government support and funding for Jiangxi's County-level wetland PAs will remain extremely limited and these PAs will not benefit from linkages to the national and provincial level PAs that or any participation in a network of wetland PAs in Jiangxi Province.

59. In terms of planning and implementation of actions to promote wetlands conservation, in the Poyang Lake region the Poyang Lake Wintering Migratory Birds and Wetland Protection Joint Committee facilitates coordination and planning and provides incentive mechanisms (awards) to county / local agencies and individuals to carry out wetlands conservation and protection work. The Poyang Lake Ecological Economic Zone Plan is the key planning document for the area and outlines six strategic tasks, one of which is "Ecological construction and environmental protection", which consists of two proposed projects. The Wetland Protection and Restoration Project aims to restore 30,000 ha. of wetland vegetation, to establish additional infrastructure in existing provincial and county nature reserves, and to strengthen the infrastructure and management of the Nanji Reserve. The Biodiversity Protection Project is intended to protect Poyang Lake fishery resources and aquatic biological resources; to protect wetland key species and their habitats; to restore habitat for migratory birds and River Deer; to restore fisheries resources; and to establish a wildlife rescue and breeding centre for rare and endangered species. However, although the PLEEZ Plan demonstrates clear policy support at the provincial level for wetlands conservation, there is no operating financial mechanism for implementing activities proposed under the plan, and to date none of the proposed activities have been initiated.

60. At the provincial level, planning and implementation of actions to promote wetlands conservation includes funding from the Jiangxi Forestry Department of US$6,000,000 over the next 5 years for the operations of the Jiangxi Forestry Department Wetland Protection and Management Office. There is no policy coordination in place at the Provincial level to match the activities of the Poyang Lake Wintering Migratory Birds and Wetland Protection Joint Committee.

61. The 12th Five-Year Plan of Jiangxi Forestry Development proposes activities including a Wildlife Protection and Nature Reserve Project (strengthen wildlife protection and nature reserve construction; monitor wild animal epidemic sources and diseases; improve wildlife institutions at city and county level, including the construction of protection stations/bureaus in 11 cities; establish ecological biodiversity monitoring information platform) and a Wetland Protection and Restoration Project (wetland restoration, pollution control and biodiversity protection projects; capacity building on wetland ecological monitoring; public education; promoting ecological tourism; completing a second provincial wetland census; wetland

resource sustainable utilization demonstration project; among others). In addition the Jiangxi Environmental Protection Plan proposes improving water quality; strengthening ecological protection and monitoring; improving nature reserve management capacity; and promoting monitoring for biodiversity protection and resource development and utilization. In the case of the Forestry Plan and the Environmental Protection Plan, these proposed activities are funded by national and provincial authorities on a case-by-case basis.

62. Other relevant baseline funding includes the several programs focused on outreach and community participation. The Pride Program of Rare and WWF (US$80,645) will engage in nature reserve staff training, community co-management and community publicity and education, with the goal of strengthening wetland PA management at the county, provincial and national levels in Jiangxi Province, and reducing unsustainable resource use practices / livelihoods in local communities. The NDRC will provide US$340,000 for a wetland ecological public education centre and related materials, and the Jiangxi Forestry Department will provide USD$790,000 to fund the annual conservation awards program for Wintering Migratory Birds and Wetland Conservation Award as part of increased attention being paid to public awareness and support.

63. Under the baseline scenario, investments will be very much site-based and non-strategic from a PA network perspective, and stakeholders face numerous barriers (as detailed above) preventing them from strengthening the wetland PA network. The GEF resources will be incremental to these baseline investments by supporting the application of a network approach to strengthen the management of wetland nature reserves and to make them operational, effective, and integrated into the broader resource management, planning, and funding frameworks across relevant sectors in Jiangxi province.

Scenario with GEF resources

64. The GEF contribution will build on and benefit from previous and on-going baseline activities, including significant investments in infrastructure and management of the existing national and provincial wetland reserves by national and provincial institutions, as well as investments by county authorities in county-level wetland reserves and in promoting community participation and co-management. Of particular importance are the baseline investments in infrastructure and management capacities of national and provincial wetland reserves in the Poyang Lake region, which encompass significant areas of wetlands that are critical for wetland ecosystem functions and as habitat for migratory birds and other globally significant species, and can act as effective demonstration sites for testing wetlands conservation strategies and promoting their replication throughout the province. This baseline spending paves the way for GEF's incremental investment in wetland PA network effectiveness, which has not been a focus of any previous investments to date, so that attention will be focused for the first time on the provincial network of wetland PAs and improving the management effectiveness of this network. The GEF contribution to the project will be used to support activities that produce global environmental benefits and cannot be adequately funded by national and local stakeholders at present.

65. Under Component 1, "Improved and consolidated wetland PA system within the larger landscape context in Jiangxi Province", the incremental costs covered by GEF will increase the area of effectively managed wetland protected areas in Jiangxi Province, establish integrated provincial-level legal, planning and oversight frameworks for all wetland protected areas in the province, and integrate the management of wetland PA systems with the operations and practices of productive sectors / landscapes. The project will take an overall ecosystem management approach for wetland PAs so that management activities are designed and implemented across a wider landscape instead of a geographically circumscribed area limited to each nature reserve itself. The project will consolidate wetland PA management by developing clear and consistent standards and guidelines for different types of wetland PA management & enforcement; by establishing the economic value of the province's wetland PAs; and by strengthening the legal and regulatory framework supporting wetlands conservation and management. To further strengthen the management of wetland PAs, the project will ensure that wetland PA conservation priorities are integrated into key planning and management programs for the Poyang Lake region, and that an increasing number of wetland conservation programmes and activities are jointly implemented with productive sector institutions and entities. The proposed project will work to generate government support and funding allocations for key elements of the existing Poyang Lake Ecological Economic Zone (PLEEZ) plan, which can generate significant baseline spending support for wetlands conservation and sustainable management.

66. Under Component 2, "Wetland PA Management Capacity is strengthened at selected demonstration sites", the project will demonstrate integrated and effective management at three wetland PA sites in the Poyang Lake region through implementing joint PA management planning, initiating community co-management processes, and undertaking monitoring, management and rehabilitation of key ecosystems and globally significant biodiversity. The focus of this component will be three wetland nature reserves (two national and one provincial) within the newly established Poyang Lake Wetlands Ecosystem PA (PWEPA) network, which together cover 96,800 hectares. In strengthening the management of these areas, the project intends to develop and demonstrate model processes and practices that can be replicated at the 9 existing county-level wetland PAs within the Poyang Lake region (covering 93,357 hectares), at 11 other county-level wetland PAs elsewhere in Jiangxi province (covering 26,274 hectares), and at any new wetland PAs that may be established in the future in the province. GEF resources will be incremental to the baseline investments by supporting the application of a network approach to strengthen the management of national, provincial and county level nature reserves, using the 11 monitoring and conservation stations as an entry point to strengthen the application of protection, monitoring and conservation activities to additional wetland reserves, to facilitate coordinated activities among these wetland reserves, and to work more closely with local communities. The project will implement a variety of activities to strengthen management of the three wetland PA units, including: an overall PWEPA management framework; management plans for each of the three wetland PAs; training of PA staff; community co-management processes to strengthen PA conservation and management activities and to increase local support and participation; rehabilitation of wetland ecological functioning; surveys and monitoring of biodiversity and ecological health; targeted species management plans; and reduction of threats to critical habitat. Staff of the 3 sites in the PWEPA will receive extensive capacity building and the training programs, techniques and lessons learned in the PWEPA will then be applied to the training of the staff of county-level wetlands reserves in Jiangxi Province, but at a much more basic level. A major part of the GEF contribution will be used for the implementation of biodiversity conservation practices, which will generate global environmental benefits through the rehabilitation of grasslands; reduced impacts from fishing and aquaculture; changed hydrological management practices (e.g. flooding and drainage of polders); and conservation activities for migratory bird species and other globally significant biodiversity.

67. Under Component 3, "Institutional & stakeholder capacities to manage consolidated wetland PA system in Jiangxi Province" the project will focus on strengthening institutional and individual capacities to manage the overall provincial system of wetland protected areas; extending key elements of the PWEPA demonstration sites to the county-level PAs throughout the province; and raising awareness / support for wetlands conservation throughout Jiangxi Province. Institutional capacities for protected area coordination and planning, as well as the use of strengthened information management systems, will enable the effective administration of wetland PAs throughout the province. Best practices from the demonstration sites, in particular processes and tools for PA unit management planning, training of PA unit staff, and community co-management, will be applied at all county-level wetland nature reserves in the province. Finally, education and awareness activities will target communities within and adjacent to wetland nature reserves, as well as key provincial decision-makers in Jiangxi Province.

68. The project's national and local social and economic benefits will result from the maintenance of critical ecosystem services delivered by wetlands. This includes: mitigation of floods and other natural disasters and avoiding the loss of human lives and property downstream along the Yangtze River; pollution control, water filtration and storage; and providing subsistence and livelihood opportunities from fisheries, tourism, and the collection of other natural wetlands products. National, provincial, and local stakeholders will have an opportunity to build their knowledge and capacity related to wetlands conservation. Government agencies will be able to better coordinate effort, hopefully streamlining decision-making and saving both time and effort. Protecting the ecosystem services provided by wetlands represents a substantial cost-savings for national, provincial and local governments. Helping to strengthen the ecosystem resilience of and water balance in the Yangtze River will help to secure the livelihoods, provision of freshwater, and protection of property and human live from climate-change induce flood events for tens of millions of people downstream of the Poyang Lake region. However, the project benefits will be felt most directly by residents who live within and/or on the boundaries of the targeted wetland reserves. For example, 55.5% of peasant households within 5 miles of Poyang Lake are engaged in economic activities closely related to wetlands, and thus each of these persons is dependent upon wetland health for their quality of life and livelihoods. The project's work to enable county PAs to establish co-management arrangements with local communities will

include improved livelihood opportunities as determined by local communities and PA management, and local villagers will be employed by county PA as part-time or full-time bird protection workers. By protecting scenic beauty and biological diversity that support income-generating tourism businesses, the project will generate significant benefits for the local population.

69. In summary, the alternative scenario will support the conservation of globally important biodiversity in the wetland ecosystems of Jiangxi Province, and wetland reserves, government resource management agencies, local governments and communities, and NGOs will be strengthened to continue project activities and replicate them at additional sites throughout the Province. Without this project and the GEF's contribution, these benefits would not happen.

2.3 Stakeholders, target beneficiaries and public participation

2.3.1 Project stakeholders

70. Key stakeholders include the Jiangxi Forestry Department; two National Nature Reserves (Poyang Lake and Nanji); one Provincial Nature Reserve (Duchang) and numerous County Reserves; Jiangxi Province Wetland Protected Areas Coordination Committee; local governments (Municipal Forestry Bureaus; Municipal Forestry Public Security Bureaus; County People's Governments); local communities (within or adjacent to wetland reserves), including Fisherman, Farmers, Tourism agencies; Universities & Research Institutes; and Environmental Non-Governmental Organizations (e.g. International Crane Foundation, Society of Bird-lovers of Jiangxi Province). Additional details on stakeholders and their participation in project implementation are provided in Annex 4.

2.3.2 Project beneficiaries

71. The beneficiaries of the project will include stakeholders at many different levels. Staff of the Jiangxi Forestry Department will benefit from capacity building on wetlands conservation and management, and an improved system for sharing information on all Jiangxi provincial wetlands and related training on information management. Members of Provincial level bodies such as the Jiangxi Province Wetland Protected Areas Coordination Committee, the People's Congress of Jiangxi, the Provincial Development and Reform Commission, and the Mountain-River-Lake Office, also will benefit from enhanced information systems and sharing, as well as gaining greater understanding of the activities of all of the various agencies and industries that impact wetlands conservation, and of the role of wetland ecosystems and the importance of wetland ecosystem services, including linkages between upstream wetland areas and the Poyang Lake region. Staff of the Water Resource Department will benefit from capacity building to be able to assess role of wetland ecosystems and ecosystem services in water resources management, and particularly the critical role of wetland PAs in the Poyang Lake region for provincial water quantity, quality and flows, and linkages with economic conditions, while staff of the Agriculture Department will receive training in managing aquaculture, agricultural pollution, and strategies for integrating aquatic nature reserves into the provincial PA system.

72. At the site level, staff of the three wetland Nature Reserves within the Poyang Lake Wetland Ecosystem Protected Area will benefit from significant capacity building, new equipment and infrastructure, an increased public profile, increased financing, and access to data and use of information systems produced by the project. Staff of the Municipal Forestry Bureaus and County People's Governments will receive training in managing and conserving wetland ecosystems and ecosystem services; and a better understanding of the role of wetland PAs in managing water resources and sustaining local economic activities. Local communities (within or adjacent to wetland reserves), which depend on the wetland PAs for livelihoods such as fishing, aquaculture, and collection of plants, will see increased employment and income-generating opportunities, and will have more participation in and awareness and understanding of wetland conservation policies and regulations. Local communities around the target NRs will be also be key participants in the co-management activities such as ecosystem restoration, small lake management, ecotourism and other activities. Local resource users may also benefit from eco-compensation payments for things like agreeing to seasonal fishing bans, leaving rice paddies flooded and untouched after harvesting, and refraining from planting trees in aquatic zones.

73. A social assessment was carried out during the project preparation phase that has provided key information to address social aspects during implementation of the Project that will have positive social impacts among poor communities in accordance with the FAO mandate and strategies on food security. The analysis of primary and secondary information on demographic, social, and cultural topics in this assessment has supported the identification of project activities. The main topics analyzed and addressed in the analysis were the following: 1) structure and analysis of the income of peasant families; 2) community infrastructure; 3) ownership of land resources; 4) evaluation of stress levels and threats from surrounding communities to biodiversity and wetlands; 5) assessment on the participation ability of residents surrounding the wetland; 6) analysis of the basic characteristics of the surrounding residents; 7) assessment on the ecological protection awareness of surrounding residents of the wetland; 8) analysis of the potential influence of gender on the project; 9) a monitoring plan for the influence of surrounding residents on the wetland; 10) a communication plan; 11) suggestions on participatory management of the wetlands involving surrounding communities; 12) programs for capacity-building in the surrounding communities; and 13) studies of ecological compensation practices abroad and at home.

74. These consultations and analysis have provided recommendations to ensure positive impacts for the beneficiary communities and local organizations. It provides key guidance to define capacity-building activities, and proposes ways to ensure access to the project by intended beneficiaries with special emphasis on equal access and participation of men and women and applying culturally appropriate approaches. Among the key recommendations are:

- Strengthen communication with local governments, especially at the township level, by inviting local government officials to participate in project training and exchange activities, and combine the project's activities with local government activities to improve community resources and the local environment; to provide targeted education and training for students, and to strengthen local poverty-relief programmes.
- Increase understanding of and communication on the needs of local communities and farmers, and the main contradictions and conflicts between community economic development and protected areas management. Proper communication should be done with community representatives, letting them know the main objectives of the project, the role they can play and the possible benefits they can get from the project. Surveys should be done of community development programs in order to understand the major difficulties and needs of the community development. In particular, analysis is required of the problems faced by women and disadvantaged groups (because many men from local communities migrate to the cities, women take more responsibility for rural production and natural resources utilization, but they frequently are ignored by local authorities, as are other disadvantaged groups such as low income households and the handicapped) in order to understand the causes of these problems, and to listen to their views.
- Discuss with communities and farmers on how to resolve conflicts and promote the realization of their interests in wetland protection. Community members should be surveyed regarding the most important conflicts between protected areas and communities, and what they think are the strategies and the processes needed to solve these problems. Community members should be assisted in analyzing the problems, identifying opportunities, and clarifying the activities they are willing to undertake. The views of the community should be shared with local government departments, exploring whether there are the opportunities and possibilities for joint problem solving.

2.4 Project consistency with national priorities and plans

75. The project is well aligned with important national policies and programs for biodiversity conservation and the conservation and sustainable development of wetland areas. The project is in direct conformity with the *China National Biodiversity Conservation Strategy and Action Plan 2011-2030 (NBCSAP)*, approved by the Government in 2010. The NBCSAP identifies 39 priority biodiversity conservation programs, of which 19 are directly related to wetland conservation, and 9 focus on wetland protected area management. The Poyang Lake area (as well as Jiangxi Province overall) is listed in the NBCSAP as one of the "Priority areas of inland terrestrial and aquatic biodiversity conservation" (page 15), and designated as a "priority area of biodiversity conservation" in the "The Hilly Plains Region of East and Central China" (page 19). Poyang Lake is also listed in the NBCSAP as a "Priority Biodiversity

Conservation Project" #9 "Surveying and cataloguing of aquatic biological resources for major rivers and lakes." The proposed project supports the NBCSAP's "Strategic Goals" as they relate to protected areas (PA), namely: i) maintain the total area encompassed by PA in China; ii) establishing a network of functioning PA that effectively conserve biodiversity; and iii) increasing the number and area of PA to a level necessary to protect ecosystem, species and genetic diversity. Specific Strategic Tasks (ST) of the NBCSAP supported by the project include: ST-1: improved policies, laws, regulations and systems relevant to biodiversity conservation; ST-2: promotion of the incorporation of biodiversity conservation principles into relevant development plans; ST-3: strengthening of biodiversity conservation capacity; ST-4: Strengthen in-situ conservation of biodiversity; ST-5: Promote sustainable development and use of biological resources; ST-6 Improve benefit sharing; ST-7; Improve capacities to cope with new threats and challenges to biodiversity, and; ST-8 Raise public awareness and strengthen international cooperation.

76. The proposed project is also in conformity with the *China Biodiversity Partnership and Framework for Action (CBPF) 2007-2017*, China's principal investment strategy for biodiversity conservation developed to facilitate dialogue with the GEF and other financing agencies. Under this Framework, the Project will focus upon supporting two of the five priority themes identified under the Framework: Improving Biodiversity Governance (Theme 1); and Investing Effectively in Reducing Biodiversity loss in Protected Areas (Theme 3). More specifically, it will support the following results identified in the CBPF: biodiversity conservation and sustainable use is mainstreamed into local plans (Result 12); national NRs and provincial NRs are effectively managed (Result 18); and local communities, NGOs and/or the private sector are involved in co-management and development of national NRs and provincial NRs (Result 20). Furthermore, a sub-program of the CBPF is the UNDP/ GEF Program Main Streams of Life - Wetland PA System Strengthening for Biodiversity Conservation (CBPF-MSL), of which the proposed project is one element.

77. The *12th National Five-Year Plan (2011-2015)* urges environmental protection and sustainable growth, while "enhancing ecological conservation and restoration." The plan urges the reinforcement of biodiversity conservation, strengthening monitoring in NRs, and improving their management and protection. Under this framework, cross-sectoral and sector plans identified the conservation and management of wetland biodiversity as priorities. One of the most relevant programs is the *National Wetland Conservation Program (2004-2030)*, and its 12th Five-Year implementation plan, which sets specific targets and tasks for wetland conservation and management. Among the targets set by this Program for 2030 are: a total of 713 wetland Nature Reserves in China, of which 80 will be Ramsar sites; at least 90% of natural wetlands shall be effectively protected; a total of 1,404,000 ha of wetlands will be restored; and 53 national wetlands conservation and wise use demonstration pilots will be established. Poyang Lake has been included in the Program as one of six priority regions in the country, and the Program calls for a focus on the conservation and wise use of lake wetlands in the middle and lower reaches of Yangtze River, enforcing of water pollution controls and improvement of the aquatic environment, and strengthening capacities for protected areas with an emphasis on Ramsar sites and wetlands that are a part of flyway networks.

78. Other relevant programs associated with the overall 12th National Five-Year Plan include the *12th Five-Year National Forestry Development Plan (2011-2015)* and the 2nd phase of the natural forest conservation plan (2011-2020) both prioritize wetland conservation and wise use, in particular the management of Ramsar sites, wetlands of national importance, and wetland protected area systems. The Plan also gives priority to specific types of wetlands, including coastal wetlands, high altitude wetlands, and trans-boundary wetlands, and notably for this project, migratory flyway wetlands. The *12th Five-Year National Water Resource Conservation Plan (2011-2015)* identifies six major tasks, two of which focus on the enhancement of wetland service in flood mitigation, and ecological rehabilitation of key rivers and lakes. The *12th Five-Year Environmental Protection Plan (2011-2015)* focuses on environmental issues related to water pollution control and enhancement of aquatic environment quality, implementation of integrated approaches on air pollution, strengthening of soil environment protection, and enforcement of ecological protection and inspection.

2.5 Project consistency with GEF strategies & FAO Strategic Objectives

GEF eligibility

79. China ratified the Convention on Biological Diversity (CBD) on January 5, 1993. In accordance with paragraph 9(b) of the Instrument for the Establishment of a Restructured GEF, China is an eligible recipient of World Bank and/or UNDP technical assistance. The country is also a member nation and eligible to receive assistance from FAO.

GEF Strategy conformity

80. The project is aligned with GEF's BD-1 Objective: Improve Sustainability of Protected Area (PA) Systems. It directly contributes to Outcome 1.1: Improved management effectiveness of existing and new PAs. The project focuses on strengthening and expanding the wetland PA sub-system in Jiangxi Province, recognizing that wetland PAs are much more directly affected by externalities from development activities outside their borders, which can undermine ecosystem functions vital to the protection of biodiversity. The project will contribute to the BD-1 objective and outcomes by creating a strong provincial system for managing wetland PAs, improving the spatial design of the wetland PA system, and increasing the area of effective management and protection of wetlands in the Poyang Lake region by an additional 93,357 ha, through the expansion of monitoring and patrolling (from 6-7 newly established PLNNR field stations) outside of the boundaries of the PLNNR, Nanji and Duchang wetland reserves, thereby ensuring better wetland ecosystem representation and filling ecosystem coverage gaps. These results will increase the resilience of the sub-system in the face of climate change by maintaining connectivity between core areas, allowing the gradual redistribution of component species of different wetland ecosystems, and contributing at the provincial level to the protection of upstream non-wetland habitats such as forests and grasslands that serve as vital catchment areas for the wetlands themselves.

81. The project will also consolidate and strengthen the enabling legal, planning and institutional framework for the effective management of globally significant wetland PAs in Jiangxi Province, and strengthen capacities (strategies, tools, mechanisms, knowledge, skills, and resources) to support the operational management of the wetland PA sub-system. This stronger wetland PA system will indirectly improve management of over all of the natural wetlands in Jiangxi Province. Given the vulnerability of wetland PAs to external threats, systemic capacity not only to manage the PA sites but also to manage activities in the immediate landscapes will be critical for conserving the functioning of protected wetland ecosystems. Furthermore, the project will support mainstreaming of wetland PAs within sector practices to reduce outside pressures, making them more sustainable and resilient in the face of climate change.

82. The project directly contributes to the goals of the CBD's Program of Work on Protected Areas (PoWPA), in particular: Goal 1.2, to integrate PAs into broader land- and seascapes and sectors so as to maintain ecological structure and function; Goal 1.4: To substantially improve site-based protected area planning and management; Goal 1.5: To prevent and mitigate the negative impacts of key threats to protected areas; Goal 3.1, to provide an enabling policy, institutional and socio-economic environment for PAs; Goal 3.2, to build capacity for the planning, establishment and management of PAs; Goal 3.5: To strengthen communication, education and public awareness; Goal 4.2, to evaluate and improve the effectiveness of PA management; Goal 4.3: To assess and monitor protected area status and trends; and Goal 4.4: To ensure that scientific knowledge contributes to the establishment and effectiveness of protected areas and protected area Systems. The Project, furthermore, directly contributes to achievement of the Aichi Targets, in particular under strategic goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity, and specifically Target 11 – **"**By 2020, at least 17 per cent of terrestrial and inland water areas, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes". The project will contribute to Target 11 through increasing significantly the coverage and connectivity of the wetland protected areas in Jiangxi Province with high biodiversity importance and significant ecosystem services, and by increasing management effectiveness of the PA system in a way that is integrated into the wider landscapes.

FAO Strategic Objectives

83. FAO Strategic Objectives: FAO's Strategic Framework as reflected in the Organization's 2014 – 2017 Medium-term Plan is shaped by a vision of a world free from hunger and malnutrition where food and

agriculture contributes to improving the living standards of all, especially the poorest, in an economically, socially and environmentally sustainable manner. The Framework is comprised of five Strategic Objectives (SO) that represent the main areas of work of FAO. Strategic Objective 2 (SO-2), "Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner" is the most directly relevant to the Project. SO-2's emphasis on "improving and increasing" in a "sustainable manner" reflects the broad, multi-sectoral nature of the ecological approach adopted in project design.

84. More specifically, the project supports two Organizational Outcomes (OO) under SO-2:

- OO1: Producers and natural resource managers adopt practices that increase and improve the provision of goods and services in agriculture, forestry and fisheries in a sustainable manner;
- OO2: Stakeholders in member countries strengthen governance – the laws, policies and institutions that are needed to support producers in the transition to sustainable agricultural systems.

85. The project's strong capacity building elements contribute to OO1 – to helping stakeholders adopt new practices. The project's strong focus on improving policies and strengthening institutions strongly contributes to OO2 and the critical need for strong policies and institutions to support the adoption of new and improved practices.

86. Of particular relevance to the Project is SO 2's emphasis on a holistic approach across sectors including the promotion of more sustainable practices, more viable governance arrangements and evidence based decision making and its emphasis on the integration of work relating to three pillars of sustainability (environmental, economic and social). Given this link with SO2, the project's FAO Development Objective, as reflected in the results framework in Annex 1 is: "to increase and improve the provision of goods and services from high-value aquatic ecosystems in a sustainable manner."

2.6 Past and related work - coordination with related initiatives

Coordination with Co-Financing Projects

87. Work carried out under the proposed project will be coordinated with a number of significant other projects funded by various cofinancing partners. The office of the State Council three gorges project will provide funding to study the hydrology and water quality of the point on Lake region, to establish ecological monitoring databases and to conduct research on ecosystem functions and biodiversity protection measures, and to strengthen the capacity of the Poyang Lake National Nature Reserve and the Nanji National Nature Reserve to carry out bird and habitat protection, wetland protection and restoration, and rare species rescue and breeding. The National Development and Reform Committee (NDRC) will undertake construction of PA infrastructure and facilities, as well as activities related to waterbird and habitat conservation; wetland restoration; and public education. The Jiangxi Forestry will fund the operating expenses of the Poyang Lake National Nature Reserve, the Nanji National Nature Reserve and the Duchang Provincial Nature Reserve, as well as the Jiangxi Forestry Department Wetland Protection and Management Office; the construction of the 6-7 New Field Stations for the PLNNR, and an annual conservation awards program for Wintering Migratory Birds and Wetland Protection. The International Crane Foundation will carry out a baseline survey of biodiversity and ecological health of the Poyang Lake Wetlands Ecosystem; will monitor the number, distribution and dynamic situation of the Poyang Lake Wintering migratory bird populations; and will develop an online version of existing databases on ecological factors in the Poyang Lake region. The GEF project will incorporate ICF's scientific research and findings into its wetland PA training program as part of its emphasis on building capacity of wetland PAs to practice science-based adaptive management. The FAO will provide technical inputs/guidance in areas such as fisheries management and water management and will support project monitoring and project management. Additional details about these cofinancing activities are provided the description of product outputs (section 3.2) and in the budget details (section 5).

Coordination with other GEF Projects in China

<u>China Biodiversity Partnership and Framework for Action - Mainstreams of Life (CBPF-MSL) Program</u>

88. China's State Forestry Agency (SFA), GEF, UNDP and FAO have developed the national-level Program "CBPF-MSL: Wetland PA System Strengthening for Biodiversity Conservation". The Program, of which this project is an important part, is a strategic framework that represents China's national priority for wetland PA support. The purpose of the CBPF-MSL Program is to catalyse "the Sustainability of the National Protected Area System for Conservation of Globally Significant Wetland Biodiversity." The Programme focuses on strengthening the wetland PA sub-system and will consist of a set of seven interlinked projects that will create a strong national system for managing wetland PAs, will transform management practices in seven different provinces (including the wetland PAs of Jiangxi Province) that harbour important wetland biodiversity, will address the management needs of different wetland types, and will develop a data base and networks to inform the management of these wetland types country wide.

89. The proposed project will, through its work to strengthen the provincial level sub-system of wetland PAs in Jiangxi Province, contribute to and benefit from the CBPF-MSL's work to strengthen the national wetlands PA subsystem. The following table provides some examples of how the proposed project will contribute to the overall components of the CBPF-MSL:

CBPF-MSL components	**Examples of proposed project's links to CBPF-MSL**
Component 1. Enhancing management effectiveness of wetland PA sub-system	Strengthened PA wetlands regulations and management frameworks, including: provincial regulation on wetland PA management, standards and guidelines for management of wetland PAs
Component 2. Mainstreaming wetland PAs in development and sectoral planning	Mainstreaming wetland PA objectives into Provincial level development planning processes (i.e. the development objectives of the Poyang Lake Ecological Economic Zone plan)
Component 3: Knowledge management and lessons sharing	A knowledge management system is developed for the PA system, including spatial and non-spatial databases; management tools and mechanisms; sharing of best practices in wetland conservation

90. Within the overall CBPF-MSL Programme, the Jiangxi project is one of three projects located at sites along the middle Yangtze River, along with the projects in Hubei and Anhui provinces. All three provinces share similar conservation challenges and opportunities, propose similar approaches to wetlands conservation, and will be implemented at roughly the same time (scheduled to commence in mid to late 2013 and to end in 2018). The geographic closeness and programmatic similarities present an excellent opportunity to coordinate efforts, generate economies of scale, and ramp up project results to impact a substantially larger geographic area. During project design, substantial dialogue occurred to help make certain each of these three projects is well aligned and coordinated. This coordination, including opportunities to exchange lessons learned and build replicable models, will be solidified during the inception period for all three projects.

91. There are strong opportunities to build synergies, increase cost-effectiveness, and amplify output impact across the three projects, particularly for the three WPA programs. The most apparent areas for coordination revolve around building capacities for protected area management, including training programs to build capacity for management and business planning, species recovery, community co-management, etc. The three projects will investigate the feasibility of holding joint annual meetings (possibly starting with the projects' inception workshops), in order to strengthen project management by allowing project staff to meet; to share information (e.g. provincial-level strategies; PA management plans; best practices in general); to leverage resources and coordinate training; and to explore options for sharing some costs for technical expertise (e.g. for technical consultants working in areas such as PA System Planning; Hydrologic Modelling; Wetland Rehabilitation; Ecosystem Health Index; Information Systems; Community Co-Management; etc.). Other areas of likely collaboration include: 1) information sharing on the design, parameters, and operations of provincial level databases and information systems; 2) sharing of specific ecological data (i.e. for species that migrate between wetlands in these three provinces); and 3) sharing strategies and lessons learned for how best to mainstream wetland conservation into the activities and policies of various productive sectors (water resources; forestry; agriculture; fisheries; etc.). In addition, there are also gains to be made by sharing approaches to basin and provincial level conservation. For instance, if each of the three provinces creates a strategic wetlands conservation strategy using similar approaches and outlines, there will be an increased probability that these three strategies may be up-scaled to

improve and coordinate wetlands conservation along the entire reach of the Yangtze. Findings generated by the three projects on the hydrological needs of wetlands may also assist the Yangtze River Basin Commission in making decisions on water infrastructure development and management for this part of the basin.

92. To facilitate coordination, the managers of each of the three projects will be tasked with working together to complete a detailed plan for coordinating the three Yangtze wetlands projects. Ideally the plan will be formulated during project inception, but no later than the first year of project activity. This joint coordination plan will identify coordination opportunities and specify coordination actions to be taken during project implementation. This will include both formal (e.g., yearly coordination meetings, joint training programs) and informal mechanisms (e.g., expertise sharing, distribution of lessons learned and materials generated) for information exchange. The simple objective should be to build similar programming across all three provinces to encourage national level replication, generate comparable data sets from various monitoring activities and, ideally, lead to a coordinated and strategic management approach for all three provinces.

UNEP/GEF Siberian Crane Wetland Project (SCWP)

93. The SCWP was a six-year effort (2003-2009) to protect a network of globally important wetlands in Asia that are of critical importance for migratory water birds and other wetland biodiversity. The project used the globally threatened Siberian Crane (*Grus leucogeranus)* as a flagship species, linking activities at 16 key wetlands (including Poyang Lake) along the species' western and eastern flyways in Russia, Kazakhstan, Iran and China. Regional level activities focused on the development of wetland site networks, building capacity for the coordination of the flyway networks and applied field research in support of flyway conservation. National level activities focused on expanding the legislative and political framework for wetland protection and improving coordination of wetland conservation efforts within and beyond national borders. Individual sites involved in the project sought to curb specific threats through a range of actions including engaging local communities in programmes to develop more sustainable livelihoods; raising public awareness; building capacity for local site management; developing comprehensive management plans; and improving legal protection.

94. At Poyang Lake, the SCWP established and upgraded wetland reserves; supported ecological monitoring activities by PLNR staff and the construction of a database that contains over 3,800 individual observations of more than 70 bird species; supported training in wetland evaluation and monitoring techniques and basic database design and management for PLNR staff; and supported an ongoing study of the ecological relationships among plants, water and wintering water birds, focused on the habitat use patterns of representative bird species within the reserve and the factors that influence those patterns. The ecological understanding generated by this work has helped to make it possible to design conservation programs for the entire lake basin and better implement targeted management strategies within protected areas, including strategies for habitat improvement to aid globally significant species. In addition, a Geographic Information System (GIS) for the Poyang Lake Basin was developed that can help to develop models to extrapolate ecological relationships described in the PLNNR to the Poyang Lake Basin as a whole. Once these models are developed, they will be used to assess potential impacts from projects that alter land-use or hydrology within the Poyang Lake basin.

95. Research carried out under the SCWP, together with related studies by others concerning hydrology, land use, and light availability for Vallisneria (a key food source for migratory birds), is helping the Chinese Government understand what the Siberian Crane and related water birds need to survive during the winter months at Poyang, and to evaluate the implications of developments now being considered within the lake, including a variety of water-control projects in the basin and economic activities such as sand dredging and aquaculture developments within the PLNNR. For example, there is now a better understanding of the role that winter water levels within the reserve play on Siberian Cranes accessing the tubers of Vallisneria; preliminary results indicate that where water levels are deeper than 50cm, Siberian Cranes have difficulty accessing the tubers and will search out other locations to forage, and this finding has major relevance for hydrological management and the identification and protection of critical habitat in the Poyang Lake region.

96. Other lessons learned from this project that have been incorporated into the design of the proposed project revolve around community participation and outreach. The SCWP found that in China leadership in community conservation and environmental education often came from community members and consultants from technical institutions. Training workshops were important for empowering nature reserve staff members, but the experience of working with communities and of exchanging ideas with others engaged in wetland conservation work proved to be more significant, and therefore the establishment and official recognition of permanent mechanisms for consultation and involvement of stakeholders, such as site management committees, is highly important. In addition, given the diverse audiences who must be involved in solutions to wetland conservation, communications is a vital component, and the project should engage professional communications staff or partners and develop and use a communications strategy. The project also should provide opportunities for project participants to travel to other sites within the CBPF-MSL Programme in order to learn about project successes and challenges.

IBRD-GEF China Nature Reserves Management Project

97. The IBRD-GEF project "China Nature Reserve" Project, approved in 1995 and completed in 2002, was a site-based project focused on five PAs across China, of which the Poyang Lake National Nature Reserve was one. The project also worked on some larger, national level PA information management efforts. In the Poyang Lake region, the project contributed to: i) an accumulation of experience in project management and implementation; ii) provision of basic infrastructure in the PLNNR (e.g., improved protection stations and a publicity and education centre); iii) improved protection, monitoring and public outreach equipment; iv) development of a 10-year monitoring database on waterbirds, aquatic plants and water levels; v) increased staff capacity, particularly in nature reserve protection and management; vi) increased consciousness in selected local communities of the importance of wetlands conservation; vii) greater visibility of the importance of wetlands in central and provincial government, resulting in increased public support and funding levels; viii) ecological/environmental and social economic baseline information; ix) a nature reserve management plan, and x) community co-management activities. The GEF's past investment is one of the reasons why the PLNNR is the proposed project's executing agency and one of the key site-level demonstration sites to be used to strengthen the provincial system of wetland PAs.

98. Lessons learned from this project that have been incorporated into the design of the proposed project. Capacity building will emphasize hands-on, in-service training for staff as the most effective way of improving motivation, performance, understanding and commitment. Through the use of the Ecosystem Health Index, the proposed project will carry out frequent monitoring of target species and key habitats and apply the findings to adaptive management, and it will promote the involvement of wetland reserve staff in species and habitat monitoring to save costs and increase staff motivation and understanding of conservation threats, objectives and actions. The project will include a large replication program and replication budget, and outreach to other the financing sources to mobilize more funds for replication (particularly training), during the latter stages of the project implementation process.

99. Finally, the project will promote community co-management as a way to resolve conflicts between the nature reserves and neighbouring communities; will keep pilot co-management activities simple until sufficient capacity is built up within the relevant government agencies; and will make sure that wetland reserve co-management objectives and plans are consistent with and integrated into local development plans and activities as much as possible. The project also will combine community outreach and education with community development activities to increase the likelihood of participation and cooperation by local residents, including users of natural resources.

Coordination with Other Relevant Projects

100. In addition to the close collaboration with various GEF projects as described above, the Project also will work closely with the following related initiatives in Jiangxi Province:

- The Pride Program of Rare and WWF will engage in nature reserve staff training, community co-management and community publicity and education. The project will strengthen wetland PA management at the county, provincial and national levels in Jiangxi Province, and reduce unsustainable resource use practices / livelihoods in local communities. This GEF project will build

on this work and collaborate closely with it.

- The Poyang Lake Lake-Wetland Comprehensive Research Station of the Nanjing Institute of Geography and Limnology and the Chinese Academy of Sciences will conduct long-term monitoring of lake and wetland resources in the Poyang Lake region, focusing on the impact of the Three Gorges Project on water environmental change processes, on wetland ecosystem structure and function, and on basin-wide comprehensive management. The PLNNR is a cooperative partner with this research station, and thus the proposed GEF project can incorporate the results of this project into the planning, management, and capacity building activities for the provincial system of wetland nature reserves.
- The Jiangxi Department of Water Resources implemented a Poyang Lake Basic Geographic Survey Project, which carried out a geographic and plant survey covering an area of 5,000 sq. km. of the Poyang Lake region and establish a basic geographic database. The proposed GEF project will benefit from the data generated by this project, and will collaborate with it in establishing a province-wide wetland and wetland nature reserve information management system.
- The recently terminated GIZ project promoting a Sino-German cooperation platform on the conservation of highly carbon-storing and species-rich ecosystems (CSE), which cooperated with the Nanji National Nature Reserve in the Poyang Lake region. This project, which developed strategies to respond to climate change, including monitoring long-term climate conditions and developing corresponding and appropriate management strategies, and building resource and technical capacities, provided staff of the Nanji reserve (and others) with increased capacity to evaluate the ecological vulnerabilities of the reserve in the face of expected climate change. These capacities and related lessons learned and data generated will be drawn upon during the proposed project, particularly in designing activities for enhancing wetland resilience to potential climate change impacts and in climate change impact modeling to develop scenarios for expected climate change impacts (Output 2.1).
- GIZ is currently implementing the "Wetland Biodiversity Conservation in China" project, which is supporting the implementation of an Integrated Ecosystem Approach by state actors and user groups in three provinces to safeguard wetland biodiversity and sustainable use of natural resources. The targeted areas are located in the industrial provinces of Zhejiang and Shandong and in Heilongjiang. The programme also supports the implementation of national action plans for the preservation of biodiversity and sustainable use of wetlands in the context of China's international obligations, in particular the conventions on Biological Diversity (CBD) and Wetlands (Ramsar). The primary elements of the project relevant to the proposed project are: i) environmental policy advice and institutional coordination; ii) development of management models; iii) support to municipalities and stakeholders in preparing wetland management plans; iv) preparation of a capacity development programme; v) ecosystem assessment; vi) value chain analysis for selected wetland protection practices including ecotourism measure options; and vii) development of a wetland monitoring system, lessons learned and best practices. During the project preparation phase, consultations were conducted with the GIZ office in China regarding potential synergies between the two projects. Several areas were identified where the proposed GEF project could learn from the experiences of the GIZ project. One area is in the training of local partners (staff of pilot protected areas as well as provincial / national PA administration staff) in understanding and implementing an integrated ecosystem approach and in ecosystem assessment and modeling, including both general tools and approaches to Integrated Ecosystem Management, as well as specific wetland management and conservation tools and approaches. Another area is in the development of Geographical Information Systems (at 2 PA sites) to enable PA staff to better provide clear arguments and rationales for management decisions when negotiating with other stakeholders, as well as the creation of a learning network in the Naoli River watershed that is strengthening information sharing and coordination to tackle urgent management issues among five participating nature reserve administrations and the Provincial Forestry Department, and will lead to further stakeholder involvement as other sectors controlling pressure issues such as water availability become involved. The GIZ project is also working with the SFA to draft a concept for financial compensation of users affected by land conversion and subsequent natural rehabilitation as well as wetland environmental services, which could help to support eco-compensation schemes in Jiangxi Province. Finally, a preliminary agreement was reached to send some wetland reserve staff from Jiangxi Province to visit one or more of the GIZ project sites in year 1 of the proposed project in order to gain further insights.

2.7 FAO's Comparative Advantage

101. FAO's comparative advantage is comprised of its long and productive history working in the PRC and its well-known expertise in conservation and management of natural resources. FAO has cooperated with the PRC for more than 20 years in the project relevant sectors of agriculture, forestry and natural resources management. FAO has a long record of cooperation with the Chinese Forestry Department at both the national and provincial levels. Indeed, China's Ministry of Finance (MOF) approached FAO in late 2009 requesting the Organization's support in project preparation. It was explicitly stated in that meeting that it was MOF's intention to build bridges with GEF's other EAs in support of future GEF projects. This at least in part, was viewed as an indication of satisfaction with FAO's provision of support to other GEF preparation activities. FAO's selection by MOF seems to be fully in support of GEF's policy to promote increased country ownership. Finally, it should be noted that GEF's CEO has voiced on several occasions the desire for the Executing Agencies generally and FAO specifically to increase and diversify their participation in GEF supported projects and programmes.

102. The FAO is a leading international organization in the area of natural resources management and sustainable development. The proposed project will benefit from FAO's extensive work on conservation and management of natural resources (primarily forestry and fisheries resources) within the ecosystem context. FAO expertise has been built on a number of past and on-going iniatives directly relevant to project objectives. FAO has a long record of cooperation with the Chinese government in natural resources management; programs and projects that include agricultural biodiversity, conservation agriculture, integrated pest management and promoting sustainable aquaculture. Examples include the on-going provision of technical assistance to support the Sustainable Management of Freshwater Aquaculture in Pingjiang County (Hunan Province) bordering Dongting Lake, where FAO's Technical Cooperation Programme is evaluating and promoting the development of improved technologies designed to reduce environmental impacts of freshwater aquaculture; an input directly relevant to the proposed project. In addition to these activities, FAO's Investment Center has supported a number of preparation and supervision missions of biodiversity conservation projects in China (primarily for GEF). Examples include: (i) the Protected Area's Management Component of the National Sustainable Forestry Development Project (2002) and (ii) Guangxi Integrated Forestry Development and Conservation Project (2006), both with the World Bank as Implementing Agency through the FAO-WB Cooperative Programme; and (iii) An IEM Approach to the Conservation of Biodiversity in Dryland Ecosystems (2008) with IFAD as GEF's Executing Agency through FAO's Investment Support Programme.

103. FAO is the designated GEF Implementing Agency with China's State Ocean's Agency (SOA) in the on-going preparation of the Demonstration of Estuarine Biodiversity Conservation and Restoration and Protected Areas Network Project in collaboration with the Bureaus' of Ocean and Fisheries of Shendong and Guandong Provinces and the preparation of the Securing Biodiversity Conservation and Sustainable Use in China's Dongting Lake Protected Area in Hunan Province. Furthrmore, given the Organization's administrative and financial support for project concepts through the provision of national TCP grants, there is a unique opportunity to replicate the proposed project approach to other FAO supported iniatives both in China and elsewhere. FAO will support national project implementation through its country offices in China, its regional office in Bangkok and its headquarters in Rome.

104. FAO has worked with other UN agencies in China in developing the UNDAF for 2011-2015. One of the outcomes to be achieved is to strengthen the policy and implementation mechanisms to manage natural resources. FAO, together with other UN agencies in China, will implement programmes to strengthen government capacity to effectively manage land and water resources, enhance government capacity to conserve biodiversity and ecosystems, empower communities to increasingly benefit from the development of eco-based livelihood resources and strengthen government capacity to develop and implement policies that ensure compliance with environmental health and safety requirements. With respect to in-country capacity, during GEF 4, FAO China increased its involvement with GEF particularly with respect to biodiversity projects and established good working relationships with the Chinese government at the national and provincial levels. The FAO Office in China recently assigned programme staff for GEF projects, including the preparation and implementation of the proposed project. Additional support and expertise will be mobilized from the FAO Regional Office for Asia and the Pacific (Bangkok) and Headquarters' technical

divisions as well as from other sources (government institutions and international experts) when and if needed. This commitment resulted in a growing portfolio of GEF supported projects in China including Securing Biodiversity Conservation and Sustainable Use in China's Dongting Lake Protected Area (under preparation) and Demonstration of Estuarine Biodiversity Conservation Restoration and Protected Area Networking in China (under preparation).

3. PROJECT FRAMEWORK

3.1 Project impact/objectives

105. The **Project Goal** is to contribute to the conservation and sustainable use of globally significant wetland biodiversity in Jiangxi Province, China.

106. The **Project Objective** is to catalyze the management effectiveness of Jiangxi's wetland protected area system to conserve globally important biological diversity. In order to achieve the above objective, and based on a barrier analysis (see Section 2.1), which identified: (i) the problem being addressed by the project; (ii) its root causes; and (iii) the barriers that need to overcome to address the problem and its root causes, the project's intervention has been organised into three components (in line with the concept presented at PIF stage), under which 11 outputs are expected from the project. These 11 outputs are organized within three components that are intended to ensure that frameworks, best practices and capacities that are applied at various levels will be up-scaled and replicated to the entire system of wetland protected areas in Jiangxi Province. The organizational framework is summarized below, and further explained in the diagram below showing the inter-connectedness of the three project components, as well as the table below which shows how the project activities focused on wetland reserves will be applied at different sites within the provincial PA system.

- Component 1 (Improved and consolidated wetland PA system within the larger landscape context in Jiangxi Province) is a synergized component depending on the outcomes and results of Component 2 and Component 3. Key outputs of this component include the Jiangxi Province Wetland Protected Areas Management Strategy, an expansion of wetland protected areas that are effectively managed based on the Strategy, and enhanced management capacities and partnerships.
- Component 2 (Wetland PA Management Capacity is strengthened at selected demonstration sites) will pilot wetland management models, best practices, and strengthened capacities at three demonstration wetland reserve sites, the results of which will guide the formulation of management strategies and guidelines for numerous other wetland PAs in Jiangxi province.
- Component 3 (Institutional & stakeholder capacities to manage consolidated wetland PA system in Jiangxi Province) will focus on information, capacity building and awareness to support wetlands conservation and sustainable development at the provincial level

107. It is also important to note that in addition to taking a systemic approach to the management of wetland protected areas, the project also will take an ecosystem-based approach to wetlands conservation that encompasses wetlands and other ecosystems both within and outside of protected areas. Wetlands ecosystems are a dynamic web of plants, animals, and microorganisms and their non-living environment, and relationships among these components are complex and often not well understood. Furthermore, wetlands are almost always impacted by activities outsides of the wetlands themselves, in particular in immediately surrounding areas and in upstream ecosystems. Where the boundaries of wetland protected areas generally coincide with the extant of wetlands themselves, as in Jiangxi Province, then conservation and management interventions must also be applied outside of official protected areas, through coordinated, collaborative decision-making across multiple land and water use sectors and on multiple scales. By providing adequate protection from the impacts of land and water uses within and beyond the boundaries of protected areas, the functioning of wetland ecosystems and the related social and economic benefits of land and water resource use can be sustained and shared equitably, while still protecting vital ecosystems and their services.

Diagram 1: The project output replication strategy and important assumptions

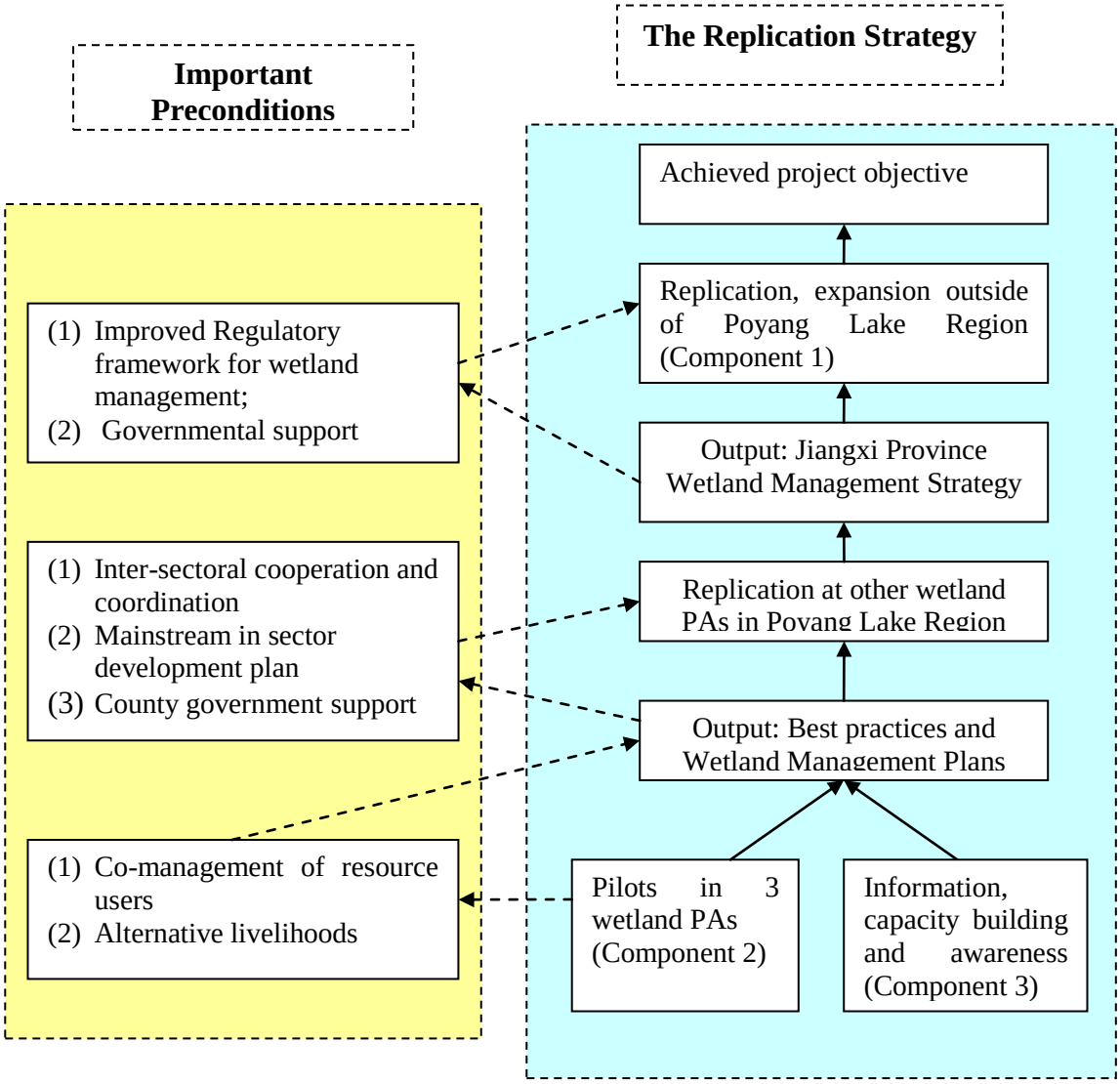

Table 2: Overview of Project Interventions at different Wetland PAs in Jiangxi Province

Wetland Protected Areas	# of PA Units	Area (ha.)	Extensive PA Management Strengthening (1)	Basic PA Management Strengthening (2)	Field level Protection & Monitoring (3)	Capacity Building for PA Management (4)	Basic Training in Monitoring & Enforcement (5)	Provincial Frameworks for PA Management (6)
Poyang Lake Region								
National Level PAs[4]	2	55,700	□	□	□	□	□	□
Provincial Level PAs[5]	1	41,100	□	□	□	□	□	□
County Level PAs –	3	38,333		□	□	□	□	□

[4] Poyang Lake National Nature Reserve and Nanji Wetland National Nature Reserve

[5] Duchang Migratory Birds Nature Reserve. There are 3 other Provincial Level Protected Areas within the Poyang Lake region: 1) Poyang Lake Noodle Fish Nature Reserve (2,000 ha.); 2) Poyang Lake Finless Porpoise Nature Reserve (6,800 ha.); and 3) Poyang Lake Shellfish Mussel Nature Reserve (15,533 ha.). However, none of these sites is actively managed in any way, so it is not expected that the proposed project can provide even indirect benefits to these sites (at least until the relevant Provincial authorities express intention to allocate resources to these "paper parks").

Priority Sites[6]								
County Level PAs – Non-Priority Sites[7]	6	55,024						
Sub-Total	**12**	**190,157**	96,800	135,133	190,157	135,133	190,157	190,157
Jiangxi Province (outside of Poyang Lake region)								
County Level PAs – Direct Project Activities[8]	3	5,662						
County Level PAs – Indirect Activities Only[9]	8	20,612						
Sub-Total	**11**	**26,274**	0	0	0	5,662	5,662	26,274
Grand Total	**23**	**216,431**	**96,800**	**135,133**	**190,157**	**140,795**	**195,819**	**216,431**

(1) Ecosystem management and rehabilitation; coordinated PA management planning and framework, sustainable financing mechanisms, sustainable economic activities for local residents, species monitoring and conservation plans, visitor and education facilities
(2) Management plans; conservation zoning; co-management guidelines, structures and training; community education and outreach
(3) Increased capacity for protection and monitoring of wetland reserves by the newly established PLNNR field stations
(4) Capacity building for PA Management, including training in the following aspects: migratory bird identification, monitoring and protection; knowledge of relevant laws and regulations; dissemination of information on laws, regulations, and wetland conservation to the public; development of management plans; cooperative management of county wetland reserves with PLNNR field stations; and community co-management approaches
(5) Basic training in bird identification and counting, and patrolling for illegal activities with negative impacts on wetlands ecosystems
(6) Provincial wetland protected areas management strategy, wetland protected area standards and guidelines, provincial coordinating committee, provincial legal and regulatory framework, governmental planning processes, productive sector plans and practices, wetland reserves information management system

3.2. Project components and outputs

Component 1: Improved and consolidated wetland PA system within the larger landscape context in Jiangxi Province

108. Component 1 of the project will increase the area of effectively managed wetland protected areas in Jiangxi Province, establish integrated provincial-level legal, planning and oversight frameworks for all wetland protected areas in the province, and integrate the management of wetland PA systems with the operations and practices of productive sectors / landscapes. Component 1 proposes to take an overall ecosystem management approach for wetland PAs so that management activities are designed and implemented across a wider landscape instead of a geographically circumscribed area limited to each nature reserve itself. Integrated ecosystem management is the key to reducing and controlling threats that come from outside the boundaries of most wetland PAs, such as pollution, land use changes, agricultural use of fertilizers and pesticides, etc. Expansion of the PA system during the project will focus primarily on the Poyang Lake region and will consist of a suite of activities to expand the area of wetland PAs that are effectively protected (see Output 1.2) from 96,800 hectares to 190,157 hectares. The project will focus on expanding effective management to areas that are already within existing PAs, which is considered the highest priority in the province for several reasons: 1) existing PA units already cover the vast majority of critical wetland ecosystems and migratory bird habitat in the province; 2) large areas of the two national and one provincial level wetland PAs are not included in any management / conservation activities; 3) none of

[6] Nan Lake; Xieshan Grey Heron; Kangshan Lake Area Migratory Bird Nature Reserves
[7] Baishazhou; Qinglan Lake; Gutang Wetland; Nan Lake; Pingfeng; Hexi Wetland Nature Reserves
[8] Yihuang, Junshan, and Wucheng Nature Reserves
[9] Mount Longhu Chinese Mergansers, Guoditao, Taipo Lake, Fang Lake, Xinmiao Nanxi Lake, Yiyang Chinese Mergansers, Nancheng Hongwen Reservoir, Jingan Giant Salamander Nature Reserves

the twenty existing county-level wetland PAs, which contain important wetland ecosystems, are demarcated or actively managed; and 4) the project has more chance of success through expanding existing PA units "unofficially" through 6-7 new field stations, as there is little political support for "official" expansion through establishing new wetland reserves. To further strengthen the management of wetland PAs, the project will ensure that wetland PA conservation priorities are integrated into key planning and management programs for the Poyang Lake region, and that an increasing number of wetland conservation programmes and activities are jointly implemented with productive sector institutions and entities. At the provincial level, the project will consolidate wetland PA management by developing clear and consistent standards and guidelines for different types of wetland PA management & enforcement; by establishing the economic value of the province's wetland PAs; and by strengthening the legal and regulatory framework supporting wetlands conservation and management; these actions will benefit wetland PAs within the Poyang Lake region as well as existing wetland PAs elsewhere in the province. Support for activities at the provincial level will include co-financing from the Jiangxi Forestry Department in the amount of US$6,000,000 for the operations of the Jiangxi Forestry Department Wetland Protection and Management Office.

Output 1.1: Wetland Protected Areas Strategy for Jiangxi Province

109. **Formulate the Jiangxi Province Wetland Protected Areas Management Strategy (JPWPAMS):** The JPWPAMS will be created to establish approaches, tools, and processes for the expansion and consolidated management of wetland PAs in Jiangxi Province. The intent of the JPWPAMS is twofold; 1) to implement coordinated and systemic level decision-making for the management of all wetland PAs in the province, taking into account the wider landscape in which the wetlands are set; and 2) to establish a clear and logical process for the long-term expansion of the provincial wetland protected area system. To support the first goal, the JPWPAMS will promote an ecosystem-level management approach across all wetland PA units (including wetland natures reserves with national, provincial and local classifications), under the auspices of the Jiangxi Province Wetland Protected Areas Coordination Committee (see Output 1.3), and utilizing the Jiangxi wetland information system (see Output 3.1) to coordinate and prioritize planning and management. This ecosystem-level approach also will incorporate systemic planning for potential climate change impacts, based on a review of wetland PA coverage in relation to climate change threats and adaptation needs to increase resilience and connectivity (see Output 2.1), and analysis of hydrologic flows and their importance for wetland ecosystem functioning (see Output 2.1). To support the second goal, the JPWPAMS will identify priority areas for the establishment of new wetland PAs through several steps. First, the project will implement a communications and consultation program that enables relevant stakeholders to make informed choices about whether to designate areas to be included in the provincial system of wetland PAs. This will include support for at least two conferences on wetland ecosystem and biodiversity conservation (with participants from the National Main Streams for Life Programme), and proactive consultation among decision makers at the local and provincial level through meetings, training workshops, and site visits to other wetland areas. Secondly, the project will carry out a gap analysis of wetlands in Jiangxi Province and their coverage in the existing wetland PA system, in order to select priority sites (based primarily on the value of wetlands for ecosystem services and biodiversity conservation) for the establishment of new wetland protected areas, for the upgrading of existing wetland PAs (i.e. from county to provincial level or provincial to national level), for the selection of sites to apply for Ramsar designation, and for redefining the status of some aquatic reserves (e.g. those for the finless porpoise or fisheries) into ecosystem management reserves. Third, the project will carry out feasibility studies for PA establishment or upgrading; organize workshops and dialogue with stakeholders on proposed activities; and develop a list of detailed activities, timeframes, and cost estimates for the expansion and strengthening of the wetland protected areas system. It is important to note that the JPWPAMS will be shared with stakeholders in Anhui and Hubei provinces, with the idea that lessons should be shared among the three MSL projects along the Yangtze river, and that findings generated by the three projects on the hydrological needs of wetlands may also assist the Yangtze River Basin Commission in making decisions on water infrastructure development and management for this part of the basin (see Section 2.6 for additional details). Development of the JPWPAMS will include all agencies responsible for wetland protected areas in the province, as well as related authorities and agencies actively involve the planning process, such as environment, water resources, agriculture (including fishery) and land management, and NGOs and community groups. Development of the JPWPAMS will be led by the consultants and PMO (See Annex 3: Work Plan); it is expected that the draft Strategy will be finalized during year 3 of the project and then implemented during the final two years of the project, at the end of which a revised, final Strategy will be approved and published.

110. **Development of Wetland PA Standards & Guidelines:** The project will establish clear and consistent standards and guidelines for wetland PA management in Jiangxi Province, taking into account the variety of wetland PA classifications and characteristics in the province. Specific standards and guidelines will include: i) introduction of standardized PA reporting and performance monitoring system for all provincial wetland PAs, as well as data collection and reporting formats compatible with the new wetland PA information system (see Output 3.1); ii) standardized monitoring and reporting system on indicators of biodiversity and ecosystem health for all wetland PAs, designed to provide an overall index of wetland health, including habitat value, habitat impact and species status; iii) adoption of a set of professional competency standards for wetland PA management staff as a basis for enhanced performance; iv) standards for infrastructure development. Standards and guidelines will be adapted for each of the three official levels of PAs (national, provincial and county), and for wetland PAs with different ecological characteristics (i.e. wetland PAs in Jiangxi province can be differentiated between those that are primarily riverine and those that are primarily lakes; the difference has significant implications for ecological functioning, socio-economic uses; type and degree of threats, etc.). The wetland PA standards and guidelines will be integrated into the JPWPAMS.

Output 1.2: Expanded coverage of operationally effective wetland protected areas in Poyang Lake region

111. **Establishment and Operations of Wetland PA Field Stations:** The Poyang Lake National Nature Reserve (PLNNR) is currently in the process of constructing and making operational 6-7 new field Monitoring Stations, to complement the 4 Conservation Stations already in operation (construction of the new field stations will be paid for entirely through co-financing; US$3,000,000 from the Jiangxi Forestry Department and US$720,000 from the National Development and Reform Committee). The existing Conservation Stations, each of which has eight full-time staff, are located within the boundaries of the PLNNR, and have independent law enforcement authority. The new Monitoring Stations, each of which will have five full-time staff, will be located outside the boundaries of the PLNNR itself, and thus will greatly expand the area where wetland monitoring, protection and community outreach activities will be carried out. The new stations will not have independent law enforcement authority, but they will carry out joint law enforcement activities with local forestry bureaus. The locations of the 6-7 new field stations were determined by two factors: 1) to efficiently cover areas of important habitat for migratory birds, both within the PLNNR and in bordering areas; and 2) to locate each field station in a different county, so as to facilitate direct cooperation with county authorities. Once they are fully operational, the 10-11 stations of the PLNNR, together with the 3 field stations of the Nanji Wetland National Reserve, will be able for the first time to monitor and protect all of the critical migratory bird habitat in the Poyang Lake region, including the areas of the 9 county wetland reserves located within the Poyang Lake region (none of which are currently managed or monitored). Each field station will carry out monitoring, protection / enforcement, education, and community cooperation activities. The Jiangxi Province Wetland Protected Areas Coordination Committee, which will oversee the operations of the field stations, will have the capacity to extend the authority of the field stations beyond the official boundaries of the PLNNR by directing local governments to take actions based on the findings and recommendations of field station staff.

112. **Establish 3 operational Demonstration County Wetland Nature Reserves:** Three of the nine existing county reserves in the Poyang Lake region (Nan Lake Nature Reserve; Xieshan Grey Heron Reserve; and Kangshan Lake Area Migratory Bird Nature Reserve) have been selected as demonstration areas for the strengthening of all county-level wetland nature reserves in the province, based on the ecological importance of their wetland ecosystems and the interest, capacity and resources of the local county authorities in wetlands conservation. The project will work the relevant County Forestry Departments (CFDs) to develop management plans for each reserve (with goals and objectives, action plans, budgets, financing strategies, and governance arrangements) and to carry out a study to establish conservation and other use zones for the 3 sites (based on the models used at the PWEPA sites). County wetland reserves are required by statute to have zoning / use plans, but none of the reserves in Jiangxi Province have completed such work. The zoning will take an ecosystem-level approach to integrate wetland, water birds, fish and aquatic wildlife conservation into a singular management paradigm, and the zoning will be applied both within and outside of the wetland PAs (with different criteria in these two different types of areas). As part of the conservation zoning process, options will be proposed for possibly redefining the

boundaries of some reserves and/or for merging / consolidating some reserves. The conservation zoning process will include Provincial DRC, the county forestry bureaus, the Departments of Agriculture, Forestry, and Water Resources, and the Mountain-Lake-River Office. The project will support CFD staff in implementing pilot protection countermeasures based on the conservation zone plans. To facilitate effective protection, the project will develop co-management guidelines (based on the co-management processes developed at the PWEPA demonstration sites); direct the establishment of co-management structures for these 3 sites, and organize an inception meeting for each site on co-management processes and structures. In addition, the project will provide training for county-level governments and other local representatives in co-management processes, and will support community education and outreach at the sites. Finally, the project will work with county authorities to get them to dedicate staff to implement the management plans; to commit increased county funding for relevant CFDs (possibly by establishing independent offices for each county wetland reserve, in order to create a mechanism for long-term funding by county governments); and to participate in carrying out monitoring and evaluation of the pilot activities.

113. **Capacity Building of all County Wetland Reserves in Jiangxi Province:** County Forestry Departments (CFDs) are responsible for the management of all county wetland nature reserves in Jiangxi Province (although they are overseen by the Wildlife Bureau of the Jiangxi Forestry Department). In general, they have little capacity and no dedicated staff for managing the reserves. Working through PMO and the Wildlife Bureau (see Annex 3: Work Plan), the project will provide capacity building activities for all CFDs responsible for county wetland reserves in Jiangxi Province. In carrying out this work, the project will utilize the training modules developed under Component 2 for the PWEPA wetland reserves, and use the PWEPA sites as peer-to-peer training locales; the project also will seek to share models and lessons learned for training with the MSL projects in Anhui and Hubei provinces (see Section 2.6), as well as the professional competency guidelines for wetland PA management staff that will be formulated by the national level project under the MSL. CFD staff responsible for the three demonstration reserves in the Poyang Lake region will receive more comprehensive capacity building, including training in the following areas: migratory bird identification, monitoring and protection (including use of equipment); knowledge of relevant laws and regulations; dissemination of information on laws, regulations, and wetland conservation to the public; development of management plans; cooperative management of county wetland reserves with PLNNR field stations; and community co-management approaches. Based on the success of these demonstrations, a similar program of training also will be provided to 3 county wetland reserves outside of the Poyang Lake Region (Jiangxi Yihuang Chinese Merganser Nature Reserve; Wucheng Reservoir Nature Reserve; and Junshan Lake Bird Nature Reserve). For the remaining 6 county reserves in the Poyang Lake region, and the 8 county reserves elsewhere in the province, the project will provide basic training for relevant CFD staff in functions such as bird identification and counting, and patrolling for illegal activities with negative impacts on wetlands ecosystems. The success of these capacity building activities will be measured by the Poyang Lake Wetland Management Coordination Committee, which in 2011 established a performance evaluation program for the conservation activities of each of the 15 counties in the Poyang Lake region, where the county with the highest score gets a reward, and the lowest ones are required to take remedial actions.

Output 1.3 – Strengthened Provincial-Level Wetland PA Coordination and Management Structures

114. **Establish the Jiangxi Province Wetland Protected Areas Coordination Committee:** Under the leadership of the Provincial Government, the existing Poyang Lake Wetland Management Coordination Committee (see Output 2.3) will be restructured into this new committee for the entire province. The provincial-level committee will be chaired by either the Vice-Governor or the Director General of the Forestry Department, and will include representatives of the two national nature reserves and one provincial nature reserve, county forestry departments (overseeing county reserves), and various provincial-level agencies (e.g. planning, hydrology and wetlands departments) and representatives of productive sectors such as agriculture, industry and commerce. The Committee will have lead responsibility for implementation of the Jiangxi Province Wetland Protected Areas Management Strategy (JPWPAMS). This committee also will be responsible for: on-going oversight of the functions of wetland nature reserves; acting as a consultative mechanism to facilitate decision making on issues that affect wetland protected areas, such as dam and sluice gate operations, and agricultural, livestock and other development practices; promoting clear and consistent approaches for community co-management; facilitating the sharing of resources, personnel and data among wetland reserves; and supporting increased involvement of productive sector representatives in supporting

conservation in all wetland areas of Jiangxi Province. The Committee will be the primary administrative structure for ensuring coordination on wetlands conservation in the province. In addition, cooperation and coordination between the PLNNR, the Wetland Office, the Wildlife Protection Office, the Nanji Reserve, and the Duchang Reserve, will be strengthened through: (i) effective information exchange and communication, i.e. sharing the project progress report, inviting technicians and staff to participate in the Wetland Management Plan development and in the technical training; (ii) regular coordination meetings of the project steering committee; and (iii) the annual project review and planning workshops and the multi-stakeholder replication meeting (in year 4 of the project). In addition, the Committee will work to establish agreements among various stakeholders to collaborate in addressing threats to wetland ecosystems, planning and operations, research and monitoring, enforcement, and education and awareness. Possible specific agreements include: cooperation between wetland reserves and the Agriculture Department to formalize responses to problems with pesticides/fertilizers; cooperation between wetland reserves and the Hydrology and Wetlands Departments for research and monitoring; cooperation among and between universities and wetland managers for research and/or education and awareness programs. Such agreements would likely be tested with the three operational wetland reserves in the Poyang Lake region, and replicated at other wetland PA sites as they become operational and with the support of the Committee. Day-to-day support for the Committee will be carried out by PMO and the Wetlands Office of the Department of Forestry.

Output 1.4 Strengthened Legal, Regulatory and Planning Frameworks for Wetland PAs in Jiangxi Province

115. **Review the Legal / Regulatory Framework for Wetland PA Management, assess implementation status and existing constraints, and formulate reinforcement recommendations:** The project will support the creation of specific regulations under the new Jiangxi Wetland Protection Ordinance (2013) to enable the consolidation and strengthening of wetland PA practices, including the effective enforcement of wetlands ecosystems protection laws. Among other things, the project will seek to establish new regulations under the ordinance, which covers all wetlands in the province, to require all wetland reserves to create management plans and objectives, and to have a minimum level of staffing and operations. The project also will take a leading role in drafting operational standards for a wetland ecological conservation compensation program, based on the on-going national legislative reform program to strengthen eco-compensation regulations being led by the NDRC, which cover forests, grasslands, wetlands, watersheds, marine areas, wild lands, and mining lands, and in particular on standards that have already been developed for forest conservation compensation. Pilot programs for eco-compensation already exist in Jiangxi province, include programs to compensate fisherman for prohibitions on fishing from March to June of each year, and payments to farmers who leave rice paddies flooded and untouched after harvesting (which benefits migratory birds) or who cease planting exotic tree species in wetland areas. These pilot programs may be expanded; in addition, other possible programs for the Poyang Lake region and other wetland areas include: compensating farmers to adjust agricultural or aquaculture practices in areas immediately adjacent to wetlands to protect water quality; compensating selected water consumers in order to reduce demand for water in early autumn; payments by the central government and/or downriver provinces to the Poyang Lake Ecological Economic Development Zone for wetland ecosystem service. The project will undertake a study of other eco-compensation schemes and will consult local governments through consultation meetings; based on those steps, the project will develop operational guidelines and regulations, including eco-compensation payment guidelines such as valuation methods, which restrictions on activities would be eligible for compensation; levels of compensation; compensation processes, etc. The guidelines and regulations will be differentiated for national, provincial and county level wetland reserves, as well as codes of conduct for land use practices in areas surrounding wetlands. These mechanisms will then be discussed and revised through workshops and other consultations with stakeholders. Once established, the project will undertake awareness raising activities about the intent and details of the measures. GEF funds will be used only for the development of the ecological compensation program; actual compensation payments will be made by the Jiangxi Provincial government and/or county governments.

116. **Conduct community outreach education for implementing Jiangxi Province Wetland Protection Ordinance:** Although government agencies and officials in Jiangxi Province are well aware of the important of wetland conservation and of the key threats posed to wetlands, the general public in the province has little understanding of the ecosystem services provided by wetlands or of the threats (many of them due to human activities) that are undermining those services. The project will use the opportunity of

the publication of the recently approved Jiangxi Province Wetland Protection Ordinance, and the subsidiary regulations to that Ordinance that the project will work to get established, to disseminate both the details of the ordinance and its regulations and what those imply for resource uses and development activities, as well as general information on the values and status of Jiangxi's wetland areas.

117. **Economic Valuation of Wetland PA Services:** The project will contract national experts to undertake an economic analysis valuing the goods and services provided by wetland protected areas in Jiangxi Province. The Poyang Lake system provides a range of ecosystem services that underpin the local economy, including: Provisioning Services (e.g. freshwater supply, fisheries and aquaculture, agriculture, sand and timber production); Regulating Services (e.g. flood mitigation, water purification, carbon sequestration, and air quality regulation); Supporting Services (e.g. nutrient cycling, biodiversity habitat, maintenance of genetic resources); and Cultural Services (e.g. recreation, nature-based tourism, research and education). These ecosystem services are connected to varying degrees and are ultimately dependent upon the functioning and integrity of the overall ecosystem. Previous studies have been done on specific wetland ecosystem goods or services, but this will represent the first comprehensive ecological valuation study for wetlands in Jiangxi Province. The results of this analysis will be used to help decision makers to select among different wetland PA management priorities (including those identified in the JPWPAMS), and to strike the optimal balance between wetland PA conservation objectives and economic development goals. Within the current development paradigm in China, support for wetland conservation by central decision makers and representatives of various development sectors will depend greatly on the capacity to demonstrate the overall economic values of wetland ecosystems and the potential direct economic returns to local and provincial governments from the sustainable commercial outputs of wetland ecosystems. It is also expected that this analysis will be a powerful tool to help decision makers decide on large-scale hydrological management and development activities in the region, including the possible construction of a sluice gate on the Yangtze River.

118. **Formulate wetland conservation recommendations and integrate them into governmental Development Planning Processes:** The project will work to ensure that wetland nature reserve conservation objectives (as established in the JPWPAMS) are incorporated into development plans and processes in Jiangxi Province, with the objective of ensuring that provincial development and sector planning frameworks provide safeguards from sector practices in and near wetland PAs and reduce pressure on wetland biodiversity. The primary focus will be to integrate these objectives into the existing Poyang Lake Ecological Economic Zone (PLEEZ) plan, and to strengthen the details and enforcement of regulations and zoning restrictions in the PLEEZ, particularly with regard to agricultural pollution (pesticides and fertilizers). The Ecosystem Health Index and BD Tracking Tool will enable monitoring of pressure reduction and achievement of targets. The PLEEZ has already defined three zones for the Poyang Lake region: 1) a Core Protected Area, where no infrastructure development / industry is allowed (this area is composed of grasslands and lake areas in the winter, and entirely lake area in the summer; 2) a Controlled Development Area, with some restrictions such as a prohibition on polluting enterprises and a ban on pig raising within 3 km. of the core area boundary; and 3) an Efficient and Intensive Development Area, where the only restrictions apply to some heavy polluting industries. The project will review the restrictions for each of these three areas and propose changes to further strengthen the effectiveness of this zoning regime in support of wetland conservation. Of equal importance, the project also will work through the existing Poyang Lake Wetland Management Coordination Committee to convince provincial decision-makers to increase and guarantee funding for implementation of the PLEEZ plan. At present, most of the proposed wetlands conservation programs and activities in the PLEEZ plan remain unfunded, and yet implementation of these programs could generate immense benefits for wetlands conservation in Jiangxi province. Among the most relevant programs are: investment in treatment of sewage and other waste in areas surrounding wetlands; improved management of the uplands portions of the watershed through restoration of forest systems and other measures that reduce soil erosion and nutrient run off; improvement of irrigation and other water infrastructure to make water use more efficient and productive; encouragement of new industries that use less water and have low pollution impacts; promotion of land uses appropriate to safeguarding ecosystem services through zoning, regulation and incentives– for example, keeping intensive development away from sensitive wetland areas, reducing use of hillsides or wetlands for croplands, and providing incentives for soil conservation in watershed areas; and locating key industry and infrastructure within designated zones located away from environmentally sensitive areas.

119. **Formulate wetland conservation recommendations and integrate them into Productive Sector Management Plans and Practices:** The project will facilitate agreements between PA management authorities (National and Provincial Reserves, possibly Country Forestry Departments) and other sectoral government agencies to guide the clear delineation of responsibilities for wetland PA functions / conditions. Possible agreements include an agreement with the Department of Agriculture to implement pilot organic agriculture projects (with the potential for replication); and agreements with tourism agencies to develop and implement eco-tourism guidelines, especially to control the activities of bird watching tourists. In addition, the project will work with productive sector partners to develop and enforce sector specific standards and safeguards to protect wetland PAs from practices that threaten wetland biodiversity and ecosystem services, including: i) standards for infrastructure development and operation; ii) official guidelines for tourism, fisheries, aquaculture, agriculture and land conversion in and around wetland PAs; and iii) an agreement with the Water Resources Department to reduce the sand mining quota for the Poyang Lake region (several strategies could be implemented to decrease the negative impacts of sand dredging on the Poyang Lake ecosystem, including reducing the magnitude, restricting the area, and limiting the period of dredging activities; locations used for sand dredging within Poyang Lake should be evaluated, and consideration given to eliminating sand dredging from sensitive areas such as the outlet channel where it passes from the main lake toward the Yangtze River). In addition, during the wet season, the Poyang Lake region is primarily made up of a single lake, but in the dry season, the lake is separated into 9 separate lakes, only 2 of which (Great Lake and Sha Lake) are under the direct management of wetland reserve authorities. According to *The Provisions of Migrant Birds Protection of the Poyang Lake Nature Reserve in Jiangxi Province* and *The Regulations of Protecting Poyang Lake Wetland in Jiangxi Province*, the PLNNR should have the administration and use rights of the other 7 lakes as well, but in reality the use rights of these 7 lakes belong to local economic organizations, which are conducting aquaculture, fishing, and other economic activities on the lakes. The project will work with the PLNNR and these local economic bodies to clarify roles and responsibilities for management of the lakes, including measures to reduce negative impacts on wetland ecosystem functioning. To facilitate this work, the project will share strategies and lessons learned on how best to mainstream wetland conservation into the activities and policies of various productive sectors (water resources; forestry; agriculture; fisheries; etc.) with the MSL projects in Anhui and Hubei provinces.

Component 2: Wetland PA Management Capacity is strengthened at selected demonstration sites

120. Component 2 of the project will demonstrate integrated and effective management at three wetland PA sites in the Poyang Lake region through implementing joint PA management planning, initiating community co-management processes, and undertaking monitoring, management and rehabilitation of key ecosystems and globally significant biodiversity. The focus of this component will be three wetland nature reserves (two national and one provincial) within the Poyang Lake Wetlands Ecosystem PA (PWEPA) network, which together cover 96,800 hectares and are the only actively managed and functioning wetland protected areas in Jiangxi province. In strengthening the management of these areas, the project intends to develop and demonstrate model processes and practices that can be replicated at the 9 existing county-level wetland PAs within the Poyang Lake region (covering 93,357 hectares), at 11 other county-level wetland PAs elsewhere in Jiangxi province (covering 26,274 hectares), and at any new wetland PAs that may be established in the future in the province. The project will implement a variety of activities to strengthen management of these three wetland PA units, including: an overall PWEPA management framework; management plans for each of the three wetland PAs; training of PA staff; community co-management processes to strengthen PA conservation and management activities and to increase local support and participation; rehabilitation of wetland ecological functioning; surveys and monitoring of biodiversity and ecological health; targeted species management plans; and reduction of threats to critical habitat. Staff of the 3 sites in the PWEPA will receive extensive capacity building (as described in Output 2.3), and the training programs, techniques and lessons learned in the PWEPA will then be applied to the training of the staff of county-level wetlands reserves in Jiangxi Province, but at a much more basic level (as described in Output 3.3). Furthermore, once any county-level wetland PAs in the Poyang Lake region become functionally operational, they will be integrated into the PWEPA network. Support for activities in the Poyang Lake region will include co-financing from the Jiangxi Forestry Department in the amount of US$7,180,000 for the operating expenses of the Poyang Lake National Nature Reserve, the Nanji National Nature Reserve and the Duchang Provincial Nature Reserve.

Output 2.1- Cost-effective wetland ecosystem management techniques tested and incorporated into PWEPA for replication

121. **Enhancing Wetland Resilience to potential Climate Change Impacts:** The project will test cost-effective wetland ecosystem rehabilitation and restoration techniques at the Poyang Lake and Nanji National Nature Reserves, and document best practices for replication (post-project) across the wetland biome. Wetland restoration has been a priority in Jiangxi province since disastrous flooding in 1998 demonstrated that hard engineering solutions such as dykes and sluices were not effective in flood prevention; restoration of wetlands also generates clear benefits in terms of restoring habitat for migratory birds and other species that are globally significant and crucial for local tourism development. The primary focus will be on testing strategies for the restoration of grasslands and other vegetation critical for migratory bird habitat. Such vegetation is highly sensitive to changes in the timing and extent of flooding in the Poyang Lake region; for example, higher than normal flooding in the winters of 2011 and 2013 reduced the growth of vegetation and thereby increased the number of sick and undernourished birds in the region. Thus, potential climate change impacts on precipitation and water flows pose a significant long-term threat to the suitability of the Poyang Lake region as a refuge for migratory birds. The project will create sample plots to test various varieties of grasses (such as drought tolerant grasses; or early growing grasses that can grow high enough to survive flooding) as well as various soil management strategies to promote vegetative growth. The most successful of these techniques will be documented and their replication incorporated into the PWEPA Strategy and promoted throughout wetland areas in Jiangxi Province. These results will allow for the system of wetland protected areas in Jiangxi Province to increase its resilience in the face of climate change by ensuring that core areas of functional wetland ecosystems can remain connected (or that connectivity can be restored in some cases), which will allow for the gradual redistribution of component species of different wetland ecosystems in the face of climate change impacts. In addition, the project will carry out a strategic analysis of which polders would be best removed to improve wetland ecosystem functioning and resilience to climate change impacts. The National Development and Reform Committee (NDRC) will provide co-financing in the amount of US$270,000 for wetland restoration activities.

122. **Conduct studies on the impacts of climate change and hydrologic changes and make projections and scenarios on the possible impacts on wetland ecosystems and formulate mitigation plan**

- Climate Change Impact Studies: Wetland PA authorities in Jiangxi Province believe that the primary negative impact of climate change on wetland ecosystems will come from changes in precipitation patterns, which will affect the timing and range of water levels in wetland areas, and therefore the growth of vegetation and levels of fish stocks on which migratory birds depend. However, although provincial authorities currently monitor precipitation, water levels, and changes in habitat and food resources for migratory birds, no studies or climate change scenarios have been developed to robustly predict the impacts of climate change on wetland biodiversity and ecosystem services. Of particular interest is the need for more precise information at the provincial level on the role provided by upstream non-wetland habitats such as forests and grasslands that serve as vital catchment areas for the wetlands themselves, and the potential climate change impacts on these upstream habitats, in addition to the wetlands themselves. Together with the Hubei and Anhui projects under the MSL Programme, this project will contract experts in climate change impact modelling to develop scenarios for expected climate change impacts. The project also will take account of the results of the recently terminated GIZ project on the conservation of highly carbon-storing and species-rich ecosystems (CSE), which cooperated with the Nanji National Nature Reserve in the Poyang Lake region.
- Hydrologic System Analysis & Planning: The project will carry out detailed studies of the hydrological requirements of the consolidated system of wetland protected areas in Jiangxi province, in particular with regard to the impacts of changes (from natural cycles; human activities; and potential climate change impacts) in water supply, flows and quality on wetland eco Poyang Lake Wetlands Ecosystem PA (PWEPA) network system services and habitat for globally significant biodiversity. Using hydrological data that is already collected on a regular basis (primarily by the Water Resources Department), and making use of international expertise and tools (such as the

Ramsar handbooks for the wise use of wetlands[10]), the project will use the results of these studies to bring together the Wetlands Department, the Water Resources Department, and wetland PA managers to jointly agree on policies, goals and procedures to ensure water supply, flows and quality for the wetland PA system. The project also will coordinate with and build on the findings of two co-financed projects: the International Crane Foundation research project "Study on Relations of Waterbirds, Water levels and Aquatic Plants", which is assessing ecologically viable minimum and maximum water levels (with a budget of US$55,000) and the project of the Office of the State Council Three Gorges Project for an Ecological Environmental Monitoring System Poyang Lake (US$3,120,000), which will track changes in key elements of Poyang Lake's hydrology and water quality, as well as the long-term impacts on species diversity from the Three Gorges Reservoir impoundment and seasonal water adjustment.

Output 2.2 - PWEPA Management Framework

123. **Strengthen the capacity of the Poyang Lake Wetland Management Coordination Committee:** This existing committee, which includes the relevant agencies with responsibility for management and conservation of the wetlands of the Poyang Lake region, will continue to operate during the first several years of the GEF project implementation phase. During this time, the committee will continue its role of providing multi-stakeholder coordination, policy and technical guidelines for the management of wetlands within the Poyang Lake region. In addition, the Committee will oversee the development and implementation of wetland PA management plans and the Poyang Lake Region PA Management Framework (see Output 2.2) staring in year 1 of the project, and it will be responsible for assessing the performance of wetlands resource management institutions, organizations, and individuals within the Poyang Lake region, and selecting the recipients of conservation awards and identifying organizations that must take remedial action (see Output 3.3). Members of the committee will receive technical training in elements of wetlands conservation, strategic planning, and integrated natural resources management in order to increase their capacity to develop and oversee a long-term vision and strategy for conserving the wetland ecosystems of Jiangxi Province. By year 4 of the GEF project, this committee will be transformed into the Jiangxi Province Wetland Protected Areas Coordination Committee (see Output 1.3).

124. **Develop Management Plans for PWEPA Wetland Reserves:** The project will support the development and implementation of individual PA management plans for each of the 3 PA units within the PWEPA. Each management plan will include: i) zoning of different uses and management types (as per the national guidelines for wetland protected areas that will be developed as part of the national project in the MSL Programme); ii) a coordination mechanism for regulation and management of land and natural resources in adjacent areas with the goal of reducing negative impacts on protected wetland ecosystems; iii) effective governance and law enforcement e.g. to control poaching, fishing, harvesting of wetland biomass; iv) habitat maintenance and restoration for wintering birds, especially endangered species such as the Siberian crane and oriental white stork; and v) integrated management of water management infrastructure (such as sluice gates) to ensure optimum water levels during bird-wintering period. The structure of each plan will include clear objectives; action plans; financing plans; budgets; staffing plans; and governance arrangements.

125. **Formulate overall PWEPA Management Framework:** Based primarily on the management plans developed for the three PWEPA wetland reserves, the project will develop a consolidated, long-term management framework for the overall PWEPA network. The management framework will include a shared overall vision for the three wetland reserves, and a prioritized list of key objective with specific milestones, targets and cost estimates. As part of the framework, the project will assist the three wetland reserves in establishing clear processes for the strategic allocation of resources (deployment of staff, infrastructure and equipment) and shared capacity building among the three areas in order to optimize the cost effectiveness and systemic impact of PA management activities. The PWEPA Management Framework will enable the three wetland reserves to reduce significant threats to wetland ecosystem functioning through such actions as coordinated rapid response to illegal hunting and point source pollution, and coordinated control and

[10] Ramsar handbooks for the wise use of wetlands, 4th edition, Vol. 10, Water allocation and management: Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands. See also relevant water-related Handbooks 8, 9 and 11.

eradication of on-going threats from invasive species (reeds and poplars; other plants; crayfish; etc.). The framework also will determine the allocation of resources for significant and endangered species such as various migratory bird species, the Water Deer (*Hydropotes inermis*), and the Finless Porpoise (*Neophocaena phoconoides*); and it will establish the carrying capacity of the Poyang Lake fishery and use that as a basis for reducing excess fishing capacity to a sustainable level. Finally, the framework will include plans and proposed resources for monitoring and surveys to generate data for the Jiangxi Wetland Reserves Information Management System (see Output 3.1), and it will coordinate the activities of the PWEPA reserves to orient natural resource decision-making (including productive sectors such as agriculture and industry) in the Poyang Lake region around the priority of wetland conservation. Development of the PWEPA Management Framework will include numerous stakeholders and will involve extensive consultations and feedback, revision and validation processes, so that there is widespread acceptance of and support for the framework.

126. **Establish Sustainable Financing Mechanism for the PWEPA Network:** The project will facilitate increased long-term funding for the national and provincial wetland nature reserves that constitute the PWEPA through a suite of activities focused on reducing the costs of wetland PA management and diversifying and increasing PA revenue sources. With regard to costs, the project will provide training and tools for wetland PA managers to improve financial planning and management; to increase coordination and cost sharing for training, use of technical experts, and monitoring and protection activities and equipment; and to enhance community participation on wetland management activities. In addition, project threat reduction activities to strengthen enforcement to prevent illegal poplar and reed plantations and the construction of polders that impede water flows, as well as activities to reduce agricultural pollution in areas bordering wetland reserves, will be cost effective measures that will allow wetland PA managers to avoid more expensive wetland restoration activities over the long term. With regard to revenues, the project will facilitate a systemic approach for the wetland PA units within the PWEPA system to ensure and increase government budget allocations. The establishment of the PWEPA will raise the profile of the wetland reserves of which it is constituted, and thereby facilitate efforts to ensure that existing national government budget allocations for protection measures, infrastructure, and capacity building, as well as existing provincial/local government budget allocations for the day to day operation of the wetland reserves, are not only secured but also increased. Additionally, the PWEPA management strategy will include activities to incorporate the existing Jiangxi Province nature reserve development plan, which is a long-term vision for 2010 – 2030 for all nature reserves in the province, into the provincial economic development plan and corresponding budget. To support these efforts to increase government commitments to wetland PA funding, the project will use the results of the economic valuation of wetland ecosystems (see Output 1.4) as well as the role of wetlands in climate change adaptation and disaster mitigation (see Output 1.1) to make clear the positive economic benefits of wetlands conservation. Finally, the project will carry out a study to assess the viability of different options for payments for environmental services (PES) in the wetland ecosystems of Jiangxi province.

Output 2.3 – Strengthened Capacity for Participatory Management of PWEPA Wetland Reserves

127. **Capacity Building of PWEPA Wetland Reserves:** The project will provide coordinated technical training programs for the staff of the three wetland nature reserves to strengthen critical skills required for the operational management of wetland PAs, to enhance the capacity to monitor and protect migratory birds and other critical species and habitats, and to undertake threat reduction activities to prevent the spread of illegal plantations and aquaculture operations and to eliminate illegal sand mining activities. In general, nature reserve staff will receive training in: i) wetland ecosystem-based planning and management, including species surveys and monitoring, and identifying, monitoring, mitigating and reporting on the impact of anthropogenic and natural threats; ii) participatory co-management, business planning and facilitating of income generating activities for local communities; iii) law enforcement, compliance and conflict resolution; iv) designing and implementing outreach and awareness activities; and (v) technical training for field staff. To facilitate PA management operations, the project also will provide resources such as water and meteorology monitoring equipment to monitor ecosystem conditions, water flows and pollution, and equipment (telescopes, cameras, small boats) to strengthen capacities for bird monitoring and protection, enforce limits on overfishing, enforce regulations on illegal tree planting, etc. These resources will be complemented by co-financing for additional equipment and facilities at the Poyang Lake and Nanji Reserves (the Office of the State Council Three Gorges Project has confirmed co-financing in the amount of

US$1,940,000 to strengthen management capacity at these two reserves). In the Poyang Lake National Nature Reserve, specific training priorities include: counting and identification of birds; data analysis and mapping/GIS; monitoring methodologies (e.g. more rigorous data collection practices); ecosystem restoration (e.g. measuring grassland restoration rates); development of education and public awareness programs; and co-management practices. In the Nanji Wetland National Nature Reserve, specific training priorities include: enforcement; bird identification and health monitoring; use of GIS / mapping technologies; and co-management practices. In the Duchang Wetland Provincial Nature Reserve, specific training priorities include technical training for both PA staff (bird surveying; use of equipment; wetland restoration; understanding of environmental impacts on migratory birds) and local villagers. Capacity building will be carried out through on-the-job training, technical courses and other professional development, and possibly some overseas technical training opportunities with South-South partner organizations / projects. Capacity building will emphasize hands-on, in-service training for staff as the most effective way of improving motivation, performance, understanding and commitment. The capacity building will include certificate programs for PA staff (e.g. for completing programs on bird identification or specific trainings with international experts) in order to raise the recognition accorded to staff activities and improve staff morale. While the proposed training focuses primarily on issues that are not gender specific, the project will ensure suitable gender balance during training and reinforce the principle of gender equity in the workplace. Finally, staff of the PLNNR, particularly those working in the Project Management Office (PMO), will receive training in GEF project management procedures, knowledge and skills, including: financial management procedures and regulations; project planning, with a focus on procedures and methodologies of biodiversity conservation project planning; methods and procedures of monitoring and evaluation processes, focused on: targeted technical and social economic indicators; data collection, data analysis using quantitative and qualitative methods to verify the success and impacts of the project; preparation of monitoring and evaluation reports; and project results documentation, information management and dissemination. The project also will seek to share models and lessons learned for training with the MSL projects in Anhui and Hubei provinces (see Section 2.6), and to use the professional competency guidelines for wetland PA management staff that will be formulated by the national level project under the MSL.

128. **Support Site Level Community Co-Management:** The project will assist nature reserve staff and 13 existing village committees (linked to the 11 field conservation and monitoring stations within the PLNNR, and the 2 stations within Nanji Nature Reserve) to jointly develop and implement co-management activities to strengthen conservation of wetland nature reserves and provide conservation-related benefits to local communities. To oversee these efforts, two community co-management committees (one for the PLNNR and one for the Nanji Nature Reserve) will be established, with the participation of staff from the PA headquarters and the fields, representatives from local communities, and local associations / NGOs. Prior to establishing the committees, the project will carry out a baseline surveys and outreach to better understand the concerns of local residents, to communicate the goals and processes of the project, and to identify existing and potential conflicts between local residents and wetland reserves. The two committees will meet once every year to develop general policies on land and resource use and to set the agenda for new co-management programs and practices. In addition, specific field stations and their counterpart village committees will sign agreements for participatory management; for example, field stations will agree to take enforcement action against villagers committing illegal hunting / fishing activities if so notified by the village committee. Agreements will be signed on communication and information sharing to support environmental education, to disseminate updates on new regulations as they are put into place, and to ensure timely communication of alerts about ecological violations (e.g. through a phone/text alert system). Training will be given to selected community leaders and residents in sustainable wetlands management principles. The project's work to enable county PA to establish co-management arrangements with local communities will include improved livelihood related management priorities (as determined by local communities and PA management), as any conservation activities will need local support in order to be successful, and this in turn depends greatly on addressing the economic concerns of local residents. In order to provide benefits for local inhabitants, and increase their support for wetland conservation objectives, the project will provide training to increase the number of local villagers employed in the management, monitoring and protection work of the reserves, including participation on ecosystem and species monitoring teams, on migratory bird protection teams, in routine patrolling for environmental violations, and in rapid response measures for illegal hunting, point source pollution, and other urgent ecological problems. Gender balance will be prioritized in community training, and training will include activities that recognize the central role of women in livelihoods and in the home. Output 2.2 describes other ways in which the project will support

local livelihoods and support for wetland conservation, while additional details on community participation are provide in Annex 8, Section 5.

129. **Conduct cooperative management of water bodies for conserving migratory bird habitat:** Many natural ponds and lakes in the Poyang Lake region are used for fish aquaculture, and typically these areas are drained rapidly during the winter (particularly just prior to the Spring Festival) in order to harvest all of the remaining fish. However, rapid draining of these areas inhibits the growth of vegetation and thereby reduces wetland habitat for migratory birds, and the harvest of all remaining fish eliminates an important food source for migratory birds. Although many of these water bodies are within wetland reserve boundaries, authority over them resides with village committees. The project will assist wetland PA authorities of the Poyang Lake and Nanji National Nature Reserves in designing short-term (3-5 year) lease arrangements (to be paid with co-financing) with the village committees that will grant the PA authorities the right to regulate the draining of a selected group of water bodies, and to carry out studies with university partners to determine the impacts of different drainage rates on wetland ecosystem functioning. The project also will support discussions with provincial and municipal financial authorities to explore the design of an ecological compensation mechanism to compensate fishermen for allowing the water bodies to lower at a natural rate.

130. **Joint development of sustainable employment opportunities for local residents:** In addition to employment opportunities in various aspects of wetland reserve management (see activity above), the project will work to provide other sustainable livelihood opportunities for local residents. The project will select several pilot villages in the Poyang Lake region where it will assist village leaders to secure funding for and establish mutual-assistance microfinance funds focused on financing sustainable production activities in areas bordering the wetland reserves, such as flower growing operations. The project will work with the local Co-management Committees and local governments to establish and secure start-up capital for these funds, which would be managed and supervised by the Committees. The project will also develop village-level livelihoods strategies and developing training materials for local leaders and residents, building on the lessons learned in the ICF-supported "Community-based Nature Protection" project in Guizhou Province, whose activities included providing small poverty relief grants, setting up village funds, promoting environmental education, and developing Caohai training materials. Among other possible activities, the project may provide support for fishermen who wish to quit fishing and start sustainable aquaculture, including training in aquaculture and business practices and setting aside areas for aquaculture production; and providing agricultural skills training and job information. The project also will work with village committees on the joint development of ecological tourism activities, such as establishing an annual Siberian Crane festival, and hiring local fishermen to be tour guides for migratory bird enthusiasts (boats are by far the best way to see the birds). The first step will be to undertake an assessment of the existing and potential tourism market in the Poyang Lake region, as well as an assessment of sustainable tourism levels within the PWEPA and of potential tourism related threats to wetland ecosystem services and biodiversity. Training in tourism promotion will be provided to local residents and officials in and around the three nature reserves through technical demonstrations as well as site study tours within the province.

Output 2.4 – Conservation and Monitoring of Priority Habitats and Species

131. **Carry out Ecological Health Monitoring:** The project will implement an inter-agency biodiversity / ecological health monitoring programme in the PWEPA, with the participation of protected area managers and provincial and county level departments of environmental protection and hydrology. The programme will include: i) targeted surveys to better establish baseline and target data of the biodiversity and ecological health of the Poyang Lake Wetlands Ecosystem; ii) identification of critical wetland ecosystems and setting of standards for maintaining healthy wetland ecosystems; iii) assessing and monitoring the drivers of changes in biodiversity and wetland ecosystem services, including the impacts of various land and resources uses (e.g. erosion and pollution from fertilizer and pesticide use) from upstream areas; and iv) monitoring and allocating water uses. Among other factors, the project will monitor water levels, quantity and quality (including levels of nitrogen and phosphorus); plant communities; migratory birds; algal communities; and aquaculture practices (fish species, stocking rates, feeding). Staff of the three PWEPA nature reserves will use the Management Effectiveness Tracking Tool (METT) as tools to monitor changes over the course of the project in ecological and social indicators of ecosystem change, management practices, and human behaviour. Several complementary monitoring programs will be carried out with support from co-financing

partners. The NDRC will provide US$270,000 for waterbird and habitat conservation and fixed monitoring sample lines for birds. The ICF will provide US$50,000 to improve understanding of environmental conditions necessary to promote the protection of Siberian Cranes, other water birds and their habitats, focused on Sha Hu, one of the sub-lakes within PLNNR owned by the reserve, which will provide a basis for understanding sub-lake ecology and support improved water management. The ICF will also provide US$27,000 for a Poyang Lake Wintering Migratory Birds Survey, which will improve understanding of habitats and locations important for different waterbird species wintering at Poyang Lake, and should benefit conservation planning and assessment of impacts of development projects and human activities

132. Another tool that will be used in this project is the Ecosystem Health Index (EHI), which will be used to monitor wetland biodiversity health. The EHI was developed during the PPG phase and three sites were selected for monitoring with this tool: the Poyang Lake National Nature Reserve, the Guanshan National Nature Reserve and the Yiyang Chinese Merganser Nature Reserve. Each site will undertake a baseline survey using the EHI, at which time indicators and target species for subsequent surveys also will be selected. Indicators are likely to include key wetland birds, important aquatic fauna – fish, mollusks; selected indicator insects; endangered mammals; major components of vegetation; and incidence of IAS. The index will be applied during project inception, at mid-term, and at project closing. Training courses to carry out monitoring of mammals, birds, insects, plants, etc. will be organized in the first project year by technical experts with the participation of all staff from the three reserves together. Additional details on the EHI tool are provided in Annex 9.

133. **Develop and implement Species Monitoring and Protection Plans:** The project will strengthen and expand exiting monitoring programs for globally significant species in the Poyang Lake region. Monitoring of wintering waterbirds had been carried out since 2003 in the Poyang Lake National Nature Reserve and since 2010 in the Nanji National Nature Reserve in cooperation between the National Bird Banding Centre of China and the Jiangxi Wildlife Management Bureau. Monitoring activities are carried out 3 times/month by 4-6 staff and cover species including Siberian Crane, Hooded Crane, White-naped Crane, Common Crane, Oriental Stork, Eurasian Spoonbill, Tundra Swan, Swan Goose, and White-fronted Goose, etc. In addition, since 1999 the PLNNR has cooperated with the International Crane Foundation on the project "Research on the Relations among Large Waterbirds, Water level, and Aquatic Vegetations in Poyang Lake", which has monitored large waterbirds, aquatic plants, and water levels and transparency. The project will expand the existing monitoring activities in the two national nature reserves to the whole Poyang Lake region, in order to encompass other sites that are important habitat for many of these globally significant species. The monitoring program will include participatory simultaneous surveys so as to collect consolidated information for the entire Poyang Lake region and better identify overall population numbers, dynamics and seasonal habitats, with the participation of nature reserves, wildlife offices from local prefectures and counties, research institutes and universities, NGOs and volunteers. Final selection of species will be made during the first year of the project, but these are expected to be target species listed in the Ecosystem Health Index for the PLNNR developed during the project preparation phase, specifically: Siberian Crane (*Grus leucogeranus*); Oriental Stork (*Ciconia boyciana*); Swan Goose (*A. cygnoides*); Tundra Swan (*Cygnus columbianus*); Chinese Water Deer (*Hydropotes inermis)*; and the Finless Porpoise (*Neophocaena phocaenoides*). Of the aforementioned species, the four bird species are already monitored extensively within the PLNNR; the project will facilitate the extension of this monitoring to the entire Poyang Lake ecosystem, as one of the activities supported through the co-financing provided by the Office of the State Council Three Gorges Project in the amount of US$4,300,000 for programs on bird and habitat protection, wetland protection and restoration, and rare species rescue and breeding at the PLNNR and Nanji Reserve.

134. For the two mammalian species, the project will initiate monitoring and conservation programs, including systematic surveys and other monitoring of the targeted species, as well as increased protection activities, with the goal of arresting the population decline of these species in the Poyang Lake region. At present, there are no organizations actively working to monitor or protect the Finless Porpoise (*Neophocaena asiaeorientalis*) and the Water Deer (*Hydropotes inermis*) in Jiangxi Province. The Water Deer is the largest terrestrial mammal in the Poyang Lake region, and faces various threats, primarily from hunting and habitat destruction due to development. A recent survey conducted by the PLNNR showed that the population of Water Deer in the Poyang Lake region had decreased rapidly and conservation measures need to be implemented urgently for the survival of the species in Poyang Lake. As for the Finless Porpoise, it is the

only living aquatic mammal in Poyang Lake and is severely threatened by water (chemical) pollution, fisheries impacts, and vessel strikes. A 2009 survey by the Institute of Hydrobiology in the Chinese Academy of Science showed a population of 100-400 individuals in the Poyang Lake region, a decrease from over 1,000 animals in the 1990's and approximately 400 in 2009. Each Monitoring and Conservation Plan will clarify the current population, available habitat, and key threats for each species; include an analysis of stakeholders; and present a detailed plan for participatory conservation and threat reduction with local communities (herdsmen, farmers, fishermen, village leaders) and partner agencies, which may include enhanced legal protections (to prevent hunting and harm from fishing activities); management of hydrological conditions to support Finless Porpoise habitat; controls on water pollution from agriculture and industry; and public education activities. Each plan will be integrated across all three reserves in the PWEPA, providing the opportunity for the cost-effective deployment of funds, staff and equipment to mitigate threats to their conservation. Because these species inhabit a wide range within the Poyang Lake region, development and implementation of monitoring and protection plans for these species will provide an excellent opportunity to build partnerships not just among the PWEPA wetland PA units, but also with other departments. For example, protection of the finless porpoise provides an opportunity for the Forestry and Agriculture Departments to collaborate, as the Agriculture Department has authority for aquatic reserves (including a finless porpoise reserve) but currently has no management activities at all in these reserves, while the wetland PA units under the Forestry Department already patrol and monitor many of the areas where the porpoise tends to congregate). GEF funds will be used to develop the plans, while implementation of the plans will be paid for by the relevant protected area authorities, in cooperation with the Wildlife Office of the Department of Forestry, which currently carries out protection efforts for some targeted species on an ad-hoc basis.

Component 3: Institutional & stakeholder capacities to manage consolidated wetland PA system in Jiangxi Province

135. Component 3 will focus on strengthening institutional and individual capacities to manage the overall provincial system of wetland protected areas; extending key elements of the PWEPA demonstration sites (under Component 2) to the county-level PAs throughout the province; and raising awareness / support for wetlands conservation throughout Jiangxi Province. This Component includes training programmes for Nature Reserve management and staff, for Provincial and Country Forestry staff, for sectors that have significant impacts on wetlands, and for central agencies that are mainly responsible for policy and planning in the environmental sector. Institutional capacities for protected area coordination and planning, as well as the use of strengthened information management systems, will enable the effective administration of wetland PAs throughout the province, as measured by the PA Systems Scorecard. Best practices from the demonstration sites, in particular processes and tools for PA unit management planning, training of PA unit staff, and community co-management, will be applied at all county-level wetland nature reserves in the province. Finally, education and awareness activities will target communities within and adjacent to wetland nature reserves, as well as key provincial decision-makers in Jiangxi Province (for details on why education and awareness activities will focus on communities within and adjacent to wetland reserves, and provincial decision-makers, refer to Annex 11 – Knowledge, Attitudes and Practices Survey).

Output 3.1 – Strengthened information and data system supporting coordinated and cost effective wetland PA management

136. **Jiangxi Wetland Reserves Information Management System:** The project will develop a knowledge management system for all wetland protected areas in Jiangxi Province, in order to consolidate data from various agencies into a consolidated information platform and to make that information accessible to PA managers, provincial and local government agencies, scientists and the general public. Initially, the system will prioritize the participation of the Wetlands and Wildlife Bureaus of the Provincial Department of Forestry and the 3 wetland reserves in the PWEPA system; the participation of county forestry departments and other agencies (Water Resources, Agriculture) will be promoted as they increase their involvement in wetland conservation activities. The information system will be web-based, with different levels of access for different stakeholders, and will likely use the existing website of the Wetlands Office of the Department of Forestry for the publicly available part of the system. The system will include spatial (GIS-based) and non-spatial databases; inter-agency information sharing platforms; and information on management tools and

on best practices in wetland conservation, including climate change risk management (ecosystem / biodiversity resilience enhancement), restoration parameters, and functional management strategies to maintain critical biological, physical and chemical functions of wetlands. The system also will publish an annual report on the ecological health and biodiversity of the Poyang Lake Wetlands Ecosystem. The system will be based primarily on existing wetland PA databases, supplemented with new data and lessons learned from the activities of this project. In addition, coordination will be sought with the "Digital Reserve" program of the Jiangxi Province Department of Environmental Protection for the Poyang Lake region, if and when that project gets underway. Specific activities will include: i) assessment of existing wetlands databases developed by wetland PAs, government departments and research institutions; ii) assessments of existing data /information management capacities; iii) develop a common metadata standard for all PAs; iv) develop the wetland database platform; v) create modules for statistical overviews of PAs, Climate Change, and Biodiversity; and vi) training on and operation of the platform, database and GIS. The Jiangxi system will be developed and implemented in tandem with the wetland protected areas networking system to be developed by the GEF-MSL National Level Project, which is designed to share knowledge and best management practices for wetland conservation. For this reason, the wetland database developed for Jiangxi Province will satisfy the following requirements: 1) the meta-data standards will be the same as those of the database of the MSL Program; and 2) the export format specifications will be consistent with the import format specifications of the MSL Program, so that during project implementation, the Jiangxi project can and will export data on wetland resources and wetland biodiversity regularly to the database of the MSL Program. In addition, information and lessons learned on wetland restoration, pollution control, and other ecological data (i.e. for species that migrate between wetlands in these three provinces) in the Central and Lower Yangtze Basin will be developed and shared with the MSL projects in Anhui and Hubei provinces (see Section 2.6). Finally, the proposed project will build on lessons learned on information sharing and coordination, and stakeholder participation in information networks (including sectoral management agencies for water resources, agriculture, etc.), which are being developed and tested in the in the Naoli River watershed as part of the on-going GIZ-funded project "Wetland Biodiversity Conservation in China".

Output 3.2 – Strengthened Capacity for Coordinated Management of all Wetland PAs in Jiangxi Province

137. **Cross-Sectoral Capacity Building for PA System Coordination and Planning:** The project will carry out capacity building (staffing, skills, tools) to enable policy makers and institutional leaders responsible for wetland PA management to effectively coordinate their activities and to implement a prioritized expansion of the wetland PA system in Jiangxi Province. Capacity building will include training in the development of the Jiangxi Province Wetland Protected Areas Strategy as well as PA unit management plans, and training in the creation, operation / updating, and utilization of the Jiangxi Wetlands Information Management System for systemic-level planning and individual PA management purposes. Thematically, capacity building will strive to improve planning and coordination capacities for wetland ecosystem conservation and management approaches, legislation and policies on wetland conservation, nature reserve fund-raising, project cycle management, conflict management, etc. Capacity building will target government officials of provincial government agencies related to wetland conservation and management, such as key provincial line departments (Forestry; Environmental Protection; Water Resources) and provincial policy-making organizations such as the Provincial Development and Reform Commission, and the Environment Committee of the Provincial People's Congress. Environmental NGOs focused on wetlands conservation issues in Jiangxi Province will also receive technical training in order to enhance their contributions to PA system coordination and planning. Training will be carried out primarily through participatory workshops and study tours within China, especially to other MSL Programme projects, as well as international technical training visits for provincial decision-makers at NDRC and similar institutions on issues such as sustainable financing for PAs and lake or river basin scale management. In addition, capacity building for PA system planning and management will be carried out at the annual joint meetings of the three MSL projects (Jiangxi, Hubei and Anhui provinces) in the Yangtze River basin.

Output 3.3 – Public awareness and outreach on wetland conservation and sustainable use in local communities

138. **Improve Wetland PA Visitor Centre and Education Facilities:** The PLNNR is currently finalizing the selection of a site (either in the Provincial capital of Nanchang or at the Wucheng Field Station

within the reserve) for the establishment of a visitor centre. Construction of the centre will be fully funded with project co-financing (the NDRC will provide US$340,000 for construction of the centre and the creation of materials), while GEF funds will be utilized to help with the design and creation of exhibits and educational materials. In addition to the visitor centre, both the PLNNR and Nanji Nature Reserve wish to increase the outreach and educational functions of their field stations, which at present are focused almost exclusively on monitoring and protection. The project will support the two reserves in this regard by providing funding for exhibitions, educational materials and videos for students and other visitors, and for training field station staff to provide bird watching and other tours for visitors.

139. **Develop School Wetland Protection Education Curriculum and conduct school outreach program:** The project will carry out education events on wetland ecosystem conservation in 30 primary and middle schools per year in counties and villages within and bordering the wetland PAs. In addition, a school curriculum on wetland ecosystem conservation will be developed together with the Bureau of Education and piloted in primary and middle schools.

140. **Expand the Poyang Lake Wetlands Conservation Awards Mechanism for Wintering Migratory Birds and Wetland Protection:** The project will work to expand the existing program to offer annual wetland and bird conservation awards to local NGOs or individuals from counties and villages in the Poyang Lake region (overseen by the Poyang Lake Wetland Management Coordination Committee). GEF funds will pay for analysis of the conservation performance of the nominated organizations and individuals; while funding of the actual conservation awards will come from the Jiangxi Forestry Department, which has confirmed co-financing in the amount of US$790,000 to fund the program.

141. **Outreach and Awareness Raising Programs:** The Knowledge, Attitudes and Practices survey carried out during the project preparation phase (see Annex 11) generated several findings that emphasizes the need for improved communication and outreach to stakeholders on wetlands and wetlands conservation. Many rural residents believe that nature reserves reduce their income-generating opportunities, indicating that the project should support information sharing on economic benefits and livelihood opportunities associated with wetlands conservation. In general, respondent institutions reported that they have few materials about wetlands that they can share, indicating the need for some basic information materials (e.g. posters and brochures) that each institution can easily disseminate. Many media respondents indicated that they have never written about wetlands, and that this is frequently because lack information and understanding of wetlands, indicating that information materials and training should be provided to journalists. To address these and other issues, a communications strategy will be created at the beginning of the project, and re-assessed and revised during the course of the project, to guide outreach to the general public and various stakeholders. Given the diversity of audiences to be reached, communications will utilize diverse media (television, radio, printed materials, entertainment programs) and will be adapted according to the audience and local circumstances. The project will develop and disseminate flyers, brochures, videos / documentaries, and other materials and programs to raise public awareness on wetland conservation, and to encourage and enable local people and students in particular to visit and conduct fieldwork (such as plant collection, bird-watching, patrolling, and fish monitoring). The project also will continue and expand a recently initiated program in the Poyang Lake region whereby local community members develop and perform in folk operas on wetlands related issues, and it will initiate a Siberian Crane festival and organize various bird-watching events. The focus of most outreach activities will be on communities within and bordering the wetland PAs, as these communities have by far the greatest impact on the ecosystem functioning of the wetlands. In addition, however, the project will establish a website for all wetland PAs in Jiangxi Province (as the public component of the information system created under Output 3.1), as well as other forms of outreach through social networks and other mechanisms. Finally, the project will work to increase awareness among decision-makers at the provincial level on the values of wetland ecosystems, and also will help to coordinate the efforts of national experts who are working to ensure decisions on water infrastructure schemes for the region are based on accurate data and an appreciation of wetland conservation values. Details on the channels and mechanisms that will be used for outreach and awareness raising, and on the messages that will be directed towards different stakeholder groups, are provided in Annex 11.

3.3. Expected project outcomes

142. The key outcome and impact indicators include:

- Increase in the area of effective management and protection of wetlands in the Poyang Lake region, through the expansion of monitoring and patrolling (based out of 6-7 newly established PLNNR field stations) to an additional 93,357 ha of wetlands outside of the boundaries of the PLNNR, Nanji and Duchang wetland reserves
- Increase in the area of effective management and protection of wetlands in the Poyang Lake region, through the improvement in management and protection across 96,800 hectares of existing PA hectares (area within PLNNR, Nanji and Duchang reserves).
- Increase in the area of wetland reserves outside of the Poyang Lake region that are strengthened through new provincial level management, planning, information, financing and training frameworks, by 5,662 hectares
- PA Management Effectiveness Tracking Tool (METT) scores improved over baseline values at 2 national, 1 provincial and 9 county-level wetland PAs within the Poyang Lake region
- Improved or stable scores on Ecosystem Health Index (EHI) at three selected nature reserves in Jiangxi Province: Poyang Lake National Nature Reserve; Guanshan National Nature Reserve; and Yiyang Chinese Merganser Nature Reserve
- Strengthened capacity for PA management, as measured by an increase in the Total Capacity Development Score in the UNDP-GEF Capacity Scorecard, for all PAs within the PWEPA system
- No net increase in the area of production activities (illegal plantations and aquaculture operations) within Poyang Lake region in habitat areas for migratory bird species
- 30% reduction in illegal resource use incidents (hunting; illegal polders; fishing out of season; etc.) in 3 targeted PAs attributed to protection effort, strengthened regulations, establishment of new field stations, and training of PA staff and local residents
- Species conservation plans, including strengthened monitoring, patrolling and training in species-level management, for 6 globally significant and threatened / endangered species in the Poyang Lake region

3.4. Alternative strategies and methodologies considered - cost-effectiveness analysis

143. During project design, several alternative strategies were considered from the point of view of cost-effectiveness. One alternative considered for the project was to establish new wetland reserves in Jiangxi Province. However, the project will focus on expanding effective management to areas that are already within existing PAs, for several reasons: 1) existing PA units already cover the vast majority of critical wetland ecosystems and migratory bird habitat in the province; 2) large areas of the two national and one provincial level wetland PAs are not included in any management / conservation activities; 3) none of the twenty existing county-level wetland PAs, which contain important wetland ecosystems, are demarcated or actively managed; and 4) the project has more chance of success through expanding existing PA units "unofficially" through 6-7 new field stations, as there is little political support for "official" expansion through establishing new wetland reserves.

144. Another alternative that was considered was to focus project efforts on upgrading the Duchang Provincial Wetland Reserve to become a national reserve and/or to seek Ramsar designation for some of the existing wetland reserves in Jiangxi Province. These options were not included in the final project design for several reasons. With regard to upgrading the Duchang reserve, a similar process was completed for the Nanji reserve in 2008, and this process took almost 8 years and generated resistance from the Department of Agriculture (regarding controls on fishing). Furthermore, the Provincial Government has not provided funding for the Nanji Reserve, which has limited its effectiveness. For these reasons, it was considered more cost effective to strengthen the management of the Duchang Reserve as a provincial-level reserve and not to spend resources on an uncertain effort to upgrade the reserve. With regard to Ramsar designations, these require a significant investment in biodiversity surveys, bringing management planning in line with international standards, training of staff, and the) provision of monitoring and patrolling equipment, all of which must be approved and funded by the Wetlands Office of the National Forestry Bureau. This office has not selected any reserves in Jiangxi Province (apart from Poyang Lake, which already has Ramsar designation) for this process; it is however more likely to do so after the survey, planning and capacity building activities of the proposed GEF project have been completed.

145. The design of the proposed project incorporates cost effectiveness measures. Highly costly activities, such as wetlands ecosystem restoration, have been limited to demonstration-level activities and are supported by significant co-financing. Similarly, infrastructure spending is almost entirely co-financed, with GEF funds for infrastructure limited to the design of a new environmental education center. The project also will make use of national consultants for almost all of the technical inputs, and will focus most of the training and information sharing on best practices on exchanges with other projects in the CBPF-MSL Programme within China. Furthermore, by developing and strengthening community co-management structures and the participation of local residents in the management of wetland reserves, the project will help to mobilize social resources and county and village level governments in wetlands conservation. In addition, each of the full-time project staff persons will be housed within the project management unit of the Poyang Lake National Nature Reserve, thereby eliminating the costs associated with setting up an independent project office and ensuring that the PLNNR is well positioned to absorb lessons learned and carry forward and expand the project outcomes and outputs.

146. This project represents a total GEF investment of approximately US$5.29 million. This investment will catalyze the improved use of baseline conservation investments of approximately US$35 million. The targeted GEF investment will re-align nearly the entire baseline to strategically support the achievement of ecosystem-based conservation objectives. The result is a relatively small amount of financing leveraging the long-term conservation of critical landscapes and associated global benefits.

3.5. Sustainability

147. *Environmental Sustainability:* The project will enhance environmental sustainability by strengthening the sub-system of Wetland PAs in Jiangxi Province, which encompass the most of the natural wetland areas in the province including areas highly important for biodiversity conservation and for the natural functioning of the province's hydrological systems and other wetland ecosystem services. By strengthening the system of existing wetland reserves, the project will allow for best practices to be replicated and up-scaled at new wetland protected area sites as these are established post-project, and will enable relevant authorities to expand the wetland PA system with improved knowledge of the necessary size, habitat representation, and connectivity required for optimal sub-system design for both biodiversity conservation and increasing resilience to climate change impacts. The focus of the project on creating institutional, legal and policy frameworks that better support wetlands conservation, and efforts to improve inter-agency coordination and the participation of productive sectors, will further strengthen the likelihood that wetlands conservation will be effective at newly established wetland PAs, as well as wetlands that are not within official PA boundaries.

148. *Institutional Sustainability:* Building the capacity of institutions to sustainably support the long-term health of Jiangxi's sub-system of wetland PAs is a key objective of the project. The project will strengthen various institutions at the provincial, county, and municipal levels, through targeted training programs as well as participation by these agencies in the implementation of various project activities. Much of the project's efforts are focused upon providing institutions with the tools required for long-term planning and coordination, e.g. provincial and village level committees that involve all key stakeholders. The strengthened capacity of the three wetland reserves within the PWEPA will be a key outcome for institutional sustainability as it will not only ensure the capacity of management authorities for these reserves, but also will establish mechanisms whereby this capacity is shared with and supports numerous county-level wetland reserves, which at present have extremely limited capacities. These reserves, thanks to the experiences gained through the project, but also through the fine-tuning, adoption, and deployment of key management tools (the METT, the EHI, the Capacity Scorecard, and the KAP), will become models for wetland PA management in the province and hopefully for other areas in China. Furthermore, by working with productive sector companies and institutions to mainstream wetlands conservation into their practices, the project will generate new institutional partners that can help to mitigate negative impacts on wetlands.

149. *Financial Sustainability:* The financial sustainability of outcomes sought by the project will in part depend upon the Government's continued support for wetlands conservation. For this reason, the proposed project is designed to act as a catalyst to shift wetlands conservation from an approach based on specific wetland reserves to an ecosystem-based management approach that will involve additional stakeholders and demonstrate economic benefits for all sectors of society. The project will strengthen financial sustainability by establishing a systemic approach to wetland PA management that can incorporate the budgets of national

and provincial sectoral agencies into wetland PA management and conservation; in this way the project will act as a catalyst to ensure that these resources flow into strengthening and maintaining of the sub-system of wetland PAs. Furthermore, the project aims to develop new funding sources, financing mechanisms and business planning for wetland PAs. Finally, the project will help to reduce PA management costs by ensuring improved coordination and sharing of resources among wetland reserves; by eliminating duplication of activities; and by establishing cost-effective systems and processes. For example, the common data standards and a common information platform developed by the project can be used by all wetland reserves, which will allow reserves to avoid continuing to maintain multiple overlapping datasets and will help the reserves and provincial planners to allocate scarce resources to the most pressing problems as identified by the information systems.

150. *Social Sustainability:* To be sustainable, conservation activities need local support, and therefore the proposed project is designed to enhance social wellbeing. Community members and their government representatives will receive greater inclusion in decision-making processes, particularly through wetland reserve co-management processes. Community members will be provided with better options for alternative livelihoods and with the necessary capacities and access to knowledge resources to develop such activities. The project will introduce help to safeguard the capacity of wetlands to be long-term providers of ecosystem services, and it will better regulate resource uses to avoid excessive exploitation and ensure that wetlands-based resources are maintained over the long-term. The KAP survey carried out during project preparation has helped project proponents to understand public perceptions and attitudes regarding wetlands conservation and sustainable resource uses; this understanding has been incorporated into project design and will continue to guide project implementation. Proper communication will be done with community representatives, letting them know the main objectives of the project, the role they can play and the possible benefits they can get from the project.

151. *Gender:* As wetland ecosystem services are degraded, the welfare of local communities is increasingly at risk. This is particularly true for women in the rural areas of Jiangxi province that constitute most of the wetland reserves and their boundary communities; because many men from local communities migrate to the cities, women take more responsibility for rural production and natural resources utilization. However, women (as well as other disadvantaged groups such as low income households and the handicapped), are frequently are ignored by local authorities, with the result being that rural women and families of women headed households are often the poorest of the rural poor and the most vulnerable to the loss of wetlands ecosystem services. This project will help to stabilize these valuable ecosystem services. Furthermore, gender balance will be prioritized in project implementation activities, including village committees, activities for the co-management of nature reserves, and training local residents, which will include activities that recognize the central role of women in livelihoods and in the home.

3.6. Replicability

152. The project is designed to build effective and replicable models for ecosystem-based management of wetlands protected areas, and each of the project's three components is designed to contribute to this objective. Component One's provincial-level activities will establish the necessary coordination, planning and institutional frameworks to facilitate wetland PA management and expansion throughout the province, including mainstreaming wetlands conservation into the plans and activities of productive sector institutions and companies. During the latter stages of the project, outreach will be done with these stakeholders to mobilize more funds for replication of key project outputs. Component Two will develop replicable demonstration models of wetland reserves; lessons generated from the three reserves in the PWEPA system will be used to build capacity across the protected area system. To facilitate upscale and replication of best practices, the project has selected 6 county wetland reserves as the priority areas for replication of activities developed at the PWEPA sites. Managers of these sites will benefit from capacity building in management and technical areas, the development of management plans, and additional resources, and will participate in information exchanges with each other and with the PWEPA sites. Component Three will create improved information management systems and generate stakeholder understanding of and support for wetlands conservation at the provincial level, setting the stage for replication throughout the province. Within Jiangxi Province, the current 12th Five Year Plan includes the objective of the effective protection of 70% of all natural wetlands in Jiangxi Province, as well as the effective protection of 80% of wetlands defined as nationally important. The lessons learned and models for wetland PA management that will be developed in

the proposed project will therefore be of significant use within the Province, as they will provide provincial authorities with improved information to select priority sites; a better understanding of the costs associated with different wetlands conservation strategies and with different ecological conditions; and models for the most effective wetland PA management strategies.

153. As noted in Section 2.6, the proposed project is one of 6 projects in the national China Biodiversity Partnership and Framework for Action - Mainstreams of Life (CBPF-MSL) Program "Wetland PA System Strengthening for Biodiversity Conservation"; this will present multiple opportunities for replication of the project outside of Jiangxi province. Within the overall CBPF-MSL Programme, the Jiangxi project is one of three projects located at sites along the middle Yangtze River, along with the projects in Hubei and Anhui provinces. All three provinces share similar conservation challenges and opportunities, propose similar approaches to wetlands conservation, and will be implemented at roughly the same time (scheduled to commence in mid to late 2013 and to end in 2018). The geographic closeness and programmatic similarities present an excellent opportunity to coordinate efforts, generate economies of scale, and ramp up project results to impact a substantially larger geographic area. During project design, substantial dialogue occurred to help make certain each of these three projects is well aligned and coordinated. This coordination, including opportunities to exchange lessons learned and build replicable models, will be solidified during the inception period for all three projects.

154. In addition, as part of the CBPF-MSL, lessons learned in the Jiangxi project will have a clear platform for up scaling and replication at the national level (see the national SFA Wetland Programme UNDP-GEF project document for full details regarding coordination and lessons learned). In addition to the MSL, the following GEF projects under the CBPF have a focus on wetland conservation: Mainstreaming Biodiversity Protection within the Production Landscapes and PAs of the Lake Aibi Basin (2009-2014) (WB), Jiangsu Yancheng Wetland System Protection Project (2011-2013) (ADB), Demonstration of Estuarine Biodiversity Conservation, Restoration and PA Networking Project (2011-2016) (FAO), and Securing Biodiversity Conservation and Sustainable Use in China's Dongting Lake PAs (2011-2016) (FAO).

3.7. Risks Management and Environmental Impact Assessment

Fiduciary risks analysis and mitigation measures

155. China's overall fiduciary environment was characterized in the World Bank Country Partnership Strategy (CPS) with China 2009-2012 as improving with some weaknesses. Procurement of goods and works seemed to be done through competitive transparent bidding processes, but the contracting of consultants was assessed to be not always competitive but more based on already established relationships with research institutions than ensuring that a consultant with the correct qualifications able to deliver quality products is hired for the job. The financial management was assessed to be of medium quality. As a consequence the World Bank (WB) has in the last five years provided substantial training to the Ministry of Finance (MOF) staff in public financial management and supervision complying with international acceptable standards. Project financial management is now undertaken in accordance with Circular 13 issued by the MOF for all donor funds. Further, the China National Audit Office (CNAO) Foreign Funds Application Audit Department conducts audits of projects. CNAO is also increasing its focus on performance audits and assessment of sustainable development. The results of the project financial and performance audits are now made available to the public. The WB CPS with China 2013-2016 states that the Bank will continue to support greater use of country systems for financial management, procurement, contracting, monitoring and control. The WB and the Asian Development Bank are working together to help harmonize procurement legislation and prepare model bidding documents. The Governments own systems for financial management is already harmonized with international fiduciary standards and best practices. The Project to be executed by the The Poyang Lake National Nature Reserve (PLNNR) (see section 4.1 and 4.2) will benefit from these improved capacities and instruments at the national level.

156. The Poyang Lake National Nature Reserve (PLNNR) is the project executing agency (EA) designated by the Forestry Department of Jiangxi Province. Executing partners include Jiangxi Wildlife Protection Administration, Jiangxi Forestry Department Wetland Protection and Management Office, the 11 wetland protected areas in Poyang Lake region and relevant counties around Poyang Lake area. As part of

the project preparation an assessment of PLNNR's fiduciary standards and related risks for the project execution was carried out by the FAO in April 2013. The assessment included PLNNR's regulations, systems, procedures and capacities to comply with FAO and GEF fiduciary standards and requirements in financial management and funds flow, personnel staffing, procurement policy and procedures, accounting policies and procedures, internal and external audit, project planning, reporting and monitoring as well as information systems. As a result of the assessment the overall fiduciary risk was rated as low to moderate, mainly because PLNNR has only very limited experience in managing multilateral funds and results based project planning, monitoring and reporting. However, these risks can easily be mitigated because of PLNNR's experience in working in projects financed by other international and bilateral sources, the solid systems and procedures it is using, and the capacity and commitment of its staff demonstrated during project preparation. The full assessment is available on FAO Field Project Management Information System (FPMIS)

157. Established in 1983, the PLNNR is a governmental authority under the Jiangxi Provincial Forestry Department. The overall administrative functions of the PLNNR are protection of wetlands and wildlife and conservation of ecosystems of the Poyang Lake Region. In the past three decades PLNNR has been successfully collaborating with GEF, International Crane Fund (ICF), World Wild Life Foundation (WWF), Asia Wetland Bureau (AWB), Hong Kong Chinese University, universities in the Netherlands and United Kingdom, Rare Animal Relief (RARE), etc. Through cooperation with these international organizations, the PLNNR has developed its professional team and its capacity for implementing international cooperation programs. For preparing and implementing the proposed GEF project, a Provincial Project Leading Group was set up in October 2012, and a GEF Project Management Office (PMO) was established within the PLNNR at the same time. The PMO effectively coordinated the project preparation work, identified and coordinated local consultants, worked in partnership with international consultants, and established the project management team.

158. Financial management and accounting is done in accordance with China's public Institution Accounting Norms and China's Public Institution Financial Management Regulations issued in 1990 and later updated to International Accounting Standards. In October 2010 and January 2011 PLNNR issued two internal official documents, namely "*PLNNR Administrative Regulation*" and "*PLNNR Project Fund Management Procedures and Regulations*". The two documents were circulated to PLNNR internal divisions and field PAs and stations and are official guidelines for financial planning/budgeting and project fund management. PLNNR has also implemented an accounting system strictly following the national norms and aligned with International Accounting Standards. Procurement and contracting are governed by the Governmental Procurement low of the People's Republic of China stipulating procurement modalities, tendering procedures, contracting arrangements, complaints procedures, inspection, etc. and ensuring transparency, competitiveness and cost-effective use of public funds. There is a Discipline Inspector in PLNNR nominated by the Forestry Department in charge of internal financial audit and inspecting disciplinary behaviour of PLNNR staff carrying out yearly internal audits of the use of project funds. The procedures and contents to be audited are following the governmental public project auditing regulations. External audits are performed by the Provincial Audit Office entrusted by the National Audit Office (NAO)

159. In relation to project planning, monitoring and reporting the experience of PLNNR dates three years back and some of the newer staff does not have experience in Results Based Project management including work planning, progress reporting and financial management based on a Results Framework, which needs to be mitigated through training of PMO (Project Management Office) staff in the project inception period. Also the lack of systematic dissemination of information to all partners as part of the project's information management system in previous projects was detected as a minor deficiency. In general, even though PLNNR/PMO staffs have high capacity in financial, procurement and project management, they will need to be trained in FAO formats and procedures in relation to the transfer and management of funds.

160. To mitigate the minor fiduciary risks identified in the fiduciary risk assessment a Mitigation Plan for Fiduciary Risks was agreed to between the FAO Representation in China and the PLNNR including deadlines for actions to be taken linked to funds transfer as presented in table 3 below:

Table 3: Mitigation Plan for Fiduciary Risks

Identified risks	Causes	Impacts	Mitigation measures and actions for correction
Funds Flow	The PLNNR and PMO does not have capacity to manage foreign exchange risk and CPI inflation	The USD has only been slightly devaluated compared to the Chinese Yuan the last 5 years. However, the fluctuating USD combined with CPI inflation rates could cause difficulties in financial planning and management	Include 2-5 % contingencies under miscellaneous in the project budget.
Accounting Policies and Procedures	PLNNR and PMO has not cooperate with FAO in the past and it is first time the will implement an entire international wetland conservation project Project staffs are not yet familiar with FAO financial and accounting policies	Reduce the accounting and financial management efficiency of PLNNR Risk is low	FAO, DOF and PLNNR will sign an Execution Agreement (EA) with specific description of the agreed policies, procedures and responsibilities of each party to ensure the smooth implementation. Time of Action: February 2014. PLNNR should prepare a Project Implementation Manual (PIM) based on the project Executing Agreement signed by FAO, MOF and PLNNR with more detail description on accounting and financial management and reporting procedures and steps aligned to FAO and MOF policies, and regulations. The PIM shall also include whom to report to in case of suspicion of frauds, waste, or misuse of GEF funds and details responsibilities in the daily management within PNNLR. The PIM should be submitted and cleared by FAO. Time of action: before first disbursement. FAO and MOF will provide training of PNNLR financial management staff on FAO and MOF account and financial management policies, procedures, reporting formats, accounting methodologies, etc. Time of action: Before second disbursement.
Reporting and Monitoring	PMO planning and M&E official is not yet familiar with the FAO reporting format and M&E procedures. PLNNR staff has no experience in Results based Project Management based on a Results Framework approach Lack of capacity to professionally	May cause difficulty and problems in the project initiating period May cause difficulties in project planning and progress monitoring and ultimately in timely achievement of results This already caused difficulties and problems	Include part time TCA in project budget fluent in Chinese and English who can support on project monitoring and monitoring as well as risk mitigation and technical guidance PMO and FAO project officers will work together to develop planning, reporting and M&E procedures and formats of reports based on the EA and with emphasis on detailed roles and responsibilities for field supervision visits to give technical

	communicate with FAO staff and international consultants	in the project preparation period and will potentially affect the effectiveness of implementation Moderate risk, can be mitigated through training	support to APs and activities on-the-ground to achieve quality project outputs and outcomes, The agreed procedures and responsibilities will be incorporated into the PIM. Time of action: before second disbursement of funds FAO training of PLNNR/PMO and PA staff in project planning, reporting and monitoring including FAO project monitoring and progress reporting based on Results Based Management (RBM). Time of action: Before second disbursement.
Information Systems	Project documents and reports management system is not yet established. No strategy for project results, best practices and lessons learned systematic dissemination	This will affect the efficiency of internal and external information exchange. Also affect the efficiency of the dissemination of project results.	PMO will design and establish the information and document management structure. Time of action: before second disbursement of funds. Designate the information and document management tasks to one PMO staff: Time of action: before second disbursement of funds. Prepare a results and best practices dissemination strategy which will be implemented led by the designated PMO staff.

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Risks and mitigation measures

161. The following table details the risks faced by the project, the risk level, and the mitigation measures that will be put in place to mitigate these risks:

Risk	Rating	Risk Mitigation Measures
Inter-institutional Coordination: Poor ccooperation and coordination between the PLNNR PMO, the Wetland Office, the Wildlife Protection Office, the Nanji Wetland Natural Reserve Administration, and the Duchang Wetland Natural Reserve Administration	N	• Cooperation and coordination between these entities will be strengthened through: (i) effective information exchange and communication, i.e. sharing the project progress report, inviting technicians and staff to participate in the Wetland Management Plan development and in the technical training; (ii) regular coordination meetings (project steering committee; Poyang Lake Wetland Management Coordination Committee; Jiangxi Province Wetland Protected Areas Coordination Committee); and (iii) the Annual project review and planning workshops and the multi-stakeholder replication meeting (in year 4 of the project).
Poor PA management coordination between the Bureau of Forestry and different line agencies could undermine the wetland PA network's achievement of conservation objectives by		• Stakeholders have committed to the project and to the establishment of a new, permanent inter-agency Jiangxi Province Wetland Protected Areas Coordination Committee • The project will facilitate formal agreements between PA management authorities (National and Provincial Reserves, possibly County Forestry Departments) and other sectoral government agencies to guide the clear delineation of responsibilities for wetland PA functions / conditions.

Risk	Rating	Risk Mitigation Measures
limiting the effectiveness of PA management.		
Policy Formulation: Slow uptake of policy recommendations stemming from project-supported policy studies could prolong the current situation characterized by growing threats to wetland biodiversity, low management effectiveness and limited inter-institutional collaboration in response to existing threats and constraints.	N	• The project will support the creation of various mechanisms to support the adoption and application of new policies by key stakeholders. For example, by establishing specific regulations under the new Jiangxi Wetland Protection Ordinance to enable the consolidation and strengthening of wetland PA practices, a clear legal mandate will be in place requiring action by relevant agencies. • Similarly, the new Wetland Protected Areas Strategy for Jiangxi Province will help to establish coordinated and system-level decision-making for the management of all wetland PAs in the province, while the PA Coordination Committee (see above) will act as a mechanism to ensure implementation of the strategy and a clear delineation of responsibilities for that implementation among different stakeholders. • The project also will work directly with provincial development and sector plans, especially the Poyang Lake Ecological Economic Zone (PLEEZ) plan, to strengthen the details and enforcement of existing regulations and zoning restrictions in the PLEEZ plan that will support newly established conservation priorities and policies. • Finally, the project will implement capacity building and public awareness raising activities in support of relevant policy reforms directed at both key decision makers as well as the public at large.
Climate Change: Climate change as manifested through increased variability in water levels and duration and the occurrence of extreme events (e.g., floods and drought) could undermine the achievement of biodiversity conservation objectives.	M	• The Project will integrate *inter-alia* climate risks and climate proofing measures into PA system planning and PA unit management plans to promote the integration of adaptation measures. • The project will emphasize the importance of PA protection measures in enhancing the resilience of wetland ecosystems in the face of possible climate change impacts, and management measures that enhance resilience will be prioritized. • PA management training will also emphasize the importance of adaptive management practices, informed by a practical monitoring program, to enable PA management to respond to climate stresses more effectively.
Currency Risk. Significant fluctuation in foreign currency exchange rates may pose a risk to the achievement of all project outputs and outcomes.	N	This risk has been addressed by incorporating a 3% contingency line item in the project budget.
Financial risks and sustainability of incentives	M	• The project's work to enable county PAs to establish co-management arrangements with local communities will include improved livelihood related management priorities (as determined by local communities and PA management), as any conservation activities will need local support in order to be successful, and this in turn depends greatly on addressing the economic concerns of local residents. • In order to provide benefits for local inhabitants, and increase their support for wetland conservation objectives, the project will provide training to increase the number of local villagers employed in the management, monitoring and protection work of the reserves, including participation on ecosystem and species monitoring teams, on migratory bird protection teams, in routine patrolling for environmental violations, and in rapid response measures for illegal hunting, point source pollution, and other urgent ecological problems. • The project also will work to provide other sustainable livelihood opportunities for local residents so as to sustain local support for wetlands conservation. Several pilot villages in the Poyang Lake region will be assisted in securing funding for and establishing mutual-assistance microfinance funds focused on financing sustainable production activities in areas bordering the wetland reserves, such as flower growing operations. This work will also include developing village-level livelihoods strategies and developing training materials for local leaders and residents, and working with village committees on the joint development of ecological tourism activities, such as establishing an annual Siberian Crane festival, and hiring local fishermen to be tour guides for migratory bird enthusiasts (boats are by far the best way to see the birds).

Risk	Rating	Risk Mitigation Measures
		• Finally, the project will facilitate discussions with provincial and municipal financial authorities to explore the design of an ecological compensation mechanism to compensate fishermen who allow PA management authorities to control the drainage of lakes and ponds to lower at a natural rate.
Risk of low or no cooperation of communities associated with the wetland PAs or their buffer zones	M	• As noted above, various incentives and programs will be put into place to encourage local residents and leaders to support wetland PA conservation measures. • In addition, the project will assist nature reserve staff and 13 existing village committees to jointly develop and implement co-management activities to strengthen conservation of wetland nature reserves and provide conservation-related benefits to local communities. • To oversee these efforts, two community co-management committees (one for the PLNNR and one for the Nanji Nature Reserve) will be established, with the participation of staff from the PA headquarters and the fields, representatives from local communities, and local associations / NGOs. • In addition, specific field stations and their counterpart village committees will sign agreements for participatory management; for example, field stations will agree to take enforcement action against villagers committing illegal hunting / fishing activities if so notified by the village committee. Agreements also will be signed on communication and information sharing to support environmental education, to disseminate updates on new regulations as they are put into place, and to ensure timely communication of alerts about ecological violations (e.g. through a phone/text alert system). • Training will be given to selected community leaders and residents in sustainable wetlands management principles
Risk that economic development and land reclamation will overtake plans for wetlands and biodiversity protection	M	• Historically, land reclamation was responsible for a significant decline in the area and volume of Poyang Lake. However, land reclamation in the region was substantially reduced in the 1970s and has been banned since the 1980s. Economic development activities, including commercial fishing, sand dredging, aquaculture, and agricultural development, continue to pose a threat to conservation of wetland ecosystems in the Poyang Lake region. • The project will undertake an economic analysis valuing the goods and services provided by wetland protected areas in Jiangxi Province, the results of which will be used to help decision makers to select among different wetland PA management priorities (including those identified in the JPWPAMS), and to strike the optimal balance between wetland PA conservation objectives and economic development goals. • The project will work to ensure that wetland nature reserve conservation objectives are incorporated into development plans and processes in Jiangxi Province, with the objective of ensuring that provincial development and sector planning frameworks provide safeguards from sector practices in and near wetland PAs and reduce pressure on wetland biodiversity. The primary focus will be to integrate these objectives into the existing Poyang Lake Ecological Economic Zone (PLEEZ) plan, and to strengthen the details and enforcement of regulations and zoning restrictions in the PLEEZ. For example, regulations on agricultural pollution (pesticides and fertilizers) can be strengthened; strategies could be implemented to decrease the negative impacts of sand dredging, including controlling the dredging magnitude, limiting the dredging period, and regulating the areas where dredging is allowed; and provincial authorities could prioritize the growth of new industries that use less water and have low pollution impacts. • The project will work with productive sector partners to develop and enforce sector specific standards and safeguards to protect wetland PAs from practices that threaten wetland biodiversity and ecosystem services, including: i) standards for infrastructure development and operation; ii) an agreement with the Water Resources Department to reduce the sand mining quota for the Poyang Lake region; and iii) official guidelines for tourism, fisheries, aquaculture, agriculture and land conversion in and around wetland PAs.
Sand mining: Current levels of sand mining in Poyang Lake	M	• The project will undertake advocacy through the mechanism of the Jiangxi Province Wetland Protected Areas Coordination Committee to reduce the overall

Risk	Rating	Risk Mitigation Measures
region have negative impacts on ecosystem services; decisions on sand mining permits are made by county governments who derive significant income from these permits		sand mining quota for the Poyang Lake region (set by the Provincial Water Resources Department), which will thereby limit the amount of permits that county governments can issue. • In addition, by strengthening overall monitoring and enforcement capacity of wetland nature reserves in the Poyang Lake region (including all areas of the region, within and outside of reserves), the project will increase the capacity to prevent illegal sand mining operations.

<u>Water management impacts:</u> The proposed Poyang Lake water control programme includes the possible construction of a sluice gate between Poyang Lake and the Yangtze river. If approved and built, the sluice gate will be kept closed during the dry season (winter months), which has the potential to contribute to changes in wetland ecological dynamics, particularly in the timing and degree of the lake's water level, which in turn could impact inter-tidal areas, vegetation zones and the availability of food resources for migratory birds; and could produce eutrophication in parts of Poyang Lake. If constructed, the sluice gate also would constitute a seasonal impediment to the migration of the finless porpoise between Poyang Lake and the Yangtze River. In addition, there are also risks from the construction of upstream dams (primarily for hydropower) in the Poyang Lake watershed (approx. 95% of Jiangxi Province), which could also create changes to wetland ecological dynamics in the Poyang Lake region (though likely at a smaller scale than the potential sluice gate).	S	• The Jiangxi Provincial Party Committee and Jiangxi Provincial Government supported by national Chinese Academy of Science are actively conducting research into the proposed sluice gate. Any decision on the sluice gate is likely to still be several years off into the future. This will provide an opportunity for the Poyang Lake Project to establish clear scientific and economic information that will be a powerful tool to help decision makers decide on large-scale hydrological management and development activities in the region, including the possible construction of a sluice gate on the Yangtze River.
		• It will also enable the project to undertake policy coordination activities and awareness raising to ensure that the needs of the Poyang Wetland Ecosystem are effectively communicated to key stakeholders, including the new Governor (as of March 2013) of Jiangxi Province, prior to taking any decisions. Activities will include:
		  • The project will carry out detailed studies of the hydrological requirements of the consolidated system of wetland protected areas in Jiangxi province, in particular with regard to the impacts of changes (from natural cycles; human activities; and potential climate change impacts) in water supply, flows and quality on wetland ecosystem services and habitat for globally significant biodiversity.
		  • The project will use the results of these studies to bring together the Wetlands Department, the Water Resources Department, and wetland PA managers to jointly agree on policies, goals and procedures to ensure water supply, flows and quality for the wetland PA system. The project also will coordinate with and build on any findings of the ongoing International Crane Foundation research project "Study on Relations of Waterbirds, Water levels and Aquatic Plants", which is assessing ecologically viable minimum and maximum water levels.
		  • The project will contract national experts to undertake an economic analysis valuing the goods and services provided by wetland protected areas in Jiangxi Province. The results of this analysis will be used to help decision makers to select among different wetland PA management priorities (including those identified in the JPWPAMS), and to strike the optimal balance between wetland PA conservation objectives and economic development goals. Within the current development paradigm in China, support for wetland conservation by central decision makers and representatives of various development sectors will depend greatly on the capacity to demonstrate the overall economic values of wetland ecosystems and the potential direct economic returns to local and provincial governments from the sustainable commercial outputs of wetland ecosystems.
		  • Creation of the permanent inter-agency Jiangxi Province Wetland Protected Areas Coordination Committee, and establishment of the Jiangxi Wetland Reserves Information Management System, to bring together all key provincial-level stakeholders and to provide them with the most up to date and comprehensive data on the ecological and economic values of wetlands and the potential impacts of various water infrastructure schemes
		  • Increasing awareness among decision-makers at the provincial level, and also helping to coordinate the efforts of national experts who are working to ensure that the decision on the sluice gate and other water infrastructure schemes is based on accurate data and an appreciation of wetland conservation values
		• In addition to the efforts of this project, because the risk of dam construction is common in all wetland PAs in China, the overall MSL Programme will take a proactive approach to this potential risk, through ensuring that national development and sector planning framework provides biodiversity safeguards at the national and provincial levels. The MSL Programme will also support

Risk	Rating	Risk Mitigation Measures
		development of concrete mechanisms to reduce negative impacts from dams at the provincial and site levels; for example integrating wetland biodiversity concerns in dam design, siting and operation • It is also important to note that the size and water level of Poyang Lake has decreased in recent decades, and this is one of the motivating factors for the construction of a sluice gate. The estimated area of Poyang Lake was 5,160 sq. km. in 1954, and reduced to 3860 sq. km. in 1998 and observations show that the lake area further decreased significantly in the last decade. Some studies[11] have suggested that the factors normally responsible for variations in lake volume, namely precipitation, evapotranspiration and outflow discharge, do not explain the changes at Poyang Lake. Annual precipitation increased but was statistically insignificant while potential evaporation decreased significantly for the Poyang Lake Basin, and annual stream flow to the lake increased, for the period from the 1950s to 2003. Thus, none of the major hydrologic components or their combinations fully accounted for the regime shift of the lake. Instead, it is believed that the blocking effect of the Yangtze River on Poyang Lake has decreased, and this has triggered the regime shift of Poyang Lake. The decrease of the river may be attributable, though this is widely argued, to both climate change and water impoundment at the Three Gorges Dam established upstream of the Yangtze River in 2003 (Yang et al 2006, Dai et al 2008, Yuan et al 2011, Guo et al 2012). Thus, construction of a sluice gate, which would maintain minimum lake water levels in the dry season, could in fact be of benefit for wetland conservation and maintenance of critical habitat for migratory birds. Clearly, a great deal of additional research and analysis is required to understand the potential impacts that the sluice gate could have on the Poyang Lake region. • It is important to note that the decision on the sluice gate will rest with the Yangtze River Water Resources Commission, whose mandate requires its actions to be protective of the Yangtze River Basin's ecosystem health. In addition, the Chinese Government and Jiangxi Provincial Government give high priority to ecological and environmental protection including the long-term sustainability of the Poyang wetlands ecosystem. Recent evidence of this commitment and assurance from Government includes the following: (i) an address by the vice-governor of Jiangxi Province on Oct. 10th, 2011, stating that China is one of the signatories to the Ramsar Convention on Wetlands and it will maintain its commitments under the convention with respect to Poyang Lake is both an important task of Jiangxi Province as well as the State. To ensure that these commitments are maintained and that the conservation of the wetlands are fully integrated into the Poyang Lake Eco-economical Zone he assigned specific tasks to relevant departments at all levels of government. He specifically highlighted that enacting the protective measures must be combined with the goal of the whole Poyang lake wetland protection. Specific measures identified as priorities in the speech were: (i) passage of a new wetland protection provincial law (achieved in 2012), (ii) preparation of a Poyang Lake wetland protection and use plan and (iii) number of good projects in support of Poyang Lake wetland protection and sustainable use • Finally, additional details regarding the rationale for the sluice gate, the fundamental principles governing its potential development (including regulation of water flows only during the dry season, with no management for flood control purposes; the goal of restoring the historical relationship between the Yangtze river and Poyang lake as it was prior to control projects on the upper stream of the Yangtze River; and minimum comprehensive impact, etc.), and various studies and measures that have been and continue to be carried out to assess, minimize and mitigate potential impacts of the proposed sluice gate, can be referenced in the letter from the Jiangxi Forestry Department to the FAO and GEF Secretariat dated March 13, 2012.

[11] Recent declines in China's largest freshwater lake: trend or regime shift? Yuanbo Liu, Guiping Wu and Xiaosong Zhao, Nanjing Institute of Geography & Limnology, Chinese Academy of Sciences, IOPscience. 2013 Environmental Research Letters 8 014010 (http://iopscience.iop.org/1748-9326/8/1/014010)

Risk Rating:
H = High (greater than 75 percent probability that the outcome/result will not be achieved).
S = Substantial (50 to 75 percent probability that the outcome/result will not be achieved).
M = Medium (25 to 50 percent probability that the outcome/result will not be achieved).
N = Low or negligible (probability of less than 25 percent that the outcome/result will not be achieved).

Environmental Impact Assessment:

Project name: Piloting Provincial-level Wetland PA System in Jiangxi Province

Project description:
The project objective is to catalyse the management effectiveness of Jiangxi's wetland protected area system to conserve globally important biological diversity. The wetlands of Jiangxi province provide critical habitat for a host of globally significant species, and also provide a range of ecosystem services that underpin local economies and safeguard the livelihoods and lives of local residents, including: freshwater supply; fisheries and agricultural production; harvesting of plants for fuel, food and medicines; flood mitigation; sediment retention; nutrient cycling; recreation and nature-based tourism, etc. These ecosystem services are connected to varying degrees and are ultimately dependent upon the functioning and integrity of the overall ecosystem.

Unfortunately, anthropogenic activities continue to diminish the ecological integrity and ecosystem services of Jiangxi's wetlands, and wetlands both within and outside of official protected areas remain vulnerable to internal and external threats. Wetland degradation and habitat fragmentation endanger the capacity of wetlands to mitigate and adapt to climate change. The project will address the barriers that currently inhibit the strengthening of the wetlands protected area system and overall wetlands conservation in the province, notably the fragmented nature of the management of existing wetland PAs; limited operational capacities for wetland PA site management; and limited institutional capacities to manage a consolidated wetland PA system.

Institutional responsibilities and coordination mechanisms will be clarified at the provincial and protected area levels. Improved protected area management regimes will be established, with wetland PA managers gaining the experience and capacities (knowledge, tools, skills and resources) necessary to identify and address threats to wetlands integrity using ecosystem-level approaches, to motivate participation and support of sectoral agencies, the private sector, and local governments and communities; and to monitor and learn from the successes and failures of these activities and adjust management responses accordingly. The project will help to establish the first provincial level management framework for wetlands as well as demonstrating the first comprehensive wetland reserve management plans at three sites in the province, with potential for replication at numerous other PA sites.

The Project directly contributes to the goals of the Program of Work on Protected Areas of the CBD. In addition, the project is strongly aligned with GEF BD-1. GEF funding will secure the above-mentioned globally important wetland biodiversity outcomes; in doing so, it will enhance the conservation and management of the habitats of endangered species including many endemics, as well as genetic and ecosystem diversity. By project close, the GEF investment will have catalysed the spending of over US$35 million in baseline resources and will have established a transformation from site-based wetlands management largely limited to a single provincial department, to ecosystem-based and integrated management of wetland reserves and bordering areas with the participation of numerous stakeholders. Over 216,431 hectares of Jiangxi's globally significant wetlands and associated species will benefit from these ecosystem-based management regimes.

Certification

Project Category C	Yes	No
I affirm that I have performed an environmental review of this project and certify that the project conforms to the pre-approved list of projects excluded from environmental assessment and that the project will have minimal or no adverse environmental or social impacts. No further analysis is required.	X	

Title, name and signature of budget holder: Mr. Percy Misika

4. IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS

4.1 Institutional context

162. The existing Poyang Lake Wetland Management Coordination Committee will be restructured by year 4 of the project into the Jiangxi Province Wetland Protected Areas Coordination Committee, extending institutional coordination on wetlands across the entire province. The Committee will have lead responsibility for implementation of the Jiangxi Province Wetland Protected Areas Management Strategy (JPWPAMS), will oversee wetland nature reserves; be a consultative mechanism to facilitate decision making on issues that affect wetland protected areas; promote community co-management; facilitate the sharing of resources, personnel and data among wetland reserves; and support increased involvement of productive sector representatives in supporting conservation in all wetland areas of Jiangxi Province. The Committee will also be the primary administrative structure for ensuring coordination among wetlands conservation agencies in the province, including, the Wetland Office, the Wildlife Protection Office, and the Poyang Lake, Nanji and Duchang Wetland Reserves, as well as other departments and productive sector representatives that should support and cooperate with wetland PA managers in the management work of wetland and wildlife protection. The members of the Coordination Committee are listed in the table below.

Jiangxi Province Wetland Protected Areas Coordination Committee	
Director:	• The Vice Governor of Jiangxi Provincial People's Government, who is in charge of wintering migratory birds and wetland protection
Executive Deputy Director:	• The Deputy Director of the Provincial Forestry Department, who is in charge of nature reserves, wildlife and forestry public security
Deputy Directors:	• The Director of the Provincial Forestry Department • The Deputy Director of the Environment and Resources Protection Committee of the Provincial People's Congress • The Director of the Social Security Comprehensive Management Committee Office of the Politics and Law Committee • The Deputy Secretary-General of the Provincial Government • The Deputy Mayors of the people's governments of the cities of Nanchang, Jiujiang, Shangrao and Fuzhou
Members:	• The Director of Poyang Lake National Nature Reserve (PLNNR) • The Director of Poyang Lake Nanji Wetland National Nature Reserve • The Director of Laws and Regulations Division of the Provincial Forestry Department, the Party Secretary of Wildlife Protection Administration, the Director of Wetland Protection and Management Office • The Deputy Director of the Provincial Forestry Public Security Bureau • The Director of Poyang Lake Fishery Bureau of the Provincial Agriculture Department • The Director of Market Management Division of the Industry and Commerce Department • The Deputy Directors of Forestry Bureaus in the cities of Nanchang, Jiujiang, Shangrao and Fuzhou, who are in charge of wintering migratory birds and wetland protection • The Directors of Forestry Public Security Bureaus of the cities of Nancang, Jiujiang, Shangrao and Fuzhou • The Deputy County Heads of the People's Governments in the counties of Nanchang, Xinjian, Jinxian, Yongxiu, De'an, Xingzi, Duchang, Jiujiang, Hukou, Gongqing, Lushan, Poyang, Yugan, Wannian and Dongxiang, who are in charge of wintering migratory birds and wetland protection • Environmental NGOs: International Crane Foundation (ICF), Society of Bird-lovers of Jiangxi Province, World Wildlife Fund (WWF)

163. The Poyang Lake National Nature Reserve (PLNNR), given its extensive resources and technical capacities, and its mandate for conservation activities throughout the Poyang Lake region, will be responsible for the overall execution of the project. The PLNNR, together with the Nanji National Nature Reserve and the Duchang Provincial Nature Reserve, will serve as the key demonstration sites for improved wetland PA management (Component 2 of the project) and will play a key role in peer-to-peer training supported by the project for other wetland PAs in Jiangxi province (Component 3). Each of these wetland nature reserves is staffed with numerous technical and administrative staff (see Annex 7 for details).

164. The Jiangxi Province Forestry Department (JFD) is the lead government stakeholder and a key co-financer of the project. The JFD will be a member of the project steering committee, and will provide feedback on all project activities and issues to the State Forestry Administration and to the FAO. The JFD also will provide support in policy, human resources and technology to the project implementation processes, and leadership in developing wetland conservation strategies as they relate to wetland nature reserves. Within the JFD, the Jiangxi Wildlife Protection Administration (JWPA) and the Jiangxi Forestry Department Wetland Protection and Management Office (JFDWPMO) will play a role on many of the provincial-level coordination activities of the project (Component 1).

165. The Provincial Development and Reform Commission will play a leading role in project related legal and policy activities under Component 1, including: a) the design and formation of the Jiangxi Province Wetland Protected Areas Coordination Committee; b) revision of the existing wetland conservation provincial law, c) development of regulations and standards for ecological compensation; d) "mainstreaming" Poyang Lake wetland protection goals into Poyang Lake Eco-economic Zone Plan.

166. At the local level, particularly under Component 2 of the project, local government bodies (Municipal Forestry Bureaus; Municipal Forestry Public Security Bureaus; County People's Governments) will play a leading role in developing local wetland conservation and management policies, and in providing political and financial support to wetland PAs, while targeted Village Committees will be responsible for the operationalization of demonstration county-level wetland reserves.

4.2 Implementation arrangements

4.2.1 GEF Agency

167. As the Project's associated GEF Executing Agency the Food and Agriculture Organization (FAO) will provide supervision and technical guidance services during the project execution. Administration of the GEF grant will be in compliance with the rules and procedures of FAO and in accordance with the agreement between FAO and the GEF Trustee. In its capacity as the GEF agency FAO will:

- Manage and disburse funds from GEF in accordance with the rules and procedures of FAO;
- Enter into an Execution Agreement with Poyang Lake National Nature Reserve (PLNNR) as the national executing agency for the provision of services to the project and the Jiangxi Provincial Bureau of Finance which will be the funds recipient;
- Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers and the rules and procedures of FAO;
- Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerned with conservation and sustainable management of wetland ecosystems in Jiangxi Province
- Carry out at least one supervision mission per year; and
- Report to the GEF Secretariat and Evaluation Office through the annual Project Implementation Review on project progress and provide financial reports to the GEF Trustee.

168. **The FAO Representative in China**, assisted by the FAO Project Task Manager (see below), will be the Budget Holder (BH) and responsible for the management of the GEF resources and all aspects in the Execution Agreement that will be signed between FAO and PLNNR. As a first step in project start-up, the FAO Representation in China will establish an interdisciplinary Project Task Force within FAO to guide the implementation of the Project. The FAO Representative will in particular be responsible for: (i) disbursement of GEF funds to Provincial Bureau of Finance based on satisfactory reporting on project progress and statement of expenditures (see Section 5.6 on disbursements and reporting); (ii) review of financial reports and supervision of PLNNR's financial management and use of resources (see Section 5.6 on financial management and reporting), including clearance of Budget Revisions in consultation with the FAO Lead Technical Officer (LTO see below) for submission to TCI/GEF Coordination Unit for approval; and (iii) supervision of contracting and procurement processes executed by PLNNR (see Section 5.7 on procurement).

169. The FAO Representative will, in consultation with the FAO Lead Technical Officer (LTO), Lead Technical Unit (LTU) (see below) and the GEF Coordination Unit, give no-objection to Annual Work Plans and Budgets (AWP/B) submitted by PLNNR. Disbursement of GEF funds for the provision of goods, minor works and services to the Project will be carried out by the FAO Representative in accordance with the provisions of the Execution Agreement. The disbursement will be carried out upon submission by the PLNNR to the FAO Representation of semi-annual financial statements of expenditures, procurement and contract documentation, and disbursement requests based on an updated AWP/B including detailed budget for the following six months period to be cleared and approved by the Representative. Further, the disbursements are also subject to submission of a Project Progress Report to be approved by the FAO LTO. The Budget Holder will submit the financial statement of expenditures, the disbursements requests, and the Project Progress Report to the GEF Coordination Unit in the Investment Centre Division (TCI) for clearance and uploading on the FPMIS before the disbursement can be finally approved by the Representative.

170. **A Project Task Manager (PTM)** will be appointed by FAO in the FAO Office in China in consultation with the LTO, LTU and the GEF Unit. The PTM will, under direct supervision of the FAO Representative in China, support the FAO Representative in the supervision of financial management, project progress, procurement and contracting processes and in the provision of technical guidance to the project, in close consultation with the LTO, and the Project Task Force. The PTM will be paid from GEF fee resources and will have the following main tasks:

- Review project progress reports from PLNNR and submit them to the LTO for approval and to the GEF Coordination Unit for final approval and uploading on the FPMIS;
- Participate in annual project progress review and planning workshops, and review, provide comments, and advise the FAO Representative on giving no-objection to AWP/B in consultation with the LTO, LTU and the GEF Coordination Unit;
- Review procurement and contract documentation submitted by PLNNR for procurement and contracts to be financed by GEF resources and advise the FAO Representative on giving no-objection, in close consultation with the LTO and the GEF Coordination Unit;
- Review PLNNR project financial statement of expenditures using GEF resources and Cash Transfer Requests of GEF resources in accordance with the AWP/B and previous Cash Transfer Requests submitted by PLNNR and advise the FAO Representative on his/her clearance of statements of expenditures and approval in consultation with the LTO and the GEF Coordination Unit;
- Review reports on executed co-financing to be submitted by PLNNR;
- Conduct periodic supervision missions and support the provision of FAO technical and results-based management input to the project;
- Support the LTU in preparation of the annual Project Implementation Review (PIR) report;
- Represent FAO in the Project Steering Committee (see below) and interview and selection panels for key project positions to be financed by GEF resources;
- Prepare draft TOR for mid-term and final evaluations and support their organization, in consultation with the FAO Evaluation Office, the LTO, the LTU and the GEF Coordination Unit; contribute to the development of an eventual agreed adjustment plan in project execution approach and supervise its implementation.

171. **The FAO Lead Technical Unit (LTU).** The Land and Water Division of Natural Resources and Environment Department (NRL) will be the LTU for this project and will provide overall technical guidance to its implementation. NRL will delegate the responsibility for direct technical supervision to the Regional Office for Asia Pacific (RAP) - Natural Resources and Environment Group (NREG).

172. **FAO Lead Technical Officer (LTO)** The Senior Water Management Officer of FAO's Regional Office for Asia and the Pacific (RAP) will be the LTO for the Project. Under the general technical oversight of the LTU, the LTO will provide technical guidance to the project team to ensure delivery of quality technical outputs. The LTO will coordinate the provision of appropriate technical backstopping from all the concerned FAO units represented in the Project Task Force responding to requests from the PLNNR. The Project Task Force is thus composed of technical officers from the participating units (see below) and of operational officers and is chaired by the BH. The LTO, supported by the LTU when needed, will be responsible for:

- review and ensure clearance by the relevant FAO technical officers of all the technical Terms of Reference (TOR), LOAs, and contracts to be performed under the project and to CVs and technical proposals short-listed by the PLNNR for key project positions, goods, minor works, and services to be financed by GEF resources;
- supported by the FAO Project Task Manager, review and insure clearance by the relevant FAO technical officers of final technical products delivered by consultants and contract holders financed by GEF resources before the final payment can be processed;
- assist with review and provision of technical comments to draft technical products/reports on request from the PLNNR during project execution;
- review and approve project progress reports submitted by PLNNR to the FAO Representation in China in coordination with the FAO Project Task Manager;
- support the FAO Representative in reviewing, revising and giving no-objection to AWP/B submitted by the PLNNR and to be approved by the Project Steering Committee;
- prepare the annual Project Implementation Review report, supported by the FAO Project Task Manager and inputs from the PLNNR, to be submitted for clearance and completion by the GEF Coordination (TCI) which will subsequently submit the PIR to the GEF Secretariat and Evaluation Office as part of the Annual Monitoring Review report of the FAO-GEF portfolio. The LTO, supported by the Project Task Manager, must ensure that PLNNR has provided information on co-financing provided during the course of the year for inclusion in the PIR;
- field annual (or as needed) project supervision missions;
- review and revise TORs for the mid-term evaluation, participate in the mid-term evaluation workshop with all key project stakeholders, development of an eventual agreed adjustment plan in project execution approach, and supervise its implementation supported by the FAO Project Task Manager.
- review and revise TORs for the final evaluation, participate in the final project closure workshop with all key project stakeholders and the development of and follow up on recommendations on how to insure sustainability of project outputs and results after the end of the project.

173. **Participating units** from across FAO will be involved in supporting the project's work and in ensuring that the project stays on track to achieve its overall objectives and indicators of success. When appropriate, these units within RAP or HQ will provide technical support in areas such as: wetlands conservation and reduction of polluting from agriculture and aquaculture activities, integrated natural resource management and gender. The Asia and Pacific Service (TCIB) of the FAO Investment Centre Division will provide adaptive management support and results-based management oversight and guidance to the LTO and the participating units.

174. The **GEF Coordination Unit (TCI)** will review and clear project progress reports, financial reports, budget revisions, and funds transfer requests. The GEF Coordination Unit will review and clear the annual PIR and undertake supervision missions if considered necessary. The PIRs will be included in the FAO GEF Annual Monitoring Review submitted to GEF by the GEF Coordination Unit. The GEF Coordination Unit will also participate in the mid-term and final evaluations and the development of corrective actions in the project implementation strategy in the case needed to mitigate eventual risks affecting the timely and effective implementation of the project. The GEF Coordination Unit will in collaboration with the FAO Finance Division request transfer of project funds from the GEF Trustee based on six-monthly projections of funds needed. The GEF Coordination Unit will support the FAO Representation in China in all aspects of supervising the NEX implementation modality that this project is following.

175. **The FAO Finance Division** will provide annual Financial Reports to the GEF Trustee and, in collaboration with the GEF Coordination Unit, call for project funds on a six-monthly basis from the GEF Trustee.

4.2.2 Executing Partner

China: National Level

176. The **Ministry of Finance (MOF)** is the GEF Operational Focal point of China responsible for coordinating the programming of GEF resources and overseeing the China GEF portfolio with the GEF

Agencies. In this capacity MOF will be responsible for: monitoring and review of annual Project Implementation Review Reports and organization of post project impact and evaluation studies (national evaluation of project) which will be shared with all project partners.

China: Provincial Level

177. **Jiangxi Provincial Bureau of Finance (PBOF)** will be the recipient of GEF grant from FAO on behalf of the Chinese Government. BOF's specific responsibilities will be:

- transfer of funds to PLNNR as the Executing Partner;
- monitor and review of financial reports and their submission to FAO accompanied by work plan, budget and funds transfer requests for the subsequent reporting period; and
- management of a special grant account.

178. **The Poyang Lake National Nature Reserve (PLNNR)** will be the **project Executing Partner (EP)** directly responsible for daily management and coordination of the project technical implementation of project activities, day-to-day monitoring as well as financial management and procurement of goods, minor works, and services in accordance with own rules and procedures adjusted to FAO rules and regulations. PLNNR will enter into an Execution Agreement with FAO and PBOF allowing for the purchase of goods, minor works, and services needed to execute the project. FAO will ensure that the PLNNR rules and procedures for project execution are acceptable in accordance with FAO rules and regulations and GEF minimum fiduciary standards, and PLNNR will follow in particular rules defined in the Execution Agreement. The Execution Agreement will outline in details the roles and responsibilities of PLNNR and procedures with respect to financial management, procurement, recruitment, project progress reporting, financial reporting and audit, copyright, and other legal aspects of collaboration. A detailed Project Implementation Manual (PIM) will be prepared by the PLNNR and cleared by FAO before the first transfer of funds. The Manual will establish rules, detailed procedures and responsibilities in relation to all aspects of the project operation based on the Execution Agreement, rules and regulations of the PLNNR, and financial rules and regulations of the PBOF.

179. PLNNR will use its own financial management, output and outcome monitoring, and procurement systems and procedures adjusted to FAO Rules and GEF minimum fiduciary standards. PLNNR will submit procurement and contract documentation for prior clearance (see section 5.7 below), six-monthly statements of expenditures, and cash transfer requests (see section 5.6 below) based on the updated AWP/B including a detailed budget for the following six months period, and annual audited financial statements to the FAO Representation in China. Further, PLNNR will prepare and submit to the FAO Representation Project Progress Reports, annual Work Plans and budgets, and all documentation needed for the preparation of the annual PIR (see section 6.4 below).

180. **Project Steering Committee (PSC):** The PSC will make decisions on the overall management of the project, and will be responsible for maintaining the strategic focus of the project and the successful execution of operational tasks. Membership of the PSC will consist of the members of the existing Provincial Project Leading Group (PLG) that was set up in October 2012, namely the Jiangxi Finance Department, the Jiangxi Forestry Department, and the PLNNR, as well as the International Crane Foundation. The committee will be chaired by the Deputy Governor of Jiangxi Province. A detailed Terms of Reference for the PSC is provided in Annex 5.

181. **Project Management Office (PMO):** A Project Management Office (PMO) was established within the PLNNR during the project preparation phase. Regular staff of the PMO and of other Departments and Offices at the executive, advisory, support and operational levels in the PLNNR will assume specific responsibilities under project implementation and will be supported by external specialists that will strengthen the PLNNR's capacity to comply with all procedures and regulations under the multilateral operation. There are already four PLNNR permanent staff members working in the PMO: 1) Chief Engineer (GEF Project Manager); 2) Deputy Division Chief (GEF Project Technical Expert); 3) Staffer (GEF Project Administrative Officer / Translator), and 4) Engineer (GEF Project Monitoring and Evaluation Expert). In addition, the project will hire a part-time Chief Technical Advisor (CTA) as part of the PMO. . The Director General of PLNNR will become the National Project Director. Administrative and professional staff from

the PLNNR and other provincial institutions and PAs will interact on an ongoing basis with the PMO technical and professional teams, according to needs arising during project implementation. Details on the participation of various divisions within the PLNNR in the project are provided in Annex 7 (Table 2).

182. The PMO will be responsible for day-to-day project operations. The role of the PMO will be, in close consultation with the PSC members, to ensure the coordination and execution of the Project through the timely and efficient implementation of annual work plans. The PMO will act as secretariat to the PSC. It will coordinate work and follow closely the implementation of project activities, handle day-to-day project issues and requirements, coordinate project interventions with other on-going activities and ensure a high degree of coordination with the national Wetlands Conservation Programme as well as provincial and local inter-institutional collaboration, monitor project progress and ensure the timely delivery of inputs and outputs. It will be responsible for implementing the project's M&E plan, managing its monitoring system and communication programme, the elaboration of Semi-annual Project Progress and Financial reports and assist in the preparation of the annual Project Implementation Review (PIR) and midterm and final evaluations of the Project. This would be achieved by preparing and coordinating the implementation of the AWP/B to be approved by the PSC. Reports on these activities, and project activities, outputs and financial expenditures and status for the previous year will be submitted together with the Annual Work Plan and detailed budget to the PSC via the Project Director and FAO. Additional details on tasks and responsibilities for key members of the PMO are provided in Annex 5.

183. The following diagram presents the overall organizational and management structure of the project:

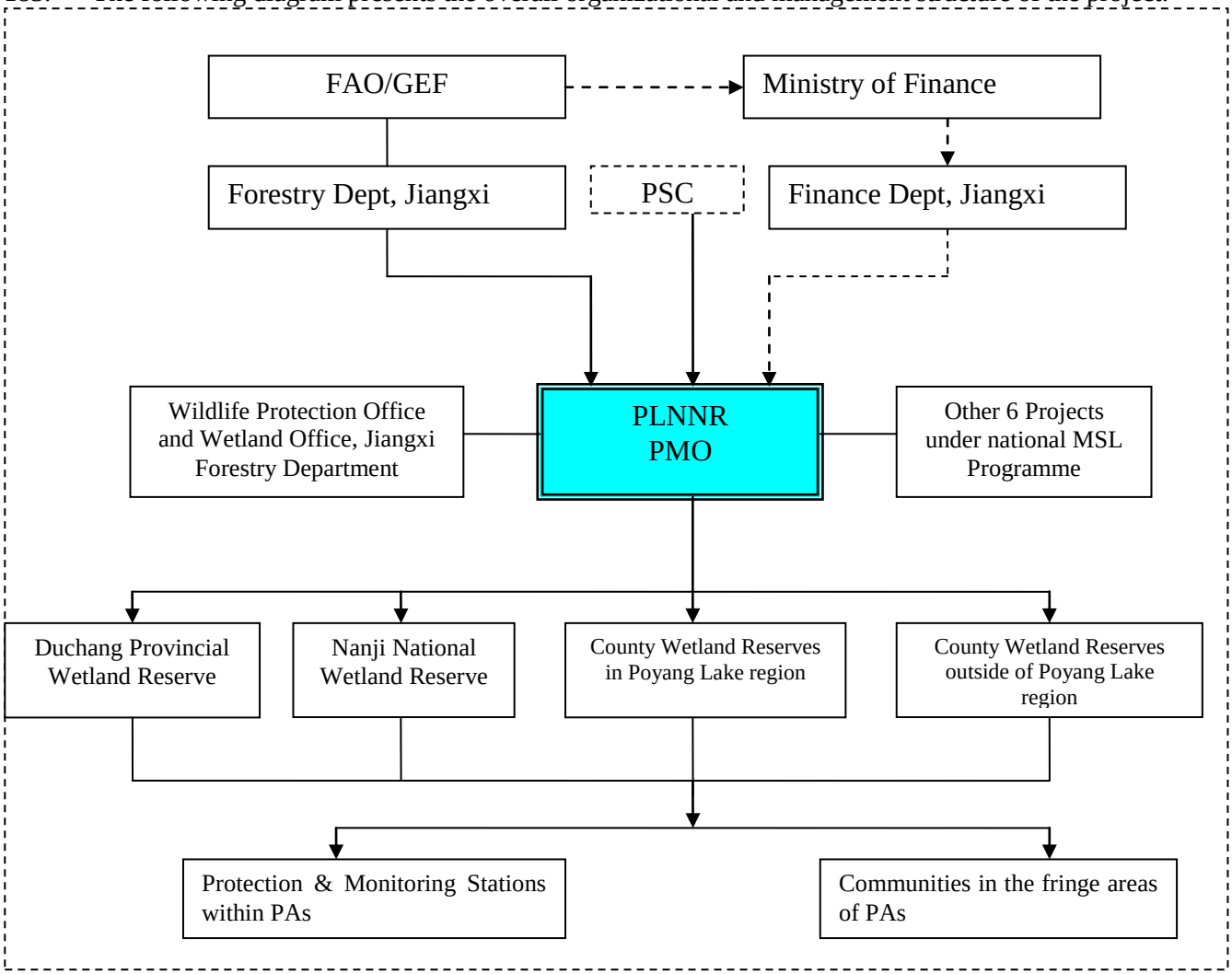


Diagram 2: Overall organizational structure of project

5. FINANCING PLAN AND MANAGEMENT

5.1 Financial planning

184. The total cost of the project will be USD31.98 million, to be financed through a USD 5.29 million GEF grant and USD 26.69 million in co-financing from: (i) FAO (USD 0.32 million); (ii) the government of China (USD 26.23 million); (iii) and the International Crane Foundation (USD 0.14 million). Table 3 below shows the cost by component and outputs and by sources of financing and Table 4 shows the sources and type of confirmed co-financing. The FAO will, as the GEF Agency, **only be responsible** for the execution of the GEF resources and the FAO co-financing.

Table 3: Project cost by component and subcomponent/output and source of co-financing

Component/output	Office of Three Gorges	National Dev. & Reform Comm.	Jiangxi Dept. of Forestry	ICF (a) DCFB & NCFB (b)	FAO	GEF	Total
Component 1: Improved and consolidated wetland PA system within larger landscape context in Jiangxi Province	**1,000,000**	**640,000**	**2,761,500**	**1,250,000 (b)**	**-**	**1,029,950**	**6,681,450**
Output 1.1: Provincial Wetland PA Management Strategy	-	-	-	-	-	158,200	**158,200**
Output 1.2: Expanded coverage of operationally effective wetland protected areas in Poyang Lake region	-	640,000	2,761,500	625,000	-	663,500	**4,690,000**
Output 1.3: Strengthened Provincial-Level Wetland PA Coordination and Management Structures	-	-	-	625,000	-	58,750	**683,750**
Output 1.4: Strengthened Legal, Regulatory and Planning Frameworks for Wetland PAs in Jiangxi Province	1000000	-		-	-	149,500	**1,149,500**
Component 2: Wetland PA Management Capacity is strengthened at selected demonstration sites	**4,753,500**	**490,000**	**10,344,000**	**(a) 142,000**	**-**	**2,834,650**	**18,564,150**
Output 2.1: Cost-effective wetland ecosystem management techniques tested and incorporated into PWEPA for replication	1,600,000	245,000	-	-	-	391,000	**2,236,000**
Output 2.2: PWEPA Management Framework		-	-	-	-	687,150	**687,150**
Output 2.3: Strengthened Capacity for Participatory Management of PWEPA Wetland Reserves	1,840,000	-	-	-	-	1,072,500	**2,912,500**
Output 2.4: Conservation and Monitoring of Priority Habitats and Species	1,313,500	245,000	-	142,000	-	684,000	**2,384,500**
Component 3: Institutional & stakeholder capacities to manage consolidated wetland PA system in	**1,300,000**	**290,000**	**765,000**	**-**	**-**	**1,035,400**	**3,390,400**

Component/output	Office of Three Gorges	National Dev. & Reform Comm.	Jiangxi Dept. of Forestry	ICF (a) DCFB & NCFB (b)	FAO	GEF	Total
Jiangxi Province							
Output 3.1: Strengthened information & data system for coordinated cost effective wetland PA management	1,300,000	-	-	-	-	204,800	**1,504,800**
Output 3.2: Strengthened Capacity for Coordinated Management of all Wetland PAs in Jiangxi Province	-	-	-	-	-	74,300	**74,300**
Output 3.3: Public awareness and outreach on wetland conservation and sustainable use in local communities	-	290,000	765,000	-	-	756,300	**1,811,300**
Project Monitoring & Evaluation	100,000	100,000	**1,118,000**			138,000	**1,456,000**
Project Management	**376,500**	**80,000**	**861,500**	**-**	**320,000**	**251,000**	**1,889,000**
Total Project	**7,530,000**	**1,600,000**	**15,850,000**	**1,392,000**	**320,000**	**5,289,000**	**31,981,000**

* Duchang County Forestry Bureau and Nanchang City Forestry Bureau

Table 4: Sources of confirmed co-financing

Name of Co-financier (source)	Classification	Type	Project USD
Office of Three Gorges	National Government	Cash	$7,530,000
National Development and Reform Commission	National Government	Cash	$1,600,000
Jiangxi Department of Forestry	Provincial Government	Cash	$15,850,000
Duchang County Forestry Bureau and Nanchang City Forestry Bureau	Local Government	In-kind	$1,250,000
International Crane Foundation	NGO	Cash	$142,000
Food and Agriculture Organization	GEF Agency	In-kind	$320,000
Total			**$26,692,000**

5.2. GEF inputs

185. The GEF contribution to the project will be used to support activities that produce global environmental benefits and cannot be adequately funded by national and local stakeholders at present.

186. A major part of the contribution will be used for consolidating the institutional and policy frameworks and strengthening the capacity of protected area management agencies and their partners, and on the implementation of on the ground biodiversity conservation practices. This input will have significant importance for the adoption and effective implementation of wetland conservation practices by protected areas staff and local community stakeholders, including rehabilitation of grasslands; reduced impacts from fishing and aquaculture; changed hydrological management practices (e.g. flooding and drainage of polders); and conservation activities for migratory bird species and other globally significant biodiversity.

187. The GEF contribution will also complement significant investments in infrastructure and management of the existing national and provincial wetland reserves by national and provincial institutions, as well as investments by county authorities in county-level wetland reserves and in promoting community participation and co-management.

5.3. Government inputs

188. Government co-financing totals 26,230,000. The Jiangxi Forestry Department has confirmed cash co-financing in the amount of USD 15,850,000 to fund the operating expenses of the Poyang Lake National Nature Reserve, Jiangxi Wildlife Protection Administration and as well as the Jiangxi Forestry Department

Wetland Protection and Management Office (US$12,060,000); JFD will also provide US$3,000,0000 to fund the Construction of the 6-7 New Field Stations for the PLNNR; and finally JFD will provide US$790,000 to fund the annual conservation awards program for Wintering Migratory Birds and Wetland Protection.

189. The Duchang County Forestry Bureau and Nanchang City Forestry Bureau will provide a combined total of US$1,250,000 in kind to fund the general operating expenses of the Nanji Wetland National Nature Reserve and Duchang Provincial Nature Reserve.

190. The Office of the State Council Three Gorges Project Construction Committee has confirmed cash co-financing in the amount of USD 7,530,000, which will be implemented through two projects. The first project is to strengthen conservation at the Poyang Lake National Nature Reserve and the Nanji National Nature Reserve, through programs at each Reserve on management capacity improvements, bird and habitat protection, wetland protection and restoration, and rare species rescue and breeding. The second project is the Ecological Environment Monitoring System Poyang Lake, which will track observation of changes in key elements of Poyang Lake's hydrology and water quality and the long-term evolutionary process of species diversity in the operational process of the Three Gorges Reservoir impoundment and seasonal water adjustment. This data will help to establish a Poyang Lake ecological monitoring database and to conduct research on ecosystem functions and biodiversity protection measures.

191. The National Development and Reform Committee (NDRC) has confirmed cash co-financing in the amount of USD 1,600,000 through its Wetland Protection Construction Project. This project will undertake Construction of a Protection and Management Station and enhanced facilities and equipment such as signs and roads; waterbird and habitat conservation; wetland restoration; wetland ecological public education centre and materials; and fixed monitoring sample lines for birds.

5.4. FAO inputs

192. FAO co-financing will consist of $320,000 of in-kind (staff time and cash (travel) funding. This funding will be used to provide technical inputs/guidance coordinated by the FAO regional office to the project (in areas such as fisheries management and water management, as well as gender mainstreaming), and also to support project monitoring and supervision. Please see FAO co-financing letter for details.

5.5. Other co-financing inputs

193. The International Crane Foundation has confirmed cash co-financing in the amount of USD 142,000, which will be implemented through four projects. The Poyang Lake Cranes and Large Waterfowls, Water Level and Aquatic Plants Ecological Relationship Research project will provide inputs in establishing a new baseline survey of biodiversity and ecological health of the Poyang Lake Wetlands Ecosystem, and will shed light on ecologically viable minimum and maximum water levels. The Poyang Lake Small Lake Research Project will seek to understand wetland environmental conditions necessary to promote the protection of Siberian Cranes, other water birds and their habitats. The Poyang Lake Wintering Migratory Birds Survey will monitor the number, distribution and dynamic situation of the Poyang Lake Wintering migratory bird populations in order to promote the protection of Siberian Cranes, other water birds and their habitats. Finally, ICF and the PLNNR will work jointly to develop an online version of existing databases on ecological factors in the Poyang Lake region.

5.6. Financial management of and reporting on GEF resources

194. Financial management and reporting in relation to the GEF resources will be carried out in accordance with FAO's rules and procedures and as described in the Execution Agreement between FAO, PBOF, and the PLNNR. In accordance with the project budget, FAO shall provide cash advances in US dollars up to the total of USD 5 289 000.

195. PLNNR shall provide project execution services in accordance with its own regulations, rules and procedures adjusted to FAO rules and regulations and GEF minimum fiduciary standards as established in the Execution Agreement to ensure that the project funds are properly administered and expended. PLNNR

shall maintain a project account for the funds received from FAO in accordance with accepted accounting standards.

Financial statements and reporting

196. All financial reporting shall be in US dollars, and any exchange differences accounted for within the GEF-approved US dollar project budget. Within 15 days of the end of each six-month, i.e. on or before 15 July and 15 January, PLNNR shall submit six-monthly statements of expenditure of GEF resources to the FAO Office in China (see format in Execution Agreement in Appendix 6.C). The purpose of the financial statement is to list the expenditures incurred on the project on a six monthly basis so as to monitor project progress and to reconcile outstanding advances during the six-month period. The financial statement shall contain information that forms the basis of a periodic financial review and its timely submission will be a prerequisite to the continued disbursements of funds to PLNNR via PBOF.

197. PLNNR shall prepare annual financial reports on the use of the GEF resources to be submitted with the 2nd six monthly Project Progress Report, showing amount budgeted for the year, amount expended since the beginning of the year, including un-liquidated obligations (commitments) as follows:

- details of project expenditures on an output-by-output basis, reported in line with project budget lines as set out in the project budget included in this Project Document appendix 3, as at 31 December each year;
- a final statement of account in line with the project budget included in this Project Document appendix 3, reflecting actual final expenditures under the project, when all obligations have been liquidated; and
- an annual budget revision will be prepared for review and clearance of the FAO Representation in China, LTO, and the GEF Coordination Unit. The budget revision will be posted in the FPMIS by the GEF Coordination Unit.

198. These financial reports will be submitted by the PLNNR to the PBOF and the FAO Representation in China and reviewed and cleared by the FAO Representative supported by the Project Task Manager, monitored by the LTO, and with previous internal clearance from the FAO GEF Coordination Unit.

199. Financial reports for submission to the donor (GEF) will be prepared in accordance with the provisions in the Financial Procedures Agreement with the GEF Trustee and submitted by the FAO Finance Division (CSFE).

Disbursements of Funds

200. FAO shall transfer the amount of USD 5 289 000, of GEF funds payable in instalments as outlined below to PLNNR, via the PBOF, to carry out the GEF financed project activities as described in this Project Document. PLNNR shall prepare and submit to PBOF and the FAO together with the Annual Work Plan a detailed budget to facilitate the predictability of the needed funds for the year. The first instalment of USD 264 450 (5 per cent of the approved GEF amount) shall be advanced to PLNNR via PBOF within two weeks following signature of the Execution Agreement subject to submission by PLNNR to FAO a progress and completion report on all actions agreed in the mitigation plan of fiduciary risks (as referred to in section 3.7) with the exemption of training of PMO staff in financial management and reporting formats and monitoring, preparation of the PIM , and the projects results and best practice dissemination strategy which should be completed in the end of the first reporting period..

201. Subsequently, PLNNR shall prepare and submit to PBOF and the FAO cash transfer requests (see format Execution agreement Annex 4.D) based on the updated AWP and the budget for the following six month together with the six-monthly statements of expenditures of GEF resources. The second and subsequent instalments shall be advanced to the PLNNR via the PBOF within two weeks upon submission of a satisfactory financial statements of expenditures report, project progress reports (see section 6.4 below), and work plan and budget for the following quarter. The FAO Representative in China supported by the FAO Project Task Manager should certify that reporting requirements under the terms of the Execution Agreement have been met and that project progress reports for the activities completed have been submitted to and accepted by FAO as showing satisfactory management and use of GEF resources. Reports should be submitted to the LTO/LTU for review, and the GEF Coordination Unit for review and clearance of the cash transfer request. All reports should be posted on the FPMIS.

Responsibility for Cost Overruns

202. FAO will make available to the Executing Partner a financial contribution in the amount of **USD 5 289 000** (five million two hundred and eight-nine thousand United States Dollars). PLNNR shall utilize the GEF project funds in strict compliance with the project document. PLNNR shall be authorized to make variations not exceeding 20 per cent on any total output budget line or any cost category line of the project budget provided that the total allocated for the specific budgeted project component is not exceeded and the reallocation of funds does not impact the achievement of any project output as per the project Results Framework Annex 1. Any variations exceeding 20 percent on any total output budget line or any cost category line, that may be necessary for the proper and successful implementation of the project, shall be subject to prior consultations with and approval by FAO. In such a case, a revision to the FAO-GEF budget in the project document should be prepared by PLNNR and approved by the FAO Representation in China, the LTO and the GEF Coordination Unit. Cost overruns shall be the sole responsibility of PLNNR.

Audit

203. PLNNR and PBOF will ensure external audit, consistent with recognized international auditing standards, of its accounts and records in relation to activities and expenditures related to the project. The audit reports will be provided to FAO and may be shared with the GEF Trustee if this is requested. PLNNR and PBOF shall submit to FAO an **annual externally audited financial statement of the GEF project account** within three months following the completion of each annual accounting period during the project.

5.7 PROCUREMENT

204. PLNNR will procure the equipment and services provided for in the detailed budget Annex 2 of this Project Document and AWP/B following its own rules and regulations in compliance with generally accepted international standards for public sector procurement as detailed in the Execution Agreement. PLNNR will ensure that its procurement rules and procedures and their implementation ensure that the procurement process is transparent fair and competitive.

205. Before the commencement of procurement, PLNNR shall update the project procurement plan (to be prepared following project approval) to be reviewed at the project inception and cleared by the FAO Representative in China. The procurement plan shall be updated by PLNNR every six months and submitted to and cleared by the FAO Representative in China with the six-monthly financial statement of expenditure report, Project Progress Report, and Cash Transfer Requests for the next installment of funds. FAO supervision of contracting and procurement processes will be executed as follows:[12]

- all individual consultants contracts for an amount > USD 20 000 will be subject to FAO participation in selection panel and prior clearance of contracting process, Terms of Reference (TORs) and Curriculum Vitae (CVs);
- all consultant firms/NGOs contracts will be subject to FAO prior clearance of contracting process, TOR and technical proposals;
- there will be no single procurement of goods (non-expendable procurement) for an amount > USD 100 000. All procurement of goods will be subject to FAO prior clearance of bidding process, material and offers (single procurement amount < USD 100 000 and > USD 50 000) or technical specifications and price quotation comparison (single procurement amount < USD 50 000); and
- all documentation related to non-expendable procurement and procurement of non-consultancy services in relation to training and workshops events shall be submitted to FAO for post review together with the six-monthly Financial Statements of Expenditures reports.

[12] These procedures for supervision of contracting and procurement processes will be revised after the first project year where some of the prior clearances by FAO of contracts and procurements may not be required depending on the performance of LPNNR in managing contracting and procurement processes

6. OVERSIGHT, MONITORING, MANAGEMENT INFORMATION AND REPORTING

206. Monitoring and evaluation of progress in achieving project results and objectives will be done based on the targets and output and outcome indicators established in the Project Results Framework (Annex 1). The project's M&E system will be put in place during the first 6 months of project implementation and will feed back into project implementation. This system will be housed within the Project Management Office (PMO) of the Poyang Lake National Nature Reserve. Monitoring and evaluation activities will be incorporated in the monitoring system of the executer and will follow FAO standard procedures and GEF guidelines. Technical assistance for the design and administration of the project M&E system, training, and procurement of equipment to administrate the information system will be provided by FAO.

207. The M&E system will be structured in a way that combines traditional on-going monitoring of project activities with external/participatory impact evaluations. The monitoring and evaluation system will also facilitate learning and generation of knowledge necessary for the replication of wetland conservation approaches in other provinces along the Yangtze River and throughout China. The project Monitoring and Evaluation Plan has been budgeted at USD 238,000. Apart from the overall project monitoring and evaluation system, an ecosystem health index monitoring system will be designed and implemented at three selected protected area sites in Jiangxi Province to monitor on-the-ground impacts of conservation practices on the status of biodiversity and ecosystem services as part of Component 2.

6.1 Indicators

208. The project indicators are selected to capture progress in capacity building in biodiversity conservation and on-the-ground impacts of conservation measures and management practices. Progress in capacity building will be monitored via process and institutional indicators capturing tools developed (a provincial-level Wetland PA Management Strategy; partnerships with sectoral line agencies strengthened to incorporate wetland PA management concepts into sectoral development; strengthening of the Jiangxi Wetland Protection Ordinance; management plans for 3 county, 1 Provincial and two National wetland reserves; co-management agreements signed between wetland reserve field stations and village committees; Jiangxi Wetlands Information Management System established and operational) and levels of created capacities (capacity building of staff at nature reserves in co-management, enforcement, compliance, wetland ecosystem management, species surveys and monitoring, restoration and rehabilitation; staff from county forestry bureaus trained in migratory bird monitoring and protection; improved score in the UNDP-GEF Capacity Scorecard for all PAs within the PWEPA system).

209. On-the-ground impact indicators will capture the decrease in threats to biodiversity and wetland ecosystems (# of hectares of wetlands under effective management and protection through expansion of monitoring and patrolling; no net increase in the area of production activities in habitat areas for migratory bird species; improved scores on PA Management Effectiveness Tracking Tool for 9 county-level, 1 Provincial, and 2 national wetland PAs; reduced number of illegal resource use incidents (hunting; illegal polders; fishing out of season; etc.); # of species conservation plans implemented, including strengthened monitoring, patrolling and training in species-level management). With the participation of local communities, baseline levels will be established to allow for the monitoring of these indicators and other on-the-ground impact indicators for each conservation intervention.

6.2 Review and Evaluation

210. An independent Mid-Term Evaluation (MTE) will be undertaken towards the end of the third project year to review progress and effectiveness of implementation in terms of achieving project objective, outcomes and outputs. Findings and recommendations of this evaluation will be shared and discussed in a midterm evaluation workshop and will be instrumental for bringing improvement in the overall project design and execution strategy for the remaining period of the project's term if necessary. FAO will arrange for the MTE in consultation with project management. The evaluation will, *inter alia:*

- review the effectiveness, efficiency and timeliness of project implementation;
- analyze effectiveness of partnership arrangements;
- identify issues requiring decisions and remedial actions;
- propose any mid-course corrections and/or adjustments to the implementation strategy as necessary; and
- highlight technical achievements and lessons learned derived from project design, implementation and management.

211. An independent Final Evaluation (FE) will be carried out three months prior to the terminal review meeting of the project partners. The FE would aim to identify the project impacts and sustainability of project results and the degree of achievement of long-term results. This Evaluation would also have the purpose of indicating future actions needed to sustain project results, expand on the existing Project in subsequent phases, mainstream and up-scale its products and practices, and disseminate information to management authorities responsible for the management of other Chinese nature reserves to assure continuity of the processes initiated by the Project.

212. Some critical issues to be evaluated in the midterm and final evaluations will be: (i) the degree to which decision-makers have understood the new approach and concepts promoted by the Project and supported their application; (ii) the status of policy formulation and subsequent adoption by government; (iii) the process followed and quality of NR management plans supported under the Project; (iv) level of strengthened wetland management and planning capacities in the PLNNR and other wetland reserves; (v) the effectiveness of the training programme in instilling new concepts in NR staff and other public agency decision-makers and technical staff; (vi) implementation of the Wetlands Information Management System and how the generated information is used to strengthen an ecosystem-level management approach in the province; and (vii) reduction in encroachment wetland ecosystems, in particular habitat for migratory birds.

213. The FAO Project Task Manager will prepare the first draft of the Terms of Reference for the mid-term and the final evaluations and consult with and incorporate comments from PLNNR/PM, the FAO budget holder, the FAO Lead Technical Unit and Officer, and the FAO GEF Coordination Unit. Subsequently the TORs will be sent to the FAO Office of Evaluation for finalization, in accordance with FAO evaluation procedures and taking into consideration evolving guidance from the GEF Evaluation Office. The TORs and the reports will be discussed with and commented upon by the project partners.

6.3 Monitoring Responsibilities and Information Sources

214. Monitoring of project progress and outcomes will be a central function of the PLNNR Project Management Office, led by the Project Manager and will be supported at the country level by the FAO Project Task Manager. Specific monitoring tasks will be defined in the Annual Work Plan.

215. Local communities will also be involved in the monitoring and evaluation process. Various processes are used to actively engage community members in monitoring and evaluating the impacts on the conservation of natural resources and wetland ecosystems. The communities will be involved in the identification of indicators to monitor the progress in implementation of wetland reserve management plans and collection of base line and periodic monitoring of impact indicators on biodiversity and ecosystem conservation adjusted to the specific conservation practices and threats identified at each site during the planning process.

216. Monitoring information sources will be evidence of outputs (reports, wetland reserve management plans and co-management plans, species conservation plans, lists of participants in participatory planning and training activities, etc.). To assess and confirm the congruence of outcomes with project objectives, physical inspection and/or surveying of activity sites and participants will be carried out. This latter task will be undertaken by the Project Team, supported by the FAO Project Task Manager. Under the guidance of the Project Team and with participation of local communities, collection of baseline data will be carried out and compiled in accordance with the indicators established to monitor on-the-ground impacts of conservation practices being applied.

6.4 Reporting Schedule

217. Specific reports that will be prepared under the M&E program are: (i) project inception report; (ii) Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) annual project implementation review (PIR); (vi) technical reports; (vii) co-financing reports; and (viii) terminal report.

218. **Project Inception Report:** After FAO approval of the project and signature of the Execution Agreement an inception workshop will be held. Immediately after the workshop, the PM will prepare a project inception report in consultation with the FAO Project Task Manager and other project partners. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed First Year Annual Work Plan and Budget (AWP/B) and a plan with all monitoring and supervision requirements. The draft report will be circulated to FAO and the Project Steering Committee for review and comments before its finalization. Note: During inception, the PSC will investigate the feasibility of holding joint annual meetings (possibly starting with the projects' inception workshops) with the MSL-funded projects in Anhui and Hubei provinces, in order to strengthen project management by allowing project staff to meet; to share information (e.g. provincial-level strategies; PA management plans; best practices in general); to leverage resources and coordinate training; and to explore options for sharing some costs for technical expertise.

219. **Annual Work Plan and Budget (AWP/B):** The PM/PLNNR will submit to the FAO Representation in China an Annual Work Plan and Budget no later than 3 weeks post inception workshop in the first year and no later than January 10 annually thereafter. The AWP/B should include detailed activities to be implemented by project outputs and be divided into monthly timeframes detailing the activities and progress indicators that would guide implementation during the year of the Project. As part of the AWP/B, a detailed project budget for the activities to be implemented during the year should be included together with all monitoring and supervision activities required during the year. The draft AWP/B is circulated to and reviewed by the FAO Project Task Force, PLNNR/PM incorporates eventual comments and the final AWP/B is sent to the PSC for approval and to the FAO for final no-objection and upload in FPMIS by the GEF Coordination Unit. (See AWP/B format in Execution Agreement Annex 4.B).

220. **Project Progress Reports (PPR):** The PLNNR/PM will prepare six-monthly PPRs and submit to the FAO Representation in China no later than July 15 (covering the period January to June), 15 January (covering the period July - December). The 1st semester six months report should be accompanied by the updated AWP/B, for review and no-objection by FAO. The PPR are used to identify constraints, problems or bottlenecks that impede timely implementation and take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators identified in the project's Results Framework (Appendix 1). The FAO Project Task Manager will review the progress reports and collect and consolidate eventual FAO comments from the LTO, LTU, the GEF Coordination Unit, and the Budget Holder Office and provide these comments to the HSAC/BGF/PMO. When comments have been duly incorporated the LTO will give final approval and submit the final PPR to the GEF coordination Unit for final clearance and upload in FPMIS. (See PPR format in Execution Agreement Annex 4.A).

221. **Annual Project Implementation Review (PIR)**: The LTO supported by the LTU, the FAO Project Task Manager and with inputs from the PLNNR/PM, will prepare an annual PIR covering the period July (the previous year) through June (current year) to be submitted to the GEF Coordination Unit for review and approval no later than 31 July. The GEF Coordination will upload the final report on FAO FPMIS and submit it to the GEF Secretariat and Evaluation Office as part of the Annual Monitoring Review report of the FAO-GEF portfolio. The GEF Coordination Unit will provide the updated format when the first PIR is due.

222. **Technical Reports:** Technical reports will be prepared as part of project outputs and to document and share project outcomes and lessons learned. The drafts of any technical reports must be submitted by HSAC to the FAO Representation in China who will share it with the LTO and LTU for review and clearance and to the GEF Coordination Unit for information and eventual comments, prior to finalization and publication. Copies of the technical reports will be distributed to the PSC and other project partners as appropriate. The final reports will be posted on the FAO FPMIS by the LTO.

223. **Co-financing Reports:** PLNNR/PM will be responsible for collecting the required information and reporting on in-kind and cash co-financing provided by Provincial Bureau of Finance and the International Crane Foundation and eventual other partners not foreseen in the Project Document. PLNNR/PM will submit the report to the FAO Representation in China (which will add the FAO co-financing) in a timely manner on or before 31 July covering the period July (the previous year) through June (current year). (See co-financing report format in Execution Agreement Annex 4.E).

224. **GEF-5 Tracking Tools**: Following the GEF policies and procedures, the tracking tools for the biodiversity focal area will be submitted at three moments: (i) with the project document at CEO endorsement; (ii) at the project's mid-term evaluation; and (iii) with the project's final evaluation or final completion report.

225. **Terminal Report:** Within two months before the end date of the Execution Agreement PLNNR/PM will submit to the FAO Representation in China a draft Terminal Report. The main purpose of the final report is to give guidance at ministerial or senior government level on the policy decisions required for the follow-up of the Project, and to provide the donor with information on how the funds were utilized. The terminal report is accordingly a concise account of the **main products, results, conclusions and recommendations** of the Project, without unnecessary background, narrative or technical details. The target readership consists of persons who are not necessarily technical specialists but who need to understand the policy implications of technical findings and needs for insuring sustainability of project results. Work is assessed, lessons learned are summarized, and recommendations are expressed in terms of their application to the municipality's, country's as well as other regions' in China further development of natural reserve management and the conservation of biodiversity in the context of its development priorities as well as in practical execution terms. This report will specifically include the findings of the final evaluation as described in Section 6.2 above. A final project review meeting should be held to discuss the draft terminal report before it is finalized by the PLNNR/PM and approved by the FAO LTO, LTU and the GEF Coordination Unit. (See instructions for Terminal Report in Execution Agreement Annex 4.F).

226. The table below provides a summary of the main M&E reports, responsible parties and timeframe.

6.5 Monitoring and Evaluation Plan Summary

Type of M&E activity	***Responsible Parties***	***Time-frame***	***Budgeted costs***
Inception Workshop	*PLNNR, PMO, FAO LTO/PTM, LTU, GEF Coordination (TCI), FAO Representation China*	*Within two months of project start up*	*USD 20,000*
Project Inception Report	*PLNNR, PMO, FAO LTO/PTM, LTU, GEF Coordination (TCI)*	*Immediately after workshop*	*None*
Design and set-up of project monitoring system including training of staff	*PLNNR, PMO, FAO LTO/PTM, LTU*		*5% of the time of the Project Manager – co-financed*
Field based impact monitoring	*PLNNR, PMO, local beneficiary communities, farmers*	*Continually*	*None (reflected in project activities)*
Supervision visits and rating of progress in PPRs and PIRs	*FAO LTO/PTM with inputs from PLNNR and PMO*	*Quarterly*	*Visits of the FAO LTU/LTO and the GEF Coordination Unit to be paid by GEF agency fee. Visits of the PM/PMO to be paid from project travel budget*
Project Progress Reports - PPRs	*PLNNR and PMO*	*Quarterly, semi annual and annual (see above)*	*5% of the time of the Project Manager – co-financed*
Project Implementation Review - PIR	*LTU, FAO LTO/PTM*	*Annual*	*Paid by GEF Agency fee*

Type of M&E activity	*Responsible Parties*	*Time-frame*	*Budgeted costs*
Annual project progress review and planning workshops	*PLNNR, PMO*	*Annual*	*USD 40,000*
Co-financing Reports	*PLNNR, PMO; Admin Asst will do this.*	*At mid-term and at end of project based on annual tracking of co-financing execution*	*No additional*
Steering Committee Meetings		*Twice a year*	*Financed by PLNNR co-financing*
Multi-stakeholder replication workshop	*PLNNR, PMO*	*End of year 4 of the project*	*USD 10,000*
Mid-term evaluation	*External Consultant, FAO independent evaluation unit in consultation with the project team and other partners*	*At mid-point of project implementation*	*USD 32,000*
Final evaluation	*External Consultant, FAO independent evaluation unit in consultation with the project team and other partners*	*At the end of project implementation*	*USD 36,000*
Terminal Report	*PLNNR, PMO, LTU, FAO LTO/PTM*	*At least one month before end of project*	-
		Total (GEF funding)	***138,000***

6.6 Communication and Visibility

227. The results of the project and the lessons learned from the work at the targeted wetland PA sites promise to be diverse and valuable. Particular attention will be paid to capturing and documenting lessons learned, to analyse and synthesise them, to upscale them at the provincial level, and to disseminate them. A dedicated website for wetland PAs in Jiangxi Province will be a critical instrument for the dissemination of lessons learned. In addition, the lessons learned will be used to formulate recommendations for national level strategies and policies for wetland conservation, through the mechanism of the national level Main Streams for Life programme. In addition to this analysis and dissemination of lessons learned, formal reports to FAO and other relevant partners as well as the inputs for the mid-term and final project evaluations will be produced and submitted.

Annexes

Annex 1: Results Framework

Project Strategy	Objectively verifiable indicators				
Goal	Contribute to the conservation and sustainable use of globally significant wetland biodiversity in Jiangxi Province, China				
	Indicator	**Baseline**	**Target (at end of project)**	**Sources of Verification**	**Risks and Assumptions**
Project Objective: Catalyze the management effectiveness of Jiangxi's wetland protected area system to conserve globally important biological diversity	Increase in the area of effective management and protection of wetlands in the Poyang Lake region, through the improvement in management and protection in existing PA hectares (area within PLNNR, Nanji and Duchang reserves)	0 hectares	96,800 hectares	PLNNR annual reports Field station monitoring reports	• County governments and line agencies for land resources support zoning and zone-based management • Neighboring communities support and participate in co-management • Government development and land use planning incorporates the JPWPAMS[13], and bans illegal use activities
	Increase in the area of effective management and protection of wetlands in the Poyang Lake region, through the expansion of monitoring and patrolling (from 6-7 newly established PLNNR field stations) outside of the boundaries of the PLNNR, Nanji and Duchang wetland reserves	0 hectares	93,357 hectares Total: 190,157 hectares		
	Increase in the area of wetland reserves outside of the Poyang Lake region that are strengthened through new provincial level management, planning, information, financing and training frameworks	0 hectares	5,662 hectares (Direct) 20,612 hectares (Indirect) Total: 26,274 hectares	County Forestry Bureau reports	
	No. of county wetland reserves in the Poyang Lake region effectively managed and protected, with adequate capacities and management plans	0 County Wetland Reserves	3 County Wetland Reserves[14]	County Forestry Bureau reports	
	Improved score on Ecosystem Health Index (EHI)[15] • Poyang Lake National Nature Reserve • Guanshan National Nature Reserve • Jiangxi Yiyang Chinese Merganser Nature Reserve	 50% 87% 60%	 64% Stable or improved Stable or improved	EHI Monitoring Protocols	
	No net increase in the area of production activities (illegal plantations and aquaculture operations) within Poyang Lake region in habitat areas for migratory bird species	To be determined during year 1 of project	0% increase	Reports of the Project Management	

[13] Jiangxi Province Wetland Protected Areas Management Strategy

[14] The 3 County Wetland Reserves are: Nan Lake Nature Reserve (3,330 ha); Xieshan Grey Heron Nature Reserve (3 ha.); and Kangshan Lake Area Migratory Bird Nature Reserve (35,000 ha.). These 3 reserves are part of the area that will be monitored and protected by the 6-7 new field stations; thus their area of 38,333 hectares is a subset of the 93,357hectares in the second indicator.

[15] Biodiversity health is reflected in the ability of a site to maintain its biodiversity values. Many wetland sites are very dynamic and it is important to measure this ability, as this will become increasingly important as climate and water flow patterns change. During the project preparation phase, an ecosystem health index was established to measure habitat suitability in each site for important biodiversity and to monitor its status as a means of measuring biodiversity health and potential to adapt to climate induced change. However, the targets indicated for the Guanshan and Jiangxi Yiyang reserves are only estimates of what it is hoped will change by the end of the project, since these two sties are control sites and outside of the direct influence of the GEF project.

				Unit	
Component 1: Improved and consolidated wetland PA system within the larger landscape context in Jiangxi Province	Jiangxi Province Wetland PA Management Strategy (JPWPAMS) is drafted, which defines approaches, tools, and processes for guiding the expansion and consolidated management of wetland PAs in Jiangxi Province.	No strategy exists	Strategy developed and adopted by end of year 3 of project	JPWPAMS document	• Provincial government line agencies agree to implement the JPWPAMS • County governments in nearby and outer regions accept and implement the JPWPAMS and support wetland reserve management • National regulations in place to support implementation of ecological compensation measures
	Partnership with relevant sectoral line agencies strengthened to disseminate Wetland PA Management concepts and incorporate them into sectoral development planning and project appraisals	Very low levels of cooperation among various government agencies on activities that can support wetland conservation	Facilitate the development of organic agriculture pilot projects and their replication (with Dept. of Agriculture); and develop / implement eco-tourism guidelines (with tourism agencies), by end of year 3	Reports of agriculture pilot projects; eco-tourism guidelines	
	Measures for Ecological Compensation Operational Regulations (Draft) in the framework of the existing Jiangxi Wetland Protection Ordinance	No measures allow for implementation of ecological compensation	Measures formulated and put into operation by end of year 3	Draft regulations	
	PA Management Effectiveness Tracking Tool (METT) scores improved over baseline values across 9 county-level wetland PAs within the Poyang Lake region	To be determined during project inception	To be determined during project inception	Tracking Tool (filled out at start, midterm, and end of project	
	County forestry bureaus implementing activities with approved management plans for 3 county wetland reserves in Poyang Lake region	0	3	Management plans for county wetland reserves	
Output 1.1: Wetland Protected Areas Strategy for Jiangxi Province Output 1.2: Expanded coverage of operationally effective wetland protected areas in Poyang Lake region Output 1.3: Strengthened Provincial-Level Wetland PA Coordination and Management Structures Output 1.4: Strengthened Legal, Regulatory and Planning Frameworks for Wetland PAs in Jiangxi Province					
Component 2: Wetland PA Management Capacity is strengthened at selected demonstration sites	PA Management Effectiveness Tracking Tool (METT) scores improved over baseline values for 2 national and 1 provincial wetland PAs within the Poyang Lake region • Poyang Lake National Nature Reserve • Nanji National Nature Reserve • Duchang Provincial Nature Reserve	 69 61 44	 83 79 64	Tracking Tool (filled out at start, midterm, and end of the project.	• Communities within and around targeted PAs support and participate in co-management processes • Provincial and county agencies
	Management plans approved and under implementation for two national and 1 provincial wetland PAs	0	3 plans by end of year 3	Official management plans	

<table>
<tr><td></td><td>Cost-effective wetland rehabilitation and restoration techniques tested and best practices documented for replication across the entire Poyang wetland biome[16]</td><td>No techniques tested</td><td>Wetland vegetation restoration techniques tested in field conditions</td><td>Reports from 2 field sites</td><td rowspan="7">agree to support the PWEPA Management Framework and individual PA management plans
• Village Committees agree to lease small lakes to Wetland Reserves on a short-term basis to allow for seasonal draining at controlled rates
• County/village authorities help to capitalize mutual-assistant microfinance funds
• Provincial authorities (e.g. Forestry and Agriculture Departments) actively collaborate on species conservation activities</td></tr>
<tr><td></td><td>Strengthened capacity for PA management, as measured by an increase in the Total Capacity Development Score in the UNDP-GEF Capacity Scorecard, for all PAs within the PWEPA system.</td><td>Total score 66 (69%)<table><tr><th>Capacity Level</th><th>Baseline</th></tr><tr><td>Systemic</td><td>20 (66%)</td></tr><tr><td>Institutional</td><td>31 (69%)</td></tr><tr><td>Individual</td><td>21 (71%)</td></tr></table></td><td>Total score 72 (75%)<table><tr><th>Capacity Level</th><th>Target</th></tr><tr><td>Systemic</td><td>23 (77%)</td></tr><tr><td>Institutional</td><td>32 (71%)</td></tr><tr><td>Individual</td><td>17 (81%)</td></tr></table></td><td>Capacity Scorecard filled out at project start and end of project</td></tr>
<tr><td></td><td>Strengthened staff competence levels of nature reserve staff in PWEPA demonstration sites cover key skills required for the operational management of wetland PAs (co-management, enforcement, compliance, wetland ecosystem management, species surveys and monitoring, restoration and rehabilitation works).</td><td>Current staff have limited capacities in many aspects of wetlands management</td><td>No. of staff who received training: 150</td><td>Performance and qualification assessment results</td></tr>
<tr><td></td><td>No. of co-management agreements signed between wetland reserve field stations and village committees (e.g. agreements that the field stations will take action against villagers committing illegal hunting / fishing activities if they are so notified by one of the village committees, and agreements on communication and information sharing)</td><td>0</td><td>10-11</td><td>Signed agreements</td></tr>
<tr><td></td><td>Reduced number of illegal resource use incidents (hunting; illegal polders; fishing out of season; etc.) in 3 targeted PAs attributed to protection effort, strengthened regulations, establishment of new field stations, and training of PA staff and local residents.</td><td>To be determined during year 1 of project (all 3 PAs have record systems, but these will need to be consolidated)</td><td>30% by end of project</td><td>PA records of illegal resource use incidents</td></tr>
<tr><td></td><td>Species conservation plans, including strengthened monitoring, patrolling and training in species-level management, increases the number of globally significant and threatened / endangered species under targeted protection in the Poyang Lake region, for the following species:
• Siberian Crane (Grus leucogeranus)
• Oriental Stork (Ciconia boyciana)
• Swan Goose (A. cygnoides)
• Tundra Swan (Cygnus columbianus)
• Chinese Water Deer (Hydropotes inermis)
• Finless Porpoise (Neophocaena phocaenoides)</td><td>0 species conservation plans</td><td>6 species conservation plans developed and implemented</td><td>Annual reports of each conservation plan</td></tr>
<tr><td colspan="6">Output 2.1: Cost-effective wetland ecosystem management techniques tested and incorporated into PWEPA for replication
Output 2.2: PWEPA Management Framework</td></tr>
</table>

[16] Wetland restoration strategies and techniques will be tested in wetland field settings, and if any of them prove to be effective and cost efficient, those practices will be documented and promoted for replication throughout the province (replication would only happen after the GEF project).

Output 2.3: Strengthened Capacity for Participatory Management of PWEPA Wetland Reserves Output 2.4: Conservation and Monitoring of Priority Habitats and Species					
Component 3: Institutional & stakeholder capacities to manage consolidated wetland PA system in Jiangxi Province	No. of staff from all county forestry bureaus in Poyang Lake region and three counties outside of Poyang Lake Region trained in migratory bird monitoring and protection, including use of equipment; knowledge of relevant laws and regulations; identification of migratory birds; dissemination of information on laws, regulations, wetland conservation to the public; and cooperative management of county wetland reserves with PLNNR field stations	0	30	Performance and qualification assessment results	• Provincial and county government line agencies utilize and contribute to the Jiangxi Wetlands Information Management System • County and village leaders help to disseminate and promote messages regarding new regulations / restrictions to protect wetland ecosystem functioning and wetland biodiversity, as well as the socio-economic values of wetlands
	Jiangxi Wetlands Information Management System is established and operational for data sharing between PA sites, and providing information to sectoral agencies for improved wetland and PA management • Number of institutions (PA units; provincial and county agencies) using the wetlands database platform to input and update wetland data in Jiangxi provincial wetland PAs • Number of people per year who visit the wetlands database platform website to find data about wetlands in Jiangxi Province	No system in place 0 0	Information system is operational by end of year 3 At least 5 by end of year 3 10,000	Data reports generated by Information Management System	
	# of visitors per year to Poyang Lake Nature Reserve Visitor Centre (if established in Nanchang	0	30,000	Visitor center records	
	Improved understanding on the values of wetlands and the wetland PA system, indicated by Knowledge, Attitude and Practices surveys All Respondents in Jiangxi Province: • Knowledge • Attitudes • Practices • **Overall Average** Key Groups (decision makers and rural residents; evenly weighted) in Jiangxi Province with a significant impact on wetland conservation: • Knowledge • Attitudes • Practices **Overall Average**	 50% 73% 48% **54%** 52% 73% 54% **56%**	 65% 85% 62% **70%** 68% 90% 70% **73%**	KAP Survey filled out at project start and end of project	
Output 3.1: Strengthened information and data system supporting coordinated and cost effective wetland PA management Output 3.2: Strengthened Capacity for Coordinated Management of all Wetland PAs in Jiangxi Province Output 3.3: Public awareness improvement and outreach on wetland conservation and sustainable use in local communities					

Annex 2: Detailed Budget

Component 1: Improved and consolidated wetland PA system within the larger landscape context in Jiangxi Province	Component 2: Wetland PA Management Capacity is strengthened at selected demonstration sites	Component 3: Institutional & stakeholder capacities to manage consolidated wetland PA system in Jiangxi Province
Output 1.1: Wetland Protected Areas Strategy for Jiangxi Province **Output 1.2:** Expanded coverage of operationally effective wetland protected areas in Poyang Lake region **Output 1.3:** Strengthened Provincial-Level Wetland PA Coordination and Management Structures **Output 1.4:** Strengthened Legal, Regulatory and Planning Frameworks for Wetland PAs in Jiangxi Province	**Output 2.1:** Cost-effective wetland ecosystem management techniques tested and incorporated into PWEPA for replication **Output 2.2:** PWEPA Management Framework **Output 2.3:** Strengthened Capacity for Participatory Management of PWEPA Wetland Reserves **Output 2.4:** Conservation and Monitoring of Priority Habitats and Species	**Output 3.1:** Strengthened information and data system supporting coordinated and cost effective wetland PA management **Output 3.2:** Strengthened Capacity for Coordinated Management of all Wetland PAs in Jiangxi Province **Output 3.3:** Public awareness and outreach on wetland conservation and sustainable use in local communities

Description	Unit	# of Units	Unit Cost	Total	Component 1:					Component 2:					Component 3:				M&E	PM	Total GEF
					1.1	1.2	1.3	1.4	Total	2.1	2.2	2.3	2.4	Total	3.1	3.2	3.3	Total			
International Consultants																					
Senior Advisor on Wetland Protected Areas Management Strategy for Jiangxi Province	Week	7	3000	21000	21000				**21000**					**0**				**0**			**21000**
External Project Evaluations	Week	17	3000	51000					**0**					**0**				**0**	**51000**		**51000**
International Consultants - Total				**72000**	**21000**	**0**	**0**	**0**	**21000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**51000**		**72000**
National Consultants																					
Contribute to Provincial Wetland Protected Areas Management Strategy (PWPAMS)	Week	35	1000	35000	35000				**35000**					**0**				**0**			**35000**
Development of Wetland PA Standards & Guidelines	Week	30	1000	30000	30000				**30000**					**0**				**0**			**30000**
Evaluate results of capacity building for county-level wetland PA	Week	15	1000	15000		15000			**15000**					**0**				**0**			**15000**
Formulate PA management plan for 3 County Reserves in PL region	Plans	3	15000	45000		45000			**45000**					**0**				**0**			**45000**
Review legal framework for wetland PA management	Week	15	1200	18000				18000	**18000**					**0**				**0**			**18000**
Formulate wetland protection policy and technical recommendations and integrate into development planning processes	Week	25	1000	25000				25000	**25000**					**0**				**0**			**25000**
Recommendations for integrating wetlands conservation priorities into productive sector management plans and practices	Week	40	1000	40000				40000	**40000**					**0**				**0**			**40000**
Design the wetland ecosystem rehabilitation pilot framework and implementation plan	Week	20	1000	20000					**0**	20000				**20000**				**0**			**20000**
Guide implementation of ecosystem	Week	40	1000	40000						40000				**40000**				**0**			**40000**

Description	Unit	# of Units	Unit Cost	Total	Component 1:					Component 2:					Component 3:				M&E	PM	Total GEF
					1.1	1.2	1.3	1.4	Total	2.1	2.2	2.3	2.4	Total	3.1	3.2	3.3	Total			
rehabilitation at two lakes selected in PL Region																					
Document/incorporate rehabilitation techniques and best practices into the PWEPA Strategy for replication	Week	20	1000	20000						20000				**20000**				**0**			**20000**
Develop management plans for 3 PWEPA Wetland Reserves	Plans	3	33000	99000					**0**		99000			**99000**				**0**			**99000**
Formulate overall PWEPA management framework	Week	40	1000	40000							40000			**40000**				**0**			**40000**
Establish sustainable financing mechanism for the PWEPA network	Week	70	1000	70000							70000			**70000**				**0**			**70000**
Oversee capacity building of PWEPA wetland reserves staff	Week	80	1000	80000								80000		**80000**				**0**			**80000**
Design/lead implementation of ecological health monitoring programs for PWEPA reserves and EHI sites	Week	250	1000	250000									250000	**250000**				**0**			**250000**
Develop and implement species protection plans (water deer & finless porpoise)	Plans	2	27500	55000									55000	**55000**				**0**			**55000**
Cross-sectoral capacity-building for PA system coordination and planning	Week	15	1000	15000												15000		**15000**			**15000**
Analysis of the performance of the organizations and individuals nominated for conservation awards	Week	30	1000	30000													30000	**30000**			**30000**
Mid-term and final evaluation consultants	Week	12	1000	12000															**12000**		**12000**
Chief Technical Advisor (part-time)	Week	75	1500	112500										**0**				**0**		**112500**	**112500**
Project administrative assistant	Week	260	400	104000														**0**		**104000**	**104000**
National Consultants - Total				**1155500**	**65000**	**60000**	**0**	**83000**	**208000**	**80000**	**209000**	**80000**	**305000**	**674000**	**0**	**15000**	**30000**	**45000**	**12000**	**216500**	**1155500**
Contracts																					
Technical inputs to PWPAMS	lumpsum	1	22500	22500	22500				**22500**					**0**				**0**			**22500**
Technical inputs to Wetland PA Standards and Guidelines	lumpsum	1	5000	5000	5000				**5000**					**0**				**0**			**5000**
Conservation zoning of 3 county reserves in Poyang Lake region, and implement pilot protection measures	lumpsum	1	194000	194000		194000			**194000**					**0**				**0**			**194000**
Economic Valuation of Wetland PA Services	lumpsum	1	40000	40000				40000	**40000**					**0**				**0**			**40000**
Study impacts of climate change and hydrologic changes; create scenarios of possible impacts on	lumpsum	1	91500	91500					**0**	91500				**91500**				**0**			**91500**

Description	Unit	# of Units	Unit Cost	Total	Component 1:					Component 2:					Component 3:				M&E	PM	Total GEF
					1.1	1.2	1.3	1.4	Total	2.1	2.2	2.3	2.4	Total	3.1	3.2	3.3	Total			
wetland ecosystems; formulate mitigation plans																					
Implement Management Plans for 3 PWEPA Wetland Reserves	lumpsum	1	250000	250000					**0**		250000			**250000**				**0**			**250000**
Design and implement programs for Site Level Community Co-Management	lumpsum	1	210000	210000					**0**			210000		**210000**				**0**			**210000**
Establish micro-credit program for alternative livelihood activities	lumpsum	1	100000	100000					**0**			100000		**100000**				**0**			**100000**
Establish eco-tourism activities with local community partners	lumpsum	1	110000	110000								110000		**110000**				**0**			**110000**
Carry out species surveys (Migratory Birds, Water Deer & Finless Porpoise)	lumpsum	1	244000	244000					**0**				244000	**244000**				**0**			**244000**
Development of Jiangxi Wetland Reserves Information Management System	lumpsum	1	188000	188000										**0**	188000			**188000**			**188000**
Design and creation of exhibits and educational materials for Wetland PA Visitor Center	lumpsum	1	160000	160000										**0**			160000	**160000**			**160000**
Develop School Wetland Protection Education Curriculum and conduct school outreach program	lumpsum	1	95000	95000													95000	**95000**			**95000**
Public outreach on wetland conservation; establish website for wetland PAs in Province; raise awareness among decision-makers	lumpsum	1	407000	407000													407000	**407000**			**407000**
Reports and materials on project progress and results disseminated to relevant organizations and NGOs	lumpsum	1	100000	100000			33000		**33000**	8000	8000	8000	9000	**33000**	11000	11000	12000	**34000**			**100000**
Contracts - Total				**2217000**	**27500**	**194000**	**33000**	**40000**	**294500**	**99500**	**258000**	**428000**	**253000**	**1038500**	**199000**	**11000**	**674000**	**884000**	**0**	**0**	**2217000**
Travel																					
Travel - Consultants – International	lumpsum	1	20000	20000	15000				**15000**					**0**				**0**	**5000**		**20000**
Support pilot of Community Co-Management	lumpsum	1	5000	5000		5000			**5000**					**0**				**0**			**5000**
Community outreach on Jiangxi Province Wetland Protection Ordinance	lumpsum	1	5000	5000				5000	**5000**					**0**				**0**			**5000**
Formulation of overall PWEPA Management Framework	lumpsum	1	10000	10000					**0**		10000			**10000**				**0**			**10000**
Development and implementation of Species Protection Plans (Water Deer & Finless Porpoise)	lumpsum	1	12000	12000					**0**				12000	**12000**				**0**			**12000**
Travel - Total				**52000**	**15000**	**5000**	**0**	**5000**	**25000**	**0**	**10000**	**0**	**12000**	**22000**	**0**	**0**	**0**	**0**	**5000**	**0**	**52000**

Description	Unit	# of Units	Unit Cost	Total	Component 1:					Component 2:					Component 3:				M&E	PM	Total GEF
					1.1	1.2	1.3	1.4	Total	2.1	2.2	2.3	2.4	Total	3.1	3.2	3.3	Total			
Training & Workshops																					
Consultations on PWPAMS strategy with relevant stakeholders	meetings	5	2000	10000	10000				**10000**					**0**				**0**			**10000**
Workshops to develop Wetland PA Standards & Guidelines	workshops	3	5000	15000	15000				**15000**					**0**				**0**			**15000**
Workshops on Community Co-Management	meetings	5	2000	10000		10000			**10000**					**0**				**0**			**10000**
Training of County-level Wetland Pa Managers - PL region	lumpsum	1	61000	61000		61000			**61000**					**0**				**0**			**61000**
Training of County-level Officials to support wetland PAs	lumpsum	1	50000	50000		50000			**50000**					**0**				**0**			**50000**
Training of County-level Wetland Pa Managers - Outside PL region	lumpsum	1	25000	25000		25000			**25000**					**0**				**0**			**25000**
Consult with Provincial Government to establish Jiangxi Province Wetland Protection Coordination Committee	lumpsum	1	25000	25000			25000		**25000**					**0**				**0**			**25000**
Community outreach on Jiangxi Province Wetland Protection Ordinance	meetings	5	1000	5000				5000	**5000**					**0**				**0**			**5000**
Training in ecosystem rehabilitation at two sites (lakes) selected in Poyang Lake Region	lumpsum	1	10000	10000					**0**	10000				**10000**				**0**			**10000**
Capacity building of existing PL Wetland Protected Areas Coordination Committee to implement PWEPA	lumpsum	1	90000	90000					**0**		90000			**90000**				**0**			**90000**
Capacity building of PA staff to implement Management Plans for 3 PWEPA Wetland Reserves	lumpsum	1	40000	40000					**0**		40000			**40000**				**0**			**40000**
Formulation of overall PWEPA Management Framework	lumpsum	1	15000	15000					**0**		15000			**15000**				**0**			**15000**
Consult with relevant stakeholders on development of PWEPA	lumpsum	1	20000	20000					**0**		20000			**20000**				**0**			**20000**
Capacity building to establish and implement Sustainable Financing Mechanism for the PWEPA Network	lumpsum	1	25000	25000							25000			**25000**				**0**			**25000**
Capacity Building of PWEPA Wetland Reserves staff	lumpsum	1	263000	263000								263000		**263000**				**0**			**263000**
Outreach and capacity building for Site Level Community Co-Management	lumpsum	1	34000	34000								34000		**34000**				**0**			**34000**
Training of reserve staff in	lumpsum	1	55000	55000									55000	**55000**				**0**			**55000**

Description	Unit	# of Units	Unit Cost	Total	Component 1:					Component 2:					Component 3:				M&E	PM	Total GEF
					1.1	1.2	1.3	1.4	Total	2.1	2.2	2.3	2.4	Total	3.1	3.2	3.3	Total			
Ecological Health Monitoring programs for PWEPA reserves and EHI sites																					
Training to carry out species surveys (Migratory Birds, Water Deer & Finless Porpoise)	lumpsum	1	39000	39000									39000	**39000**				**0**			**39000**
Cross-Sectoral Capacity Building for PA System Coordination and Planning	lumpsum	1	10000	10000										**0**		10000		**10000**			**10000**
Capacity building for school outreach program	lumpsum	1	10000	10000										**0**			10000	**10000**			**10000**
Multi-stakeholder replication workshop	lumpsum	1	10000	10000										**0**					10000		**10000**
South-south sharing of best practices in wetland PA and PA systems management	lumpsum	1	40,000	40000								20000		**20000**		20000		**20000**			**40000**
Peer-to-peer sharing of lessons learned/best practice with other wetland PA GEF projects in China	lumpsum	1	35,000	35000								17,500		**17500**		17500		**17500**			**35000**
Project Inception Workshop	lumpsum	1	20000	20000					**0**					**0**				**0**	**20000**		**20000**
Annual project progress review and planning workshops	meetings	5	8000	40000															**40000**		**40000**
Training of staff of PMO and 3 PWEPA Nature Reserves in project management activities	lumpsum	1	21000	21000								21000		**21000**				**0**		0	**21000**
Training & Workshops - Total				**978000**	**25000**	**146000**	**25000**	**5000**	**201000**	**10000**	**190000**	**355500**	**94000**	**649500**	**0**	**47500**	**10000**	**57500**	**70000**	**0**	**978000**
Expendable Procurement																					
Equip modest co-management structures at 3 County Wetland Reserves in PL region	lumpsum	1	45000	45000		45000			**45000**					**0**				**0**			**45000**
Supplies for wetland restoration piloting work for rehabilitation at two sites (lakes) selected in PL Region (split between expendable and non-expendable)	lumpsum	1	95000	95000					0	95000				95000				0			95000
Community outreach materials/ publications on Jiangxi Province Wetland Protection Ordinance	lumpsum	1	12000	12000				12000	**12000**					**0**				**0**			**12000**
Procurement of conservation awards for local organizations / individuals	lumpsum	1	20000	20000					**0**					**0**			20000	**20000**			**20000**
Expendable Procurement - Total				**172000**	**0**	**45000**	**0**	**12000**	**57000**	**95000**	**0**	**0**	**0**	**95000**	**0**	**0**	**20000**	**20000**	**0**	**0**	**172000**
Non-Expendable Procurement																					
Community education /information	lumpsum	1	13000	13000		13000			**13000**					**0**				**0**			**13000**

Description	Unit	# of Units	Unit Cost	Total	Component 1:					Component 2:					Component 3:				M&E	PM	Total GEF
					1.1	1.2	1.3	1.4	Total	2.1	2.2	2.3	2.4	Total	3.1	3.2	3.3	Total			
materials on co-management																					
Establish modest comanage-ment structures at 3 County Wetland Reserves in PL region	lumpsum	1	101500	101500		101500			**101500**					**0**				**0**			**101500**
Small boats/modest vehicles for County Wetland PA management - PL region	lumpsum	1	35000	35000		35000			**35000**					**0**				**0**			**35000**
Supplies for wetland restoration piloting work for rehabilitation at two sites (lakes) selected in PL Region	lumpsum	1	95000	95000					**0**	95000				**95000**				**0**			**95000**
Investigation, monitoring and protection equipment for PWEPA Wetland Reserves	lumpsum	1	175000	175000					**0**			175000		**175000**				**0**			**175000**
Vehicle for wetland biodiversity and PA monitoring & project management	lumpsum	1	40000	40000		25000			**25000**					**0**				**0**		**15000**	**40000**
Non-Expendable Procurment - Total				**459500**	**0**	**174500**	**0**	**0**	**174500**	**95000**	**0**	**175000**	**0**	**270000**	**0**	**0**	**0**	**0**	**0**	**15000**	**459500**
General Operating Expenses																					
Management of 3 County Wetland Reserves in Poyang Lake region	lumpsum	1	10000	10000		10000			**10000**					**0**				**0**			**10000**
Implement protection measures based on conservation zone plans at 3 County Wetland Reserves in Poyang Lake region	lumpsum	1	10000	10000		10000			**10000**					**0**				**0**			**10000**
Communications, Office Materials for project management office	lumpsum	1	12000	12000					**0**					**0**				**0**		**12000**	**12000**
Contingency Fee (3%)	lumpsum				4700	19000	750	4500	**28950**	11500	20150	34000	20000	**85650**	5800	800	22300	**28900**	**0**	**7500**	**151000**
General Operating Expenses - Total				**32000**	**4700**	**39000**	**750**	**4500**	**48950**	**11500**	**20150**	**34000**	**20000**	**85650**	**5800**	**800**	**22300**	**28900**	**0**	**19500**	**183000**
TOTAL				**5138000**	**158200**	**663500**	**58750**	**149500**	**1029950**	**391000**	**687150**	**1072500**	**684000**	**2834650**	**204800**	**74300**	**756300**	**1035400**	**138000**	**251000**	**5289000**

Subtotal Comp 1	**1,029,950**
Subtotal Comp 2	**2,834,650**
Subtotal Comp 3	**1,035,400**
Subtotal M&E	**138,000**
Subtotal PM	**251,000**
TOTAL GEF	**5,289,000**

Annex 3: Work Plan

Sub-components	Year 1				Year 2				Year 3				Year 4				Year 5				Responsibility
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Component 1: Improved and consolidated wetland PA system within the larger landscape context in Jiangxi Province																					
Output 1.1 – Provincial Wetland PA Management Strategy																					
1.1.1 Formulate the Jiangxi Province Wetland Protected Areas Management Strategy (JPWPAMS)																					Consultant; PMO
1.1.2 Development of Wetland PA Standards & Guidelines																					Consultant recruited from Wildlife Administration; PMO
Output 1.2: Expanded coverage of operationally effective wetland protected areas in Poyang Lake region																					
1.2.1 Establishment and Operations of Wetland PA Field Stations																					PLNNR; PMO
1.2.2 Support County Forest Bureau to Establish 3 operational Demonstration County Wetland Nature Reserves																					PMO; County governments and County Forestry Bureaus; local communities; technical experts
1.2.3 Capacity Building of target County Wetland Reserves in Jiangxi Province																					PMO, County governments and County Forestry Bureaus; technical experts
Output 1.3 – Strengthened Provincial-Level Wetland PA Coordination and Management Structures																					
1.3.1 Establish the Jiangxi Province Wetland Protected Areas Coordination Committee by upgrading the Poyang Lake Wetland Management Coordination Committee in coordination with Component 2 activities.																					PMO, other stakeholders and line agencies
Output 1.4 Strengthened Legal, Regulatory and Planning Frameworks for Wetland PAs in Jiangxi Province																					
1.4.1 Review the Legal / Regulatory Framework for Wetland PA Management, assess implementation status and existing constraints, and formulate reinforcement recommendations																					Consultant recruited from Wildlife Administration; PMO
1.4.2 Conduct community outreach education for implementing Jiangxi Province Wetland Protection Ordinance																					PLNNR, Nanji and Duchang Nature Reserves; PMO
1.4.3 Economic Valuation of Wetland PA Services																					Consultant; PMO
1.4.4 Formulate wetland conservation recommendations and integrate them into governmental Development Planning																					PMO, pilot counties, Departments of Water, Agriculture, Environmental

Sub-components	Year 1				Year 2				Year 3				Year 4				Year 5				Responsibility
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Processes																					Protection, etc.
1.4.5 Formulate wetland conservation recommendations and integrate them into Productive Sector Management Plans and Practices																					PMO, agriculture and water sectors, Environmental Protection bureau
Component 2: Wetland PA Management Capacity is strengthened at selected demonstration sites																					
Output 2.1- Cost-effective wetland ecosystem management techniques tested, incorporated into PWEPA for replication																					
2.1.1 Enhancing Wetland Resilience to potential Climate Change Impacts																					Consultant, PMO, PLNNR, Nanji NR, Duchang NR
2.1.2 Conduct studies on the impacts of climate change and hydrologic changes and make projections and scenarios on the possible impacts on wetland ecosystems and formulate mitigation plan																					Consultant, technicians of field protection stations of PLNNR, Nanji and Duchang NR; PMO
Output 2.2 PWEPA Management Framework																					
2.2.1 Strengthen the capacity of the Poyang Lake Wetland Management Coordination Committee																					PLNNR; PMO
2.2.2 Develop Management Plans for PWEPA Wetland Reserves																					PLNNR, Nanji NR and Duchang; PMO
2.2.3 Formulate overall PWEPA Management Framework and consult with relevant stakeholders on PWEPA.																					NR Consultant, PLNNR, Nanji NR and Duchang NR, Sectoral Agencies; PMO
2.2.4 Establish Sustainable Financing Mechanism for the PWEPA Network																					PMO, PLNNR, Nanji NR and Duchang NR
Output 2.3 – Strengthened Capacity for Participatory Management of PWEPA Wetland Reserves																					
2.3.1 Capacity Building of PWEPA Wetland Reserves																					Participatory wetland mngmt. consultant, PLNNR, Nanji and Duchang NR; PMO
2.3.2 Support Site Level Community Co-Management																					PLNNR, Nanji and Duchang NR; PMO
2.3.3 Conduct cooperative management of water bodies for conserving migratory bird habitat																					PLNNR, Nanji and Duchang NR; village committees; PMO
2.3.4 Joint development of sustainable employment opportunities for local residents																					PLNNR, Nanji and Duchang NR; PMO
Output 2.4– Conservation and Monitoring of Priority Habitats and Species																					
2.4.1 Carry out Ecological Health Monitoring																					Consultant, PLNNR, Nanji and

Sub-components	Year 1				Year 2				Year 3				Year 4				Year 5				Responsibility
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
																					Duchang NR; PMO
2.4.2 Develop and implement Species Monitoring and Protection Plans																					Consultant, PLNNR, Nanji and Duchang NR; PMO
Component 3 - Institutional & stakeholder capacities to manage consolidated wetland PA system in Jiangxi Province																					
Output 3.1 – Strengthened information and data system supporting coordinated and cost effective wetland PA management																					
3.1.1 Jiangxi Wetland Reserves Information Management System																					PLNNR; PMO
Output 3.2 – Strengthened Capacity for Coordinated Management of all Wetland PAs in Jiangxi Province																					
3.2.1 Cross-Sectoral Capacity Building for PA System Coordination and Planning																					Training experts & PMO
Output 3.3 – Public awareness and outreach on wetland conservation and sustainable use in local communities																					
3.3.1 Improve Wetland PA Visitor Centre and Education Facilities																					PMO, PLNNR
3.3.2 Develop School Wetland Protection Education Curriculum and conduct school outreach program																					PMO, PLNNR, Nanji, Duchang NR
3.3.3 Introduce conservation awards mechanism																					PMO, PLNNR
3.3.4 Outreach and Awareness Raising Programs																					PMO, PLNNR, Nanji, Duchang
Component 4 - Project Management and Evaluation																					
4.1 Inception Workshop																					PMO
4.2 Project management																					PMO
4.3 M&E of project implementation																					PMO
4.4 Annual project progress review and planning workshop																					PMO
4.5 Publicity and Project result dissemination																					PMO
4.6 Multi-stakeholder replication workshop																					PMO

Annex 4: Stakeholder Involvement Plan

The preparatory phase of the project included significant stakeholder participation. Consultations and group discussions were held with most stakeholders, including national, provincial and local government agencies, local stakeholders/resource users in the demonstration areas, and environmental NGOs. The final project document was designed with stakeholders' full involvement and with the validations of key organizations. The METT and EHI scoring exercises and the KAP Surveys included the participation provincial and local staff of government agencies as well as representatives of NGOs and academic organizations. The PPG phase included briefing key government officials regarding project design, and the results framework workshop involved detailed discussions and produced agreement regarding project strategy.

This same inclusive approach will be carried forward during project implementation. This will be achieved through the project steering committee (board) that enjoys representation from all major stakeholder organizations. The project will also benefit from the creation of the provincial consultative committee that will facilitate more broad-based stakeholder involvement with wetlands conservation decision-making. The consultative committee will benefit from representatives of all key sectors (e.g., water, agriculture, fisheries, forestry, industry and commerce, etc.), who will participate in the design and implementation of conservation strategies. Under Component 2, specific measures will be taken to more fully include resource users impacted by wetland reserve management actions into the decision-making process.

Stakeholder Organizations

The following table presents all key stakeholders and their roles/responsibilities relevant the proposed project.

Stakeholders	Participation in the Execution of the Project
National Government of China	
State Forestry Administration (SFA)	Responsible for forests, most of China's nature reserves, wildlife issues, wildlife trade, wetlands protection (Ramsar Convention), and the drafting of departmental level regulations for wetlands. The SFA will provide technical guidance on wetlands and protected area management based on their experiences throughout China; will support impact and progress monitoring, and will support information dissemination and national replication / up-scaling of project success.
Office of the State Council Three Gorges Project Construction Committee	The Office of the State Council Three Gorges Project Construction Committee will carry out an Ecological Environment Monitoring System Poyang Lake to track changes in key elements of Poyang Lake's hydrology and water quality; and it will strengthen conservation at the Poyang Lake National Nature Reserve and the Nanji National Nature Reserve through management capacity improvements, bird and habitat protection, wetland protection and restoration, and rare species rescue and breeding.
National Development and Reform Committee (NDRC)	The National Development and Reform Committee (NDRC) will undertake construction of a Protection and Management Station and enhanced facilities and equipment such as signs and roads; waterbird and habitat conservation; wetland restoration; wetland ecological public education centre and materials; and fixed monitoring sample lines for birds.
Jiangxi Provincial Government	
Jiangxi Provincial Government	Responsible for provincial administration, development planning and implementation (including the Poyang Lake Ecological Economic Zone plan), as well as planning and financing of the provincial PA system. The provincial government is highly important to project success, including support for the design, implementation, financing, and mainstreaming of the provincial level wetlands conservation strategy, policy improvements, and related outputs/activities. Will make certain provincial agency programs and activities, and provincial laws and regulations, are designed and implemented to support wetland conservation objectives. The Vice-Governor will chair the Jiangxi Province Wetland Protected Areas Coordination Committee.
Jiangxi Forestry Department (JFD)	The JFD is the lead government stakeholder and a key co-financer of the project. The JFD is responsible for planning and managing the provincial PA system; conservation of fauna and flora in the province; and wetland management. The JFD will be a member of the project steering

Stakeholders	Participation in the Execution of the Project
	committee, and will provide feedback on all project activities and issues to the State Forestry Administration and to the GEFSEC by way of FAO. The JFD also will provide support in policy, human resources and technology to the project implementation processes, and leadership in developing wetland conservation strategies as they relate to wetland nature reserves. The Jiangxi Wildlife Protection Administration (JWPA) and the Jiangxi Forestry Department Wetland Protection and Management Office (JFDWPMO) will take a leading role on many of the provincial-level activities of the project (as described in Section 3.2). The JFD will fund the annual conservation awards program for Wintering Migratory Birds and Wetland Protection; as well as support the operating expenses of the Poyang Lake National Nature Reserve, the Nanji National Nature Reserve, the Duchang Provincial Nature Reserve, and the operations of the JWPA and the JFDWPMO.
Provincial Development and Reform Commission (PDRC)	Responsible for coordinating and implementation of development planning in Jiangxi Province. The PDRC will play a leading role in project related legal and policy activities, including: a) the design and formation of the Jiangxi Province Wetland Protected Areas Coordination Committee; b) revision of the existing wetland conservation provincial law, c) development of regulations and standards for ecological compensation; d) "mainstreaming" Poyang Lake wetland protection goals into Poyang Lake Eco-economic Zone Plan
Jiangxi Province Wetland Protected Areas Coordination Committee (JPWPACC)	Restructuring of the existing committee for the Poyang Lake region into the new JPWPACC will establish the key project stakeholder mechanism for improved wetland PA management in Jiangxi Province, bringing together representatives from all relevant provincial and local level departments and administrations (see Section 1.2 for details). The JPWPACC will take a leading role in overseeing implementation of the Wetland Protected Areas Strategy for Jiangxi Province.
Mountain – River - Lake Office of Jiangxi Province	Has played a leadership role in developing an integrated approach for management of the entire Poyang Lake Basin (approx. 95% of Jiangxi Province), including lessons learned from the Mountain – River – Lake program. Will participate in provincial level consultative groups.
Finance Department of Jiangxi	Responsible for managing / facilitating the co-financing contributions to the project from national and provincial government agencies. Also will help to make certain financing mechanisms exist to implement and incentivize realization of wetland nature reserve conservation management objectives.
Agriculture Department of Jiangxi	Responsible for both agriculture and fisheries. Major stakeholder in terms of water use and sources of agricultural water pollution. Will participate in provincial level consultative groups. Will make certain agricultural and fisheries activities both inside and outside of protected areas is compatible with achievement of wetland reserve management plan conservation objectives. Will take leading role in developing wetland conservation strategies that address agricultural sector activities that impact wetland ecosystems; also partnership in coordinating species conservation plans in aquatic nature reserves (managed by the Agriculture Department) with wetland reserves.
Water Resource Department of Jiangxi	Responsible for planning and controlling water resource planning and allocation. Critical stakeholder in the effort to ensure sufficient water flow to the target wetlands. Will participate in provincial level consultative groups. Will play leading role in Poyang Lake Water Resource Management, including participation in hydrological systems studies and planning.
People's Congress of Jiangxi	Will take a leading role in the development and revision of laws and regulations relevant to wetlands conservation and sustainable use, and protected areas.
Sub-Provincial Government Agencies	
Wetland Nature Reserves	The Poyang Lake National Nature Reserve, Nanji wetlands National Nature Reserve, and Duchang Provincial Nature Reserve encompass much of the critical habitat for wintering migratory birds and other significant biodiversity in the Poyang Lake region, and employ most of the trained wetland protected area staff in the Province. These three reserves will serve as the key demonstration sites for improved wetland PA management and will play a key role in peer-to-peer training supported by the project for other wetland PAs in Jiangxi province. The Poyang Lake National Nature Reserve, given its extensive resources and technical capacities, and its mandate for conservation activities throughout the Poyang Lake region, will take the leading role among these three wetland PAs, and will house the Project Management Office.
Municipal Forestry Bureaus; County People's	These agencies are responsible for county-level wetland reserves. They will participate in developing local wetland conservation and management policies, in providing political and financial support to wetland PAs. In addition, a number of County Wetland Reserves wiil be the

Stakeholders	Participation in the Execution of the Project
Governments	site of capacity building and in some cases on the ground conservation activities.
Local Communities / Resource Users	
Local Communities (within or adjacent to wetland reserves)	Numerous local communities in Jiangxi Province rely greatly upon wetlands for a variety of commercial and subsistence uses, including fishing families, agriculturalists, developers, tourism operators, urban dwellers, recreational visitors, etc. (many rural community members follow traditional modes of living, but none may be accurately described as an indigenous community). These persons / groups will be engaged by the project in a myriad of ways. Local residents will be employed in species monitoring and protection activities in and around wetland nature reserves; will participate in various forms of community co-management of wetland reserves, including communications and outreach as well as priority setting and discussions of regulations; and will benefit from pilot activities for alternative livelihoods. Fishermen will participate in developing and testing more sustainable fishing and aquaculture practices, and in ecotourism work as well as monitoring activities. Local farmers will participate in management of rice paddies to better maintain wintering habitat for birds and reduce non-point source pollution. In and around many of the wetland nature reserves, women are largely responsible for land and water based commercial and subsistence activity. Women and issues of gender will be critical to the success of conservation in Jiangxi province.
Private Sector	
Private Companies / Groups	The role of the private sector as a contributor to the conservation of wetlands and the integrity of ecosystem services will be promoted and reinforced in several ways. Agreements will be developed between PA management authorities (National and Provincial Reserves, possibly Country Forestry Departments) and other sectoral government agencies that oversee private sector activities to facilitate sustainable economic development while securing wetlands conservation objectives. Possible agreements include an agreement with the Department of Agriculture to implement pilot organic agriculture projects (with the potential for replication); and agreements with tourism agencies to develop and implement eco-tourism guidelines, especially to control the activities of bird watching tourists. In addition, the project will work with productive sector partners to develop and enforce sector specific standards and safeguards to protect wetland PAs from practices that threaten wetland biodiversity and ecosystem services, including: i) standards for infrastructure development and operation; ii) an agreement with the Water Resources Department to reduce the sand mining quota for the Poyang Lake region; and iii) official guidelines for tourism, fisheries, aquaculture, agriculture and land conversion in and around wetland PAs. In addition, the Provincial Department of Industry & Commerce will participate as member of the Jiangxi Province Wetland Protected Areas Coordination Committee, thereby representing the interests of economic development stakeholders in the development, implementation and monitoring of protected area management plans and province-wide wetlands conservation strategies and investments.
Universities & Research Institutes	
Academies of Sciences; Universities (Nanchang University, Beijing Forestry University, Chinese Science and Technology University, etc.)	Provide high quality technical support through long-term ecological observation stations and on-going research programs
Civil Society	
International Crane Foundation (ICF)	ICF has been conducting research and conservation programs in the Poyang Lake region for several decades, including playing a key role in the GEF-supported Siberian Crane Wetlands Project. ICF will implement 4 projects in collaboration with the PLNNR and other stakeholders during the period of the proposed project, including a study of the interactions between migratory birds, aquatic plants and hydrological conditions; a survey of migratory bird populations; a research program on small lake management; and development of an on-line database on ecological factors in the Poyang Lake region.

Stakeholders	Participation in the Execution of the Project
Society of Bird-lovers of Jiangxi Province	Established in 2003 as the first provincial level society of bird lovers in China, the Society has 50 member organizations (including 30 media related companies; 8 universities; and 8 protected areas) and 100 individuals. It has been monitoring the population of Oriental Storks in Poyang Lake for 14 years; done outreach and education on migratory birds, trying to build public support and appreciation for migratory birds; has participated in various international fora, including 13th Wetlands Conference, and has enlisted local inhabitants to help monitor for illegal hunting, injured birds, etc. Will work with the project to strengthen awareness on importance of wetlands among both national and international stakeholders; to protect habitat for important species; to increase public understanding and control over the lake, and to improve technical methods for monitoring migratory bird populations
World Wildlife Fund (WWF)	WWF will be sought as a partner to carry out baseline surveys and public education on globally significant wetlands ecosystems in Jiangxi Province, and to provide technical expertise in wetland PA management, public awareness, and development of financial incentives
Development Organizations	
FAO	
UNDP and the GEF MSL Project Office	Responsible for coordinating implementation of the overall national level Main Streams for Life programme, and 6 other GEF projects (1 national, 5 provincial) within the programme, of which the proposed project is also a part. UNDP is supporting the other two of the three wetlands conservation projects funded in part by GEF that are located in the middle-Yangtze river region. These two projects, along with the proposed project, will be closely aligned with synergies built throughout implementation, so that compatible approaches taken in each of the three locations will result in economies of scale and replication for wetlands conservation at all three relevant provinces.

Annex 5: Terms of Reference of Project Steering Committee and key staff / consultants

Terms of Reference for the Project Steering Committee

The Project Steering Committee (PSC) will make decisions on the overall management of the project, and will be responsible for maintaining the strategic focus of the project and the successful execution of operational tasks. Membership of the PSC will consist of the members of the existing Provincial Project Leading Group (PLG) that was set up in October 2012, namely the Jiangxi Finance Department, the Jiangxi Forestry Department, and the PLNNR, as well as the International Crane Foundation. The committee will be chaired by the Deputy Governor of Jiangxi Province. More specifically, the PSC will be responsible, among others, for the following matters:

- Reviewing and approving the project's annual work-plans;
- Assessing progress in the implementation of the project and recommending necessary actions and measures to be taken towards achievement of the project objectives;
- Providing general guidance to the Project Management Office (PMO);
- Monitoring, as appropriate, project activities at the selected wetland nature reserves watersheds included in the project;
- Reviewing and endorsing the Jiangxi Province Wetland Protected Areas Management Strategy, the PWEPA Management Framework, and the management plans of individual wetland nature reserves;
- Monitoring the establishment and implementation of the community co-management mechanisms;
- Approving strategies for communication, partnerships and resource mobilisation;
- Overseeing the financial management and the mobilization of the co-financing contributions.

Summary of Tasks and Responsibilities of PLNNR Staff in the management of the GEF Project

Name	Position/function	Tasks and responsibilities
Project Management Office		
Mr. Zeng Nanjing	Chief Engineer (GEF Project Manager)	- Daily manager of PMO and overall coordinator - Daily coordination with FAO/GEF; - Internal coordination with relevant PLNNR offices/staff - Coordination of annual planning, monitoring, reporting, financial management, document management, information publicity, etc. - *See Terms of Reference below for additional details*
Mr. Jin Jiefeng	Deputy Div. Chief for national and intl. projects (GEF Project Technical Expert)	- Project planning - Monitoring and evaluation - Formulating PA and PA system management plans
Ms. Huang Jiang	PMO staff (GEF Project Administrative Officer / Translator)	- Project document management - Interpretation for FAO/GEF international consultants / staff - Translation of project reports and documents - Assisting the financial official to prepare financial reports to FAO - Planning and organizing training activities
Mr. Xiao Huajie	Engineer (GEF Project Monitoring and Evaluation Expert)	- Official in charge of project planning, preparing AWPs; allocating tasks to PAs - Preparing TORs and Material Procurement documents for procuring consultancy services and materials, equipment from the market - Technically supervising and guiding the PA in implementing the project activities - Regularly conducting field investigation and on-site guidance to PA technical staff - Project document and information management - Preparing project progress reports - Assisting Project Financial Manager in book keeping and recording and

		preparing financial reports
Other PLNNR Staff		
Mr. Zhu Qi	Director General of PLNNR	- PMO Executive Director, acting as National Project Director representing Jiangxi Provincial Forestry Department - Overall coordination of PLNNR internal divisions in implementing project - Signature of Financial Reports - *See Terms of Reference below for additional details*
Mr. Liu Guanhua	Deputy Director General of PLNNR for Resource Protection and Project Management	- Coordination of project implementation. - Co-signature of the project financial reports
Mr. Yu Jun	Deputy Director General of PLNNR	Advisor for financial management and planning of the FAO/GEF project.
Ms. Zeng Jingxiang	Chief Accountant	- In charge of financial management; - Preparing budget plans based on the annual work plan-AWP - Keeping financial records, reviewing receipts and financial reports submitted by PA; preparing quarterly financial reports; - Regular review of project accounts; - Preparing relevant documents for internal and external financial audits

Terms of Reference for Key Project Staff / Consultants

National Project Director (60 months)

The National Project Director is ultimately responsible and accountable to FAO for the implementation of the project on behalf of the Poyang Lake National Nature Reserve (PLNNR), the project Executing Partner. He will act as the focal point and responsible party for implementation of the project and will ensure that all Government inputs committed to the project are available to the project in a timely manner. He will also act as the approving authority for staff appointments and for advances and expenditure. The Director General of the PLNNR will be the National Project Director. In particular the National Project Director will:

- Take overall responsibility for all project activities and for coordination with related activities by other governmental and non-governmental organizations
- Discuss project implementation with the PMO on a regular basis, and assist with solution of any problems
- Assist the PMO in making necessary contacts for pursuing policy and legislation aspects of the project at the central government level
- Certify the annual and quarterly work plans for the project and request quarterly advance payments from UNDP CO according to the National Execution (NEX) procedures
- Be responsible and accountable for advance funds received and sign and submit required financial reports to UNDP CO
- Represent the PLNNR in official meetings regarding the project
- Ensure that there is a clear and unambiguous decision-making process for project implementation so that project activities are planned well in advance and necessary funds, personnel and equipment are provided in good time for implementation of project activities at provincial, site and national levels.

Project Manager **(**60 months)

Working under the supervision of the NPD, the Project Manager (PM) is responsible for technical, administrative and financial management of the project. Working closely with the other PMO staff, the PM will also coordinate with relevant organizations to ensure successful implementation of the project. He will be responsible for developing an atmosphere of competence in and enthusiasm for wetland conservation in the project office. The PM will be responsible for the overall planning and coordination of the implementation of all project activities, including:

- Daily supervision of project personnel and ensure smooth implementation of the project in accordance with the project document and the NEX procedures. In particular, establish good administrative procedures for coordination of the work of the project staff and develop and supervise the implementation of work plans of all PMO members;
- The preparation and follow-up on POAs and procurement plans
- The eventual update in Project's Operational Manual (POM) to be cleared by FAO;
- Disbursements and financial execution; (iv) supervision of procurement procedures;
- Managing a financial information system to track project accounting and disbursements;
- Manage a contract information and project results system to monitor implementation and project results;
- The preparation of monitoring and review reports on project progress to be presented to the PSC for their assessment and submitted to FAO and provision of any project related information required by FAO and/or GEF;
- The preparation of all contractual arrangements and institutional agreements needed to execute project activities at the provincial and local level;
- The preparation and development of project supervision missions and mid-term review mission of the FAO;
- Facilitate the preparation of audit reports;
- Facilitate the work of International and National Consultants and sub-contractors;
- Internal coordination with relevant PLNNR offices/staff;
- Maintain good communication with other agencies with which the project works and interacts;
- Assist project staff to gain effective cooperation with central and local government institutions and with civil society organizations and educational / research institutions;
- Prepare TORs for project staff, consultants and subcontractors and coordinate the recruitment and selection of project personnel;
- Oversee the exchange and sharing of experiences and lessons learned with relevant community based integrated conservation and development projects nationally and internationally

Qualifications

- A university degree (preferably a MSc or PhD degree) in Environmental or Natural Sciences;
- At least 10 years of experience in natural resource management (preferably in the context of PA planning and management);
- At least 5 years of project/programme management experience;
- Working experience with the project's stakeholder institutions and agencies is desirable;
- Ability to effectively coordinate a large, multi-stakeholder project;
- Ability to administer budgets, train and work effectively with counterpart staff at all levels and with all groups involved in the project;
- Strong drafting, reporting and presentation skills;
- Good computer skills;
- Excellent written communication skills; and
- A good working knowledge of Chinese (written and spoken) is required

Chief Technical Adviser

The nationally recruited Chief Technical Adviser (CTA) will provide oversight and quality control for the Project, technical support for the PM / PMO, and directly participates by providing expert capacity in technical aspects of the project. Duties include:

- Provides quality assurance for all outputs and provides oversight on project management and project progress;

- Provide technical inputs to the Inception Report, Project Implementation Review, technical reports, quarterly financial reports for submission to UNDP, the GEF, other donors and Government Departments, as required;
- Write and review ToRs and developing methodologies for the execution of various technical studies to be carried out through the project; support technical consultancy procurement process, review technical proposals and applications;
- Oversee work of technical consultants and assure quality of their technical reports and linkages with project outputs and outcomes; also ensure the linkage between different consultancies, or different periods of the consultancy services continuing over several years;
- Ensure the development and implementation of project monitoring and evaluation plans, and annual update of the progress towards project impact indicators;
- Ensure that the project will operate making full use of national and international experiences, good practices and lessons learned in improving PA management effectiveness;
- Provide capacity building support to PLNNR staff and PA managers;
- Support the Project Manager in documenting lessons from project implementation and make recommendations to the Steering Committee for more effective implementation and coordination of project activities.
- Provide technical input to preparation of project work and budget plans, quarterly and annual progress reporting;
- Provide technical support to seminars, public outreach activities and other project events;
- Coordinate with project partners at the national level, linking the project with the CBPF MSL Programme, national project and provincial projects, as well as other complementary international and national programmes and initiatives.
- Create Knowledge Products, as required.

Qualifications

- A university degree (preferably a MSc or PhD degree) in Environmental or Natural Sciences;
- At least 15 years of experience in natural resource management (preferably in the context of PA planning and management);
- Working experience with the project's stakeholder institutions and agencies is desirable;
- Strong drafting, reporting and presentation skills;
- Good computer skills;
- Excellent written communication skills; and
- A good working knowledge of Chinese and English (written and spoken) is required

Consultant on the Conservation Plan of Water Deer (5 months)

Overall Goals: The Water Deer is the biggest living terrestrial mammal in the Poyang Lake region. It faces various threats with the increasing human activities and quick economic development in the lake and the bank area. The conservation plan for Water Deer is trying to restrain the decreasing trend of the population and maintain and even increase the population at the end of the project through efforts made by Poyang Lake National Nature Reserve and other stakeholders in Jiangxi Province.

Main Tasks: The consultant will analysis the threats that Water Deer is facing, and make a monitoring plan for Water Deer in Poyang Lake region with Poyang Lake National Nature Reserve, and develop a participatory conservation plan for the species in Poyang Lake region. Urgent conservation actions will be recognized and conducted after the conservation plan in the last three years of the GEF project.

Main Outputs

- Threats analysis report on Water Deer-1st year. Historic review of the population of Water Deer in Poyang Lake and threats that the species has having faced are required to be concluded and solutions to threats should be proposed for conservation purposes.

- Monitoring Plan for Water Deer-1st year, and annual monitoring reports by Poyang Lake National Nature Reserve in the following GEF project years under the guidance of the consultant.
- Conservation Plan for Water Deer-2nd year. The conservation plan for Water Deer aims to clarify the current situation of Water Deer in Poyang Lake region, including current population, available habitat, key threats it is facing, etc., and stakeholders analysis, public education strategy, and protection solutions are important parts in the plan. Priority actions need to be listed in the plan for conservation of Water Deer in Poyang Lake region, and proposed actions that will be implemented during GEF project should be commented in the plan.
- Other project implementing reports on the conservation of Water Deer under the guidance of the consultant.

Key Partners: Jiangxi Wildlife Management Bureau, Nature reserves in Poyang Lake, herdsman, local township governments, etc.

Budget: The consultant will work five months for the project. The estimated pay rate will be USD250/day (1,500 RMB/day); assuming 22 days/month and a total of 5 months over 5 years; the total pay will be 250 X 110 = USD27,500 (165,000 RMB). The project also will need to cover accommodation and per diem for a total of 150 days.

Qualifications for the consultant:

- Graduate degree on Zoology or Ecology.
- At least 5 years of work experience on the conservation of animals or other endangered species.
- Specific knowledge and experience on the conservation of Water Deer, wetlands, and planning on conservation will be preferred.
- Good knowledge of spoken and written English
- Be outgoing and easily communicate with others

Consultant on the Conservation Plan of Finless Porpoise (5 ½ months)

Overall Goals: The Finless Porpoise is the only living aquatic mammal in Poyang Lake. It faces various threats with the increasing human activities and quick economic development in the lake and the bank area. The conservation plan for Finless Porpoise is trying to restrain the decreasing trend of the population and maintain and even increase the population at the end of the project through efforts made by Poyang Lake National Nature Reserve and other stakeholders in Jiangxi Province.

Main Tasks: The consultant will analysis the threats that Finless Porpoise is facing, and make a monitoring plan for Finless Porpoise in Poyang Lake with Poyang Lake National Nature Reserve, and develop a participatory conservation plan for the species in Poyang Lake region. Urgent conservation actions will be recognized and conducted after the conservation plan, such as public education.

Main Outputs

- Threats analysis report on Finless Porpoise (year 1)
- Develop Monitoring Plan for the Finless Porpoise (year 1); provide guidance to PLNNR in carrying out annual monitoring (years 2-5)
- Conservation Plan for Finless Porpoise (year 2): Working with various local stakeholders, lead the development of a conservation plan that includes: analysis of habitat conditions and population trends for the Finless Porpoise in Poyang Lake; analysis of current threats faced by the Finless Porpoise; analysis of key stakeholders and current levels of public awareness; and a proposal for priority actions that should be taken to protect the remaining population of the Finless Porpoise, which may include legal protection (to prevent hunting and harm from fishing activities); management of hydrological conditions to support Finless Porpoise habitat; controls on water pollution from agriculture and industry; and public education activities.

Key Partners: Nature reserves in Poyang Lake, fisherman, local county governments, and local NGOs/institutions who may concern, etc.

Duration of Assignment and Budget: The consultant will work for the project for two months per year in years 1-2 of the project to develop and fine-tune the conservation plan and associated activities, and for two weeks per year in years 3-5 of the project to provide on-going guidance in the implementation and monitoring of the conservation plan. The estimated pay rate will be USD250/day (1,500 RMB/day); assuming 22 days/month and a total of 5 months over 5 years; the total pay will be 250 X 110 = USD27,500 (165,000 RMB). The project also will need to cover accommodation and per diem for a total of 150 days.

Qualifications

- Graduate degree in Zoology or Ecology
- At least five years of work experience in the conservation of aquatic animals or other endangered species.
- Specific knowledge and experience on the conservation of Finless Porpoise and management / conservation of wetlands will be preferred.
- Good knowledge of spoken and written English
- Be outgoing and easily communicate with others

Annex 6: Project Site Information

6.1 Biodiversity in the Poyang Lake Region

Summary of Biodiversity in Poyang Lake region

- Fish: Poyang Lake is an important place for migratory fish not only for feeding, but also for breeding and acting as a passage for the reproduction of certain migratory fish; the lake is of great significance for maintaining fish populations and conserving germplasm resources for the fish in the Yangtze River. Among the 136 species of fish found in Poyang Lake, species of Cyprinidae account for 52.2%. Common fish are Carp, Crucian Carp, Grass Carp, Green Carp, Silver Carp and Bighead Carp. Shad fish, Silverfish, and Chinese Sturgeon are becoming rare in Poyang Lake.
- Amphibians and Reptiles: To date, 40 species of amphibians and reptiles have been identified in the Poyang Lake region, but there is no systematic study on amphibians and reptiles and knowledge of these species is extremely limited.
- Birds: Among 310 species of birds recorded in Poyang Lake, 155 species are wintering birds, 107 species are summer visitors, 45 species are residents, and 3 species are stragglers. There are 159 species of typical waterbirds, most of which are wintering birds. There are 10 and 44 species listed as Class I and Class II in the list of National Protected Wildlife Species. Poyang Lake is the main wintering ground for cranes, storks, swans, ducks and geese in China; 98% and 75% of the world populations of Siberian Crane and Oriental Stork winter in Poyang Lake. The unique wetland ecosystem and its function as habitat for wintering waterbirds are irreplaceable along the Yangtze River, and Poyang Lake is the only wintering site for Siberian Crane in the world.
- Mammals: 17 species of mammals have been recorded, including Water Deer (*Hydropotes inermis*), Otter (*Lutra lutra)*, Lesser Civet Cat (*Viverricula indica*), Pangolin (*Manis pantadactyla*) and Finless Porpoise (*Neophocaena phocaenoides*). Water Deer were once widely distributed in the Poyang Lake Basin, as grasslands around the lake are its primary habitat. A survey in 1991 showed that there were about 1000-2000 individuals of Water Deer in Poyang Lake, but recent counts have shown a significant decrease of the population.
- Wetland plants: Poyang Lake is rich in wetland plants, dominated by hydrophytes, helophytes, and hygrophytes, among which herbaceous plants comprise 71% of the total number of plant species. Wetland plants in Poyang Lake can be mainly classified into five phytoformations as submerged plants, floating leaf plants, emergent aquatic plants, sedge plants and subordinate grass plants. The phytoformation of sedge plants occupy the biggest area in Poyang Lake. The vegetation area in Poyang Lake is 2262 km^2, comprising 72.2% of total area of the lake.
- Phytoplankton: Dominant species are diatoms, cyanophytes and chorella in Poyang Lake. Phytoplankton biomass in summer is significantly greater than those in the other seasons, and the biomass of phytoplankton in the upstreams and main lake body is significantly higher than that downstream.
- Zooplankton: Rotifera is the dominant of zooplankton species, followed by protozoa. Biomass changes with the season, reaching its highest levels in July. Biomass in the Rao River and Gan River is significantly higher than that in other regions.
- Zoobenthos: Poyang Lake is rich of benthic animals, which are natural food for fishes and birds, as well as a bio-indicator for water quality. There are 45 species in Gastropoda, 58 species in Lamellibranchia, 11 shrimp species and 13 crab species in Crustacea. The dominant species are *Corbicula fluminea, Maerobrachium nipponense, Palaemon modestus* and *Eriocheir sinensis.*

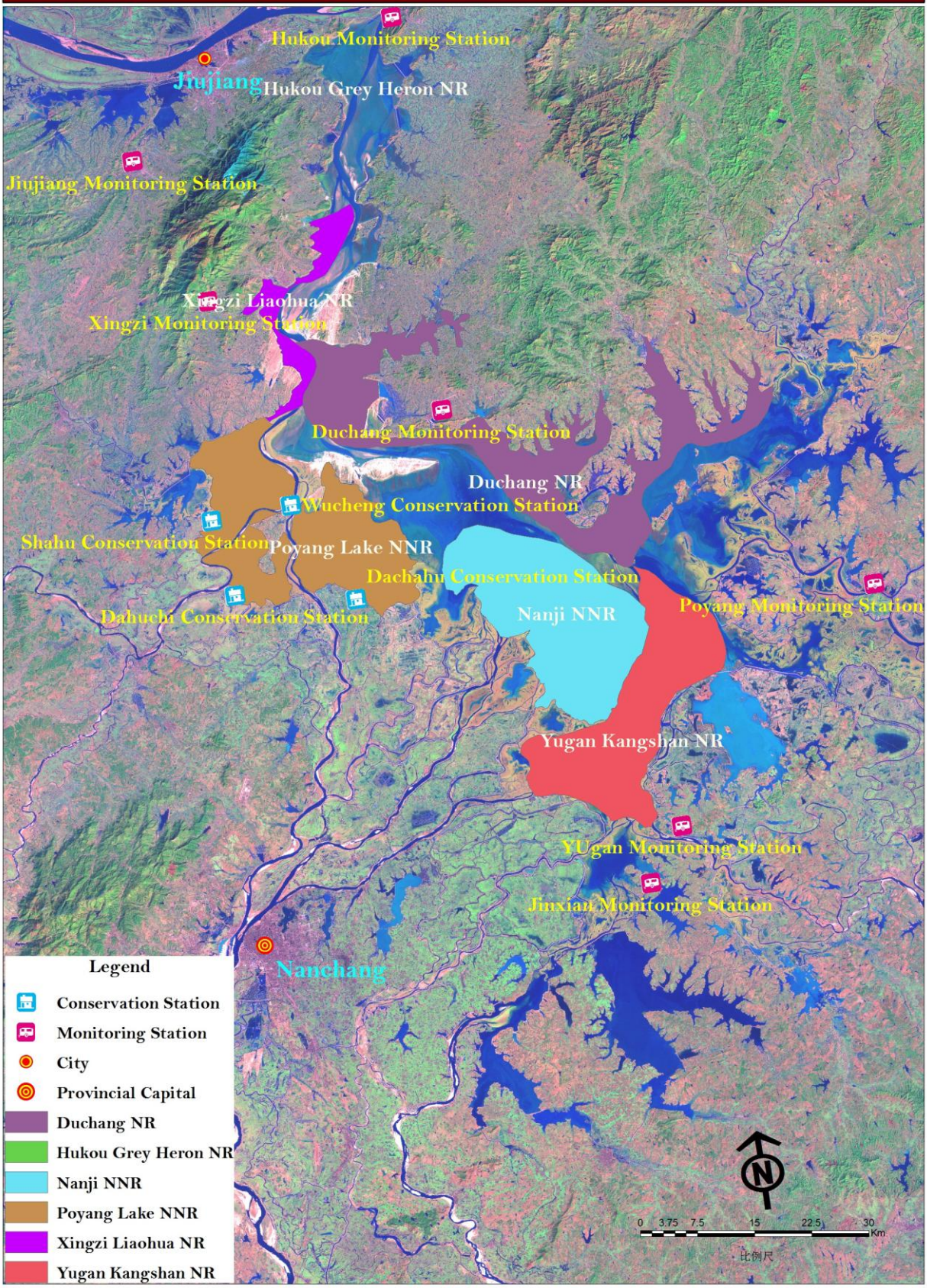
Selected Globally Significant Fauna in the Poyang Lake Region

Chinese name	English name	Scientific name	Protection Category	IUCN	Population trends	Threat status
Water birds						
东方白鹳	Oriental White Stork	*Ciconia boyciana*	Ⅰ	EN	increasing	wintering population is increasing in recent years
黑鹳	Black Stork	*Ciconia nigra*	Ⅰ		stable	wintering population is about 20-50.
白琵鹭	Eurasian Spoonbill	*Platalea leucorodia*	Ⅱ		slight fluctuation	wintering population changes by year, no obvious threat in wintering ground
鸿雁	Swan Goose	*Anser cygnoides*	Ⅲ	VU	increasing	water level changes in Poyang Lake will lead to the changes of the suitable habitat for Swan Goose.
白额雁	Greater White-fronted Goose	*Anser albifrons*	Ⅱ		increasing	meadow area for White-fronted Goose differs accordingly with water levels of Poyang Lake, and livestock,like bufflo, in Poyang Lake will affect the habitat for the species.
小白额雁	Lesser White-fronted Goose	*Anser erythropus*	Ⅲ	VU	increasing	not common, the same threat with White-fronted Goose
小天鹅	Tundra Swan	*Cygnus columbianus*	Ⅱ		increasing	water level changes will impact the wintering population, poaching is one of the threats directly from human.
灰鹤	Common Crane	*Grus grus*	Ⅱ		increasing	increasing rapidly in recent years, easily disturbed by human.
白头鹤	Hooded Crane	*Grus monacha*	Ⅰ	VU	increasing	slightly increasing in recent years, easily disturbed by huaman.
白枕鹤	White-naped Crane	*Grus vipio*	Ⅱ	VU	decreasing	slightly decreasing in recent years, on obvious threats.
白鹤	Siberian Crane	*Grus leucogeranus*	Ⅰ	CR	increasing	slightly increasing in recent years, habitat changes according to water level.
Mammals						
河麂	Water Deer	*Hydropotes inermis*	Ⅱ	VU	decreasing	over 1000 in early 1990's
江豚	Finless Porpoise	*Neophocaena phocaenoides*	Ⅱ	CR	decreasing	current population 450

6.2 Map of Project Sites

Poyang Lake Region – Boundaries of National Wetland Reserves and locations of the Field Stations of the Poyang Lake National Nature Reserve (Sites marked in blue indicate the locations of the existing Field Stations of the PLNNR; sites marked in pink indicate the location of the planned new Field Stations of the PLNNR)

Map of Nature Reserve in Poyang Lake



Annex 7: Wetland Protected Areas in Jiangxi Province

7.1 Wetland Protected Areas in Jiangxi Province

Management of Wetland Nature Reserves

Table 1: Management and Zoning Regulations for Nature Reserves

Management Zone	Purpose	Management Prescriptions
Core area	To protect intact ecosystems where rare and endangered animals and plants are concentrated	• No entry, except on special permission accorded for scientific studies. • If necessary, people living inside are to be resettled. • Construction of production facilities is prohibited.
Buffer zone	Area surrounding the core area	• No tourism, production or trading activities. • Entry permitted on special permission for non-destructive research, specimen collection, and educational purposes • Construction of production facilities is prohibited.
Experimental zone	Area surrounding the buffer zone	• Visiting and tourist activities allowed with special permission. • Tourism promotion should not damage or pollute original landforms and scenery. • Visiting and tourist projects that violate the general guidelines of NRs are prohibited. • Construction of production facilities that may pollute the environment or damage the natural resources or landscapes prohibited. • Existing facilities are required to reduce and control pollution discharge to be within prescribed standards.

National Wetland Nature Reserves: National nature reserves have the priority over the provincial nature reserves and the nature reserves at county level to propose projects to State Forestry Administration and get project funds from the central government. But the institutional fund sources of the national nature reserves for their daily work are different because they have different management institutions. There are four types of management institutions of national nature reserves:

- Reserves directly under the leadership of the State Forestry Administration (SFA); their funds for daily work mainly come from the central government.
- Reserves directly under the leadership of the provincial forestry department, their funds for daily work mainly come from the provincial government finance. For example, Poyang Lake National Nature Reserve is under the leadership of Jiangxi Forestry Department, and its fund for daily work is mainly from Jiangxi provincial government finance.
- Reserves directly under the leadership of the municipal forestry bureau, their funds for daily work mainly come from the municipal government finance. For example, Nanji National Nature Reserve is under the leadership of Nanchang Forestry Bureau (at municipal level), and its fund for daily work is mainly from Nanchang municipal government finance.
- Reserves directly under the leadership of the forestry bureau at county level, their funds for daily work mainly come from the county government finance. For example, Jinggangshan National Nature Reserve is under the leadership of Jinggangshan Forestry Bureau (at county level), and its fund for daily work is mainly from Jinggangshan government finance (at county level).

Provincial Wetland Nature Reserves: Provincial nature reserves have priority over the nature reserves at county level to propose projects to SFA and get funds from the central government, though the opportunities for them to get the funds are less than that of the national reserves. Their management (superior) institutions and institutional fund sources are also different from each other. There are two types of management institutions for provincial nature reserves.

- Reserves directly under the leadership of the provincial forestry department, their funds for daily work mainly come from the provincial government finance.
- Reserves directly under the leadership of the forestry bureau at county level, their funds for daily work mainly come from the county government finance. For example, Duchang Provincial Nature Reserve is under the leadership of Duchang Forestry Bureau (at county level), and its funds for daily work mainly come from the county government finance.

Provincial Aquatic Animal Reserves: There are five aquatic animal reserves in Jiangxi Province. These reserves are primarily water bodies, but also include deltas and grasslands (mainly during the dry season). In many cases, areas of these aquatic animal reserves overlap with wetland reserves. Aquatic animal reserves are managed by the Department of Agriculture, but none of them are operational. These reserves were established in the 1970s and 1980s and put under the authority of provincial Departments of Agriculture. However, these departments did not push for the reserves to be established and in general have had little interest in managing them; the Jiangxi Department of Agriculture has not expressed interest in doing this for the reserves in Jiangxi.

County Wetland Nature Reserves: Nature reserves at county level are under the leadership of the forestry bureau at county level, their funds for daily work mainly come from the county government finance (most of the nature reserves at county level in Jiangxi get no funds from the government because of the poor finance situation of the counties). They have the least opportunity to propose projects to SFA and get funds.

Table 2: Wetlands-related Protected Areas in Jiangxi Province

Sites / Area Targeted by Project	Protected area name	Size in Hectares	Primary species/significant species the NR is protecting	Main type of ecosystem protected	Staffing*
1. Poyang Lake Region					
1a. National-Level Protected Areas					
Direct	Jiangxi Poyang Lake National Nature Reserve	22,400	Siberian Crane (*Grus leucogeranus*), Oriental White Stork (*Ciconia boyciana*), Tundra Swan (*Cygnus columbianus*)	Inland wetland	89 full-time staff and approx. 30 seasonal
Direct	Jiangxi Nanji Wetland National Nature Reserve	33,300	Oriental White Stork (*Ciconia boyciana*), Tundra Swan (*Cygnus columbianus*)	Inland wetland	25 full-time staff and some seasonal
55,700 Dir.	**Sub-Total**	**55,700**			
1b. Provincial-Level Protected Areas					
Direct	Duchang Migratory Birds Nature Reserve	41,100	Tundra Swan (*Cygnus columbianus*), Swan Goose (*Anser cygnoides*)	Inland wetland	12 full-time staff and 11 seasonal
41,000 Dir.	**Sub-Total**	**41,100**			
1c. County-Level Protected Areas					
Direct	Nan Lake Nature Reserve	3,330	Swan Goose (*Anser cygnoides*)	Inland wetland	5 full-time
Direct	Xieshan Grey Heron Nature Reserve	3	Grey Heron (*Ardea cinerea*)	Inland wetland	Unknown
Direct	Kangshan Lake Area Migratory Bird Nature Reserve	35,000	Tundra Swan (*Cygnus columbianus*), Swan Goose (*Anser cygnoides*)	Inland wetland	6 full-time
Indirect	Baishazhou Nature Reserve	40,900	Tundra Swan (*Cygnus columbianus*), Swan Goose (*Anser cygnoides*) Little Egret (*Egretta garzetta*)	Inland wetland	Unknown
Indirect	Qinglan Lake Nature Reserve	1,000	Geese and ducks	Inland wetland	Unknown
Indirect	Gutang wetland Nature Reserve	5,300	Geese and ducks	Inland wetland	11 full-time, 13 part-time
Indirect	Liaohuachi Nature Reserve	3,333	Swan Goose (*Anser cygnoides*)	Inland wetland	4 full-time, 7

Sites / Area Targeted by Project	Protected area name	Size in Hectares	Primary species/significant species the NR is protecting	Main type of ecosystem protected	Staffing*
					part-time
Indirect	Pingfeng Nature Reserve	491	Swan Goose (*Anser cygnoides*)	Inland wetland	6 full-time
Indirect	Hexi wetland Nature Reserve	4,000	Tundra Swan (*Cygnus columbianus*), Swan Goose (*Anser cygnoides*)	Inland wetland	None
38,333 Dir. 55,024 Ind.	**Sub-Total**	**93,357**			
2. Outside of Poyang Lake Region					
2b. County-Level Protected Areas					
Direct	Jiangxi Yihuang Chinese Merganser Nature Reserve	1,694	Chinese Mergansers (*Mergus squamatus*)	Wildlife (150 km. upstream of Poyang Lake region)	Unknown
Direct	Junshan Lake Bird Nature Reserve	1,330	TBD	Wetland	Unknown
Direct	Wucheng Reservoir Nature Reserve	2,638	TBD	Wetland	Unknown
No	Mount Longhu Chinese Mergansers NR	1,600	Chinese Mergansers (*Mergus squamatus*)	Wildlife (100 km. upstream of Poyang Lake region)	Unknown
No	Guoditao	3,618	TBD	Wetland	Unknown
No	Taipo Lake NR	2,600	TBD	Inland wetland	None
No	Fang Lake	2,867	TBD	Inland wetland	None
No	Xinmiao Nanxi Lake NR	4,000	TBD	Inland wetland	Unknown
No	Yiyang Chinese Mergansers NR	2,827	Chinese Merganser and its wintering habitat	River	Unknown
No	Nancheng Hongwen Reservoir NR	3,000	Wetlands and Water Birds	River	Unknown
No	Jingan Giant Salamander NR	100	Giant Salamander	River	Unknown
5,662 Dir. 20,612 Ind.	**Sub-Total**	**26,274**			

* Staffing figures for county level reserves indicated the staff numbers of the relevant County Forestry Bureaus, which have oversight of the county reserves, but do not necessarily actively manage them.

7.2 Wetland Reserves Targeted by the Project

Poyang Lake National Nature Reserve (PLNNR)

The PLNNR was established in 1983 by the Jiangxi Provincial Government, with the goal of protecting rare birds such as the Siberian Crane and their habitat. Because bird biodiversity was so abundant within the PLNNR, the Provincial Reserve became a National Reserve in June 1988. The PLNNR is situated at the intersection of Gan River and Xiu River in the west of Poyang Lake, with 9 sub-lakes and an area of 22,400 hectares. The core zone includes Banhu, Dahuchi and Shahu and their surrounding grasslands with an area of 4,400 hectares; the remaining area is classified as experimental zone with an area of 18000 hm^2.

The primary functions of the PLNNR include protecting the environment of the wetlands and habitat for rare migratory birds, promoting scientific research related to ecological protection, and scientifically making use of natural resources. The Reserve has strict regulations for scientific research and monitoring, and its management

capacity is outstanding among national reserves. The Reserve endeavours to cooperate with scientific research institutions and international organizations, launching many monitor projects over years. During the past twenty years, the PLNNR has implemented numerous wetland conservation projects; from 1996 to 2000, the PLNNR participated as a provincial project counterpart in a regional UNEP-GEF project for migratory bird conservation. In spite of the basic facilities for migratory bird patrols, the PLNNR has an on-going shortage of equipment to monitor other environment resources, such as water and plants. Nevertheless, the PLNNR has greatly reduced illegal hunting, trafficking and trade in birds, and has improved systems for preventing migratory bird epidemics.

The PLNNR has established several effective measures for community co-management and participation. The reserve has a co-management committee that consists of departments from provincial, municipal and village levels; they have established an award and payment fund for local conservation actions; and they have gained the participation of local communities in the monitoring of bird populations. The PLNNR also has signed agreements with one village committee covering issues such as: coordination / support from the villages for the field stations (e.g. organizing a bird protection team consisting of local villagers); providing staff for routine patrolling; collaborating on education within the village, including information on new regulations; having the village committee take action against villagers committing illegal hunting / fishing if they are so notified by the field station. The PLNNR hopes to replicate this agreement with village committees at the other 10 field station sites during the proposed project.

The Poyang Lake National Natural Reserve Administration is a governmental legal authority subordinated to the Jiangxi Provincial Forestry Department. The PLNNR has 6 functional divisions, as detailed in Table 3. The headquarters of the reserve are in Nanchang City; the reserve also operates 4 field stations (8 staff at each station) within the reserve boundaries (located at Wucheng, Great Lake, Sha Lake and Dacha Lake), and is currently constructing another 7 field stations (5 staff projected for each station) at sites outside of the reserve (located at Jinxian, Yugan, Poyang, Duchang, Hukou, Jiujiang and Xingzi). The field stations are tasked with monitoring of migratory birds (including disease monitoring); educational activities; and enforcement in coordination with local communities, primarily to control illegal bird hunting, illegal plantations and polders / reclamation. The 7 new field stations will carry out these activities both within the PLNNR and in the surrounding landscape, particularly in areas of county-level wetland reserves that are not currently managed. Overall, the PLNNR has 89 full-time staff and approximately 30 seasonal staff. The personnel of the Reserve are very familiar with the Poyang Lake wetlands and local customs, which helps them to carry out management of the Reserve in partnership with local communities.

Table 3: Functional Divisions of the PLNNR and their role in the proposed project

Division	Functions
Resource Protection Division	• Formulate protection planning • Conduct protection and conservation activities • Construction of the protection stations • Construction of monitoring stations • Participating in FAO/GEF Project for development of PA Management Plan
Project Management Division	• In charge of management in-land and international cooperation projects. • Fulfilling all tasks designated to FAO/GEF PMO • In charge of daily coordination with divisions within PLNNR and other agencies under Jiangxi Forestry Department • Daily Project Management, such as: • Designing and Planning the project • Implementation of project activities • Reporting, documentation and document management • Procurement of materials and consultancy services • Coordination and communication with FAO, GEF
Research	• Collecting and analysis of the scientific data on migrant bird, inhabitant, water and

Division	biodiversity • Conduct research in collaboration with research institutes in China and other countries • Management of monitoring stations • Participating in FAO/GEF Project
Planning and Finance Division	• Financial budgeting • Daily financial management, book keeping • Reimbursement of project funds from Provincial Finance Department • In charge of FAO/GEF Project Fund Management and Reimbursement
Community Affairs Division	• In charge of community co-management issues • Assist communities developing their alternative livelihoods • Participating in FAO/GEF project for planning the community co-management approach
Education Division	• Planning the community and tourist education program • Conducting the education activities • Developing the education materials • Participating in FAO/GEF project for the education component of the PA Management Plan

Nanji National Nature Reserve

The Nanji Wetland National Nature Reserve was established in 1995; it became Provincial Reserve in 1997, and then a National Reserve in 2008, with the Nature Reserve Management Bureau established in 2009. The reserve is primarily river floodplains and deltas situated at the estuary of Gan River in the south of Poyang Lake, which is the delta area of the north, middle and south forks of the Gan River. The reserve covers an area of 33,300 hectares, including a core zone of 17,500 hectares, a buffer zone of 5,500 hectares, and an experimental zone of 10,300 hectares. During the wet season, the entire reserve apart from two islands is under the waters of Poyang Lake; during the dry season, most of the reserve is grasslands and marsh. There are two communities living within the experimental zone; these have total populations of approx. 4,500 and 300, but many of the legal residents actually live and work elsewhere and the permanent population are estimated at 2,000 and 70 persons.

The reserve headquarters are in Nanchang City, and the reserve also has two management stations and a scientific research station. Nanji reserve has 25 staff that work in 3 Divisions: Integrative Division; Education and Protection Division; and Scientific Research and Disease Monitoring Division.

The primary management activities of the reserve consist of: 1) Patrolling (to prevent the hunting of birds; construction of polders for fishing; burning of vegetation to clear areas for agriculture; harmful tourism activities; and the construction of illegal tourism facilities); 2) Scientific Research (e.g. research projects on economy, fish, birds, remote sensing, etc.); 3) Community Programs (education of children; bird watching trips; wetland winter camp for university students); 4) Resource Monitoring (counting of birds; fish surveys; hydrological studies); and 5) Hydrological Management (working with local governments that have usage rights over smaller lakes, ditches and canals and who lease these water bodies out for fishing and allow them to be drained too quickly, which prevents wetlands from naturally regenerating and providing suitable habitat for migratory birds).

Duchang Migratory Waterbird Provincial Nature Reserve

The Duchang reserve was officially designated by the Government of Jiangxi Province in 2004, at which time the Duchang County Government established a management bureau for the reserve. The reserve covers 41,100 hectares on the northern shore of Poyang Lake and includes 9 townships. In the wet season most of the reserve is under the waters of Poyang Lake, but in the dry season the reserve includes the most extensive marsh wetlands in the province. The reserve has 12 full-time and 11 seasonal staff; these staffers are also assisted in

monitoring activities by staff at one of the PLNNR field stations. The reserve has basic infrastructure but no actively implemented management plan; in addition, it has not yet established mechanisms for community participation.

County Wetland Reserves

Summary information on county wetland reserves is provided in Table 1. Additional information on the six county reserves that have been selected as demonstration sites for strengthening management capacities of county reserves is provided in Table 4 below.

Table 4: County Reserves Prioritized for Replication Activities by the GEF Project

County / Reserve[1]	Geo-location	PA areas (ha)	Social economic features[2]	Management Status
Counties within Poyang Lake Region				
1. Nan Lake Nature Reserve	Gongqingcheng County	3,330.00	Nan Lake Nature Reserve is located in Gongqingcheng County. The county takes an area of 308 km^2, with the population of 190000. Its fiscal revenue in 2012 is CNY￥0.815 billion. And the farmer's net income is about CNY￥10010 per person.	These County Wetland Reserves are reserves in name only; they have no administration, financial budget, staff, or equipment
2. Xieshan Grey Heron Reserve	Hukou County	3.00	Hukou County covers an area of 669.33 km^2, among which the water area accounts for 28.2%. It has a population of 290000. Its fiscal revenue in 2012 is CNY￥1.653 billion, among which the local fiscal revenue is CNY￥1.05 billion. And the farmer's net income is about CNY￥8558 per person.	
3. Kangshan Lake Area Migratory Bird Nature Reserve	Yugan County	35,000.00	Kangshan Lake Area Migratory Bird Nature Reserve in Yugan covers the area of Kangshan, Ruihong, and 3 townships (town, farm) of Kangshan Farm, with a population of 89000, among which the agricultural population is 70000. The GDP for industry and agriculture is CNY￥0.96 billion. The farmer's net income is about CNY￥2604 per person. Around the reserve, there are 25 administrative villages. The local people live on planting, fishing and animal husbandry, which largely depend on the wetland resources in the lake area.	
Sub-Total		**38,333**		
Counties outside of Poyang Lake Region				
1. Jiangxi Yihuang Chinese Merganser Nature Reserve	Yihuang County	1,693.54	This reserve covers 2 townships, namely Huangpi Township and Dongpi Township including 9 village committees and 27 villages. The population in the reserve is 352 and the population density is about 21 persons per square kilometre. All the population is in the experimental zoon and belongs to agricultural type. The local people live on planting rice, tobacco and corn, etc. Their net income is about CNY￥3026.2 per person.	These County Wetland Reserves have limited and inconsistent staffing and budgets, and few facilities or conservation equipment
2. Wucheng Reservoir Nature Reserve	Zhangshu	2,637.83	Zhangshu City includes 10 towns, 4 townships, 5 community agencies, 3 state-owned forestry farms and 1 forestry scientific institution. In 2011, its population was 591560.	
3. Junshan Lake Bird Nature Reserve	Ji'an County	1,330.00	Ji'an County is located in the middle of Jiangxi Province, and takes an area of 2117 km^2, with a population of 460000. And its annual GDP is about CNY￥10600940000, with the fiscal revenue of CNY￥1.702 billion, among which the gross value from agriculture and forestry is CNY￥323069.	
Sub-Total		**5,661.47**		

Notes：

- The reserves listed above are the preliminary selections based on assessments and consultations carried out during the PPG phase; a final decision on which County Wetland Reserves in which to focus project activities will be made during project implementation.
- Apart from the Jiangxi Yihuang Chinese Merganser Nature Reserve, the socio-economic features describe the situation in the counties/cities rather than in the reserves

Annex 8: Socio-Economic Conditions and Participatory Management of Wetlands

- **Social and economic conditions of the communities surrounding Poyang Lake**

1.1 **Social and economic conditions**

1.1.1 A general introduction to the social and economic conditions of the villages and towns surrounding the Reserve

The Poyang Lake Nature Reserve is located in two cities, which are Nanchang and Jiujiang. With a total area of 102,886 ha, the Reserve covers 11 villages and towns, including Liaonan Township, Jiaotang Town, Sujiadang Township and Shahu Township of Xingzi County, Wucheng Town, Jiuhe Township and Sanjiao Township of Yongxiu County, Tiehe Township and Changyi Township of Xinjian County. According to the statistics of 2005, there were 41,605 families and 178,018 persons. The number of the villages that are closely related to the Reserve is 41, and the total amount of land reaches 56,479 ha. Speaking of the economic conditions of these counties (see Table 1-1), except Xinjian County, the GDP per capita of Yongxiu County and Xingzi County are both far less than the GDP per capita of Jiangxi Province in 2010, which is 25,808. This means that the existence of the Reserve influences the development of local economy in a certain way. Since the core lakes and the main zones for migrant birds to overwinter of the Reserve are spotted in Wucheng Town of Yongxiu County, Wucheng Town is selected as the main area for conducting the investigation (135 peasant households were surveyed). Meanwhile, Sanli Township of Jinxian County is chosen to give comparisons (58 peasant households were surveyed).

Table 1-1 The Economic Conditions of the Counties around the Reserve in 2010

Name	Population	Total Output Value	GDP Per Capita	Rank
Yongxiu County	38.2	63.28	16565	39
Xinjian County	70.5	177.15	25128	15
Xingzi County	26.0	33.44	12862	57

Data Resources: The Statistic Yearbook of Jiangxi Province in 2011

1.1.2 Structure and analysis of the income of peasant families

Through field researches, the income of the residents in the lake region is tightly related to the wetland. On average, 36% of the income resources of peasant households come from the industrial activities related to Poyang Lake. For Wucheng Town, the percentage can reach 90%. About the income per household of the rural residents of the 11 villages close to the Reserve, the highest is Hedong Village of Wucheng Town, Yongxiu County, while the lowest is Tuniuju Village of Liaonan Township, Xingzi County. The amount of farmland is an important factor, which directly influences the income of peasant households. Under the effect of the protective measures of Poyang Lake wetland, the number of industrial enterprises in the lake region is small, and the development level of industries is low. Therefore, the income resources of peasant households lack varieties, and the income level is lower than the average of Jiangxi Province and China. According to statistics, the amount of farmland per capita in the lake region in 2005 was only 0.045 ha, which was just 42.4% of the national average. It was also lower than the warning line of 0.053 ha set by Food and Agriculture Organization, reflecting a serious conflict between human beings and land.

The peasant households investigated in this survey live within 5 miles of the lake region. Based on the degree of household production relying on the natural wetland, the peasant households are divided into 5 types, shown in Table 1-2. Of the households investigated, 55.5% are engaged in agricultural activities closely related to the wetland, such as fishing, aquaculture, and herding. Thus, the major income of households is from the wetland. Through investigation, the number of households mainly conduct herding is small. It is a result of the measures of grazing prohibition to prevent bilharzias. The number of households living on sideline business is secondary

to fishing, covering 28.5%. It also reflects that more and more households make a living in a non-agricultural way, because of the restraint of farmland in the lake region and the limitation of industrial development.

The income of peasant households is a sensitive topic, while it can show the situation of household production in a direct way. Therefore, an indirect method is adopted – to estimate the income of household through the income from cultivation, herding, fishing, aquaculture and sideline business. In the end, the income per capita is 4615.8 yuan of 193 peasant households, shown in Table 1-2. From the perspective of income resources, the income of households mainly conducting aquaculture and herding is obviously higher, which illustrates that making full use of wetland resources can help increase the income of peasant households. However, the income of traditional fishermen in recent years keeps decreasing. Many fishermen express that it is a result of reducing catch in the lake region of Poyang Lake. Thus, the income decreases. Plus the period of fishing prohibition of March to June every year, to make a living solely on fishing is full of difficulties. The income of peasant households who are mainly working on crops cultivation is the lowest. It explains that because the farmland is scarce in the lake region (the amount of farmland per capita of respondents is 0.79 mu), it is hard to increase the household income if the residents have no other resources.

Table 1-2 The Income of Peasant Households in the Surrounding Communities of the Reserve

Unit: Per Household, Yuan

	Fishing	Aquaculture	Herding	Cultivation	Sideline business	Total
Number of households	61	42	4	31	55	193
Percentage (%)	31.6	21.8	2.1	16.1	28.5	100
Income per capita	4216.4	6504.1	5210.8	3099.8	4481.2	4615.8

1.1.3. Community infrastructure

The villages around the Reserve are located at the foot of hills or within causeways. Usually, there are paths, wells and other public facilities, but most of the villages are lack of communication equipment and satellite ground receiving stations. Generally speaking, there is backward in the infrastructure construction of the surrounding communities, presenting in the following aspects: (1) Education: every administrative village has one primary school, and there is only one junior high school in the place where the town government locates. (2) Medical treatment and public health: there are health centres in every town government, and for villages, there are only private clinics. Some towns also have schistosomiasis control stations. (3) Transportation: two ways of transportation exist in communities – land and water. Basically, there are roads in the place where the town government locates. But some will be overwhelmed by floods in summers (e.g. Wucheng Town), at then the main means of transportation is by boat. There are almost no roads in villages. (4) Communication: there are post offices in the place where the town government locates, and they are equipped with SPC telephone exchange. There are no post offices in villages. (5) The supply of water and power: at the place where the town government locates, there are power supply facilities and simple water supply facilities. But it's all working irregularly. Generally, there is high voltage to the villages, but it's not regular. There is no tap water in villages, and the water is from wells.

1.1.4 Ownership of natural resources in and around Poyang Lake

The jurisdictional scope of the Poyang Lake Reserve is mainly lakes. In summers, the waters are linked to each other. But in winters, there are 9 independent lakes with different sizes. The Reserve only has the ownerships of Great Lake and Sha Lake, which is 4400 ha totally. For the other 7 lakes of 18,000 ha, there is exact ownership for the moment. According to *The Provisions of Migrant Birds Protection of the Poyang Lake Nature Reserve in Jiangxi Province* and *The Regulations of Protecting Poyang Lake Wetland in Jiangxi Province*, the Poyang Lake Nature Reserve should have the administration and use rights of the other 7 lakes as well. But through field researches, it is found that the use rights of the 7 lakes belong to local rural economic organizations, which are conducting aquaculture contracting, fishing leases and other economic activities on the lakes. As a result, there

are serious conflicts between the Reserve and the communities, which make the protection work hard to carry out.

1.2 Impacts of wetland protection measures on local communities

Surveying the influence from the protection measures of Poyang Lake to residents can help make the participatory management plan. Moreover, a reverse manner of research can reflect the degree of conflicts between the communities and the reserve in a certain way. When asked about the influence from protection measures of Poyang Lake to household production, 92.5% of peasant households think that the measures affect their family income. In their opinions, the underdeveloped income level and economic growth are the results of the protection measures to keep Poyang Lake "crystal clear". Summarize all the opinions of the respondents, the influences can be divided into several categories and ordered based on each degree. In other places out of the Reserve, the restraints and pressure on the residents is less heavy, but the problems also exist.

Table 1-4 The Influences from Protection Measures of Poyang Lake to Peasant Households

The influence from protection measures	Number of agreed	Percentage %
1. Lack of arable land because of "Returning farmlands to lakes"	72	37.3%
2. Hard to make a living during the "Period of Fishing Prohibition"	58	30.1%
3. Hard to find a job because of underdeveloped industry	46	23.8%
4.Protected water birds do harm to crops and bred fishes	39	20.2%
5. "Grazing prohibition on meadows" reduces the income from sideline business	32	16.6%
6. Prohibit fishing in the core zones during migration periods	21	10.9%
7. Hard to adjust the land use structure	15	7.8%
8. Little or no influence	23	11.9%

a. The arable land in the surrounding communities is not enough. Some measures were carried out in 1998, such as returning farmlands to lakes, pushing over the embankments and resettlement. On one hand, the storage capacity of Poyang Lake is sharply increased. On the other hand, the peasants lose the lands they rely on. The amount of land per capita is reduced, so is their farming income. Of the respondents, the area of paddy field per capita is between 0.013 and 0.047 ha, and the amount of dry field per capita is from 0.02 to 0.04 ha. Several years ago, most of the younger generation goes to other places working, and after resettlement, the houses are far away from farmlands, so some of the peasants either give their lands away or rent to others. The peasant households staying at their hometown can just make ends meet. However, many peasant-workers go back home this year. Their needs to live are hard to satisfy. At the same time, the national government is carrying out reforms of land system, and the interest of peasants farming at home is favoured and protected. The land given away or rented out will be taken back, and the amount and quality of lands will meet challenges again.

b. In order to protect the water quality and ecological environment of Poyang Lake, every county of the lake region takes strict protection measures to prevent the emission of polluted water and to control the scales of high contamination enterprises. Therefore, the development of industry is limited. Because of the policy to return farmlands to lakes, according to the plans designed by the government, 60% of the migrants should conduct ecological agriculture, 20% will settle down at town-owned factories, and another 20% will work in service industry. But from the research, it is found that the environment capacity of the place settling migrants is not pleasant: for some places, there are no people living any more, and the farmlands are returned to lakes; for some other places, the land migrants can conduct agricultural production has lost safety control. There are not many town-owned enterprises in the lake region, and the scale is not big as well. Thus, not many surplus laboured can be settled. Ecological agriculture combines knowledge and labour as one, and not easy to realize in the lake region where the residents are ill-educated. Therefore, 90% of the surplus labours choose to go out working in other places.

c. Fishermen are hard to make a living during the period of fishing prohibition. With the purpose of keeping biodiversity and protecting the abundant fish species, every 20th, March to 20th, June is the period of fishing prohibition of Poyang Lake. At this time, fishermen are not allowed to fish in the lake region. From the results of the investigation, 67% of the respondents think that fishing prohibition is good, because fishes can have chances to reproduce. After the period of prohibition, there are more species and larger output. Meanwhile, the awareness of protecting fish resources is strengthened. 20% of the respondents (mainly are professional fishermen) don't agree with fishing prohibition, because fishermen have nothing to do during the prohibition time, and it is hard to make a living. The fishermen who have no other expertise will fish in a secret way, and it will form a vicious circle. And there are 13% of the respondents thinking that fishing prohibition has both pros and cons. If fishermen can get certain compensation, the phenomenon of fishing secretly will be controlled, and the purposes of this period will be achieved.

d. After building the natural reserve, especially after being chosen on the list of internationally important wetlands, the production life of the residents has suffered stricter limitation. In spite of the period of fishing prohibition, during every October to the next March, the local cannot get near to the core zones of the Reserve, and cannot fish in the Reserve as well. Meanwhile, the migrant birds in the Reserve need abundant food. If the food is not enough, the birds will fly to nearby ponds or farmlands to search things to eat. Therefore, the phenomenon of "people and birds fighting for food" comes into being. In the Nanbei Harbour of Hukou County, flocks of migrant birds fly to the ponds to catch fishes, making the peasant households lose more than 5000 yuan. In the Hengfeng farmland of Changyi County, the peasants said that the flocks of migrant birds can damage 1 mu of rice seedlings overnight, and they would suffer losing several hundreds to thousands yuan.

e. The policy of "grazing prohibition on meadows" reduces the income from sideline business. It is found out in this research that the ratio of professional livestock raisers is small, and most peasants take it as a sideline business. The initial purposes of this widely implemented policy of "grazing prohibition on meadows" are to prevent the harms of schistosomiasis and to protect meadows and migrant birds. However, prohibiting peasants to graze cattle on meadows, or even preventing them to raise cattle makes the non-wealthy peasant households lose another important source of income.

f. It is difficult to adjust the land use structure and develop substitution industries. Because there are many waters, islands and meadows of Poyang Lake, adjusting the land use structure and making full use of these resources to develop substitution industries are the important ways to solve the problems of lacking arable lands and increasing the income of peasants. But it is reflected by the survey that to adjust land use structure in the district where returning the farmlands to lakes is extremely difficult. 16.1% of the respondents mainly plant traditional crops, like rice, peanuts, rape and cotton. A small part of them conduct aquaculture and transportation. The reasons are as follows. One is that it is hard to change the peasants' traditional concept of farming. They don't have the marketing concept, and not aware of making full use of water resources to develop aquaculture or plant lotus roots and reeds. The other reason is that the scientific, technological and cultural qualities of the peasants cannot meet the needs of developing substitution industries. Professional trainings and technical supports should be provided immediately. But considering the shortage of funds, it cannot be realized in a short period of time. Several years ago, a series of industries, such as aquaculture, cultivation, ecological agriculture and tourism were developed under foreign investments, but most of them failed out of various reasons.

From the above aspects, building the natural reserve, returning farmlands to lakes and other measures to protect the ecosystem of Poyang Lake wetland make the interest of peasants suffer a lot. Therefore, when drafting the participatory management plan, special consideration should be given to these aspects. To alleviate the conflicts between the Reserve and the communities and to ensure the basic rights of development of the peasants in the lake region are the core concepts of participatory management.

2. Analysis of the basic characteristics of the surrounding residents

Generally speaking, the population structure and education background of the surrounding residents are the most visualized indicators to assess the quality and the ability of the participants of the project. From the results of the investigation, most of the respondents are males, indicating that men have the predominance of peasant households. The youngest respondent is 22 years old, while the oldest is 70, and the average age is 47.4 years old. Most of the respondents are local people, and have profound and direct understanding of Poyang Lake. Most of peasant households have 3 to 4 persons, covering 46.6%. The education backgrounds of the respondents are mainly primary school and junior high school levels, together covering 73%, which indicates that the education status is overall not good. However, from the details of the investigation, it is found that the peasants can understand the contents of the questionnaires well and cooperate actively. Moreover, about the amount of farmland per household, 51.3% of the households have less than 1 mu of farmland under the effect of returning farmlands to lakes and other factors. At the same time, the most basic agricultural means of production is not adequate.

Table 2-1 The Population Structure and Characteristics of Surrounding Residents

	Options	Number	Ratio (%)		Options	Number	Ratio (%)
Gender	Female	46	23.8	Education Background (years)	Primary school (0 – 3)	29	15
	Male	147	76.2		Primary school (3 – 6)	71	36.8
Age (years)	22 – 30	13	6.7		Junior high school (6 – 9)	71	36.8
	31 – 40	44	22.8		High school (9 – 12)	21	10.9
	41 – 50	65	33.7		Above junior college (above 12)	1	0.5
	51 – 60	46	23.8	Amount of Farmland (mu)	0 – 1	99	51.3
	Above 60	25	13		1.1 – 3	26	13.5
No. of families	Below 2	15	7.8		3.1 – 6	35	18.1
	3 – 4	90	46.6		6.1 – 10	15	7.8
	5 – 6	64	33.2		Above 10.1	18	9.3
	Above 6	24	12.4				

3. Analysis of the potential influence of gender on the project

Based on the Table 3-1, it clearly shows that most of the respondents are males in this research, covering 76.2%. During the investigation, the research team didn't interview males on purpose, but the reason why males occupy a higher percentage is that they play dominant roles in households. Males know better about household production, and can speak better Mandarin than females. Generally, the male owner will accept the interview when the female owner is present as well. But when there are only females receiving interviews, they would finish the questionnaire independently and cooperate well. But usually, they know little about family income and the situations of household production.

From the cognitive analysis of ecological benefits, the cognition degrees of males are higher than those of females (32.6% of male respondents have no idea about ecological benefits, while the figure for females is 54.3%). However, the attitude toward environment protection of males does not have much difference with that of females (for males, the figure is 84.3%, while 82.6% is for females).

Table 3-1 The Cognitive Comparisons of Ecological Benefits and Environment Protection between Different Genders

Cognition on wetland		Clearly knowing	Heard of, but not knowing	Have no idea	Total

ecological benefits	well				
	Male	17.6%	55.8%	32.6%	147
	Female	15.2%	30.4%	54.3%	46
Attitudes toward wetland environment protection		Should make more use of it, and lessen the protection measures	Should be protected, and make use of it properly	Should enhance protection measures, and make less use of it	Total
	Male	15.7%	57.1%	27.2%	147
	Female	17.4%	50%	32.6%	46

From the overall situation of the investigation, it can be found that males have shown more enthusiasm to the research. At the same time, they know more about household production, and have higher education. However, considering the qualities of the questionnaires made by males and females, there are no big differences. So are their attitudes toward the ecological protection of wetland. From the above results of the research, genders have no big potential influences on the project.

4. The monitoring plan of the influences from human beings on the wetland

4.1 Monitoring plan on the influences from surrounding residents on the wetland

In order to make a monitoring plan of the wetland influences and a participatory management project, it should be clearly known that who the stakeholders of the ecological protection are, and a related analysis should be conducted. The analysis of stakeholders is "a method or process which by confirming the main actors or stakeholders of a system, to assess their economic benefits or interest in the system and get to know the system itself" (Grimbe and Chan, 1995). After the mid 1990s, this method started to be widely used in the practices of natural resources management. By deciding the stakeholder mapping, analyse the roles and functions of each stakeholder during the process of ecological compensation of the wetland, and analyse the different weights of influences from each stakeholder's behaviours to the compensation behaviours. Therefore, the evidences of establishing a mechanism for ecological compensation that balances and coordinates almost every stakeholder will be provided.

About defining stakeholders, an American scholar, Mitchel, raised a "scoring method" to define stakeholders (Mitchel and Wood, 1997). In his opinion, three qualities can be used to score a potential stakeholder: one is legitimacy, which means whether a group has been given or has a special legal claim to the enterprise; one is power, which means whether a group has the status, ability and means to affect the enterprise's decisions; and the last one is urgency, meaning that whether the requirements of a group can draw an immediate attention of persons from the administrative level of the enterprise. Meanwhile, the stakeholders can be divided into three types based on these three qualities: confirmed stakeholders with all of the three qualities; prospective stakeholders with two qualities; and potential stakeholders with one of the three qualities.

Table 4-1 Defining the Stakeholders of the Ecological Use and Protection of the Wetland

Categories of stakeholders	Legitimacy	Power	Urgency
Confirmed stakeholders			
Surrounding residents	High	High	Medium
Enterprises and individuals	High	High	High
Administrative departments	High	High	High
Local government	High	High	High
Central government	High	High	High
Prospective stakeholders			
Non-government organization	Low	Medium – increasing	Medium
The press	Low	Medium – increasing	Medium

Investors of wetland protection	Low – increasing	Medium – increasing	Medium
Scientific researchers	Low	Medium	Medium – increasing
Local government of the benefited district	Low	Medium	Medium – increasing
Potential stakeholders			
Residents of non-wetland areas	Low	Low	Low
Consumers of wetland resources	Low	Low	Low – increasing

Note: "Increasing" means that judging from the characteristics of current behaviours of related groups, the features of a certain quality will gradually increase in the future.

In conclusion, in the confirmed stakeholders, surrounding residents, enterprises and individuals are all direct users, and the rest are administrators. Based on the purposes and frameworks of this project, the draft of government policies are not within the category of this project. Thus, only a monitoring plan of the influences from surrounding residents is chosen.

4.2 A monitoring plan of the influences from surrounding residents on the wetland

Community residents are the closest and biggest group of people related to the protection and use of wetlands. Their influences on the wetlands can be found in the everyday production activities, and hard to measure. Therefore, it is necessary to know well about the real situations of local residents, knowing the resources of wetland threats, the core issues of the conflicts between production and protection, and the real thoughts and attitudes of the peasants. Meanwhile, take these contradictions as the core problems of participatory management projects. In general, the monitoring plan of the influences from community residents on wetlands should include local population pressure, the use of wildlife, wild plantations, land resources and water resources, etc. The detailed framework is as follows:

a. The number of families and the structure of resident population: to analyse the pressure from population, including numbers, ages, education backgrounds, and the amount of farmland per capita, etc.

b. Monitor the influences from household productions to wetlands: to monitor from the aspects of family income resources, such as fishing, aquaculture, cultivation, and other sideline business, etc.

Production mode	Objects	Indicators	Methods	Operators	Time
Fishing	Fish resources	Yield, species, tools, fishing time per year, fuel consumption per day	Field research	Monitor group of villagers	Period of fishing prohibition per year
Aquaculture	Water environment, wetland ecosystem	Water area, species, methods, whether have pollution disposal tools	Field research	Monitor group of villagers	Once a year
Cultivation	Land resources, water resources	Cultivated area, species, irrigation method, amount of pesticides and fertilizers	Field research	Monitor group of villagers	Slack farming season of every year
Energy structure of households	Plant resources, water resources	Water, electricity, energy resources	Field research	Monitor group of villagers	Slack farming season of every year
Other income resources	Get indirect indicators	What sideline business, whether related to wetlands	Field research	Monitor group of villagers	Once a year

c. From when the local people have free time and what they do in the spare time, judge indirectly the pressure and influences from the residents on the wetlands (how long is their spare time? Activities: partying, going for a walk, watching TV, surfing the Internet and reading, etc.).

d. Monitor the wetland resources and biodiversity:

Objects	Indicators	Methods	Operators	Time
Migrant birds	Species, quantity, staying time, foods, health condition	Field research	Monitor group of villagers	Overwintering season per year
Plantations of wetlands	Increase or decrease situation of species and yields	Field research and interviews of the peasants	Monitor group of villagers	Once a year
Fishes of wetlands	Attainable species and the increase or decrease situations, average yield per day, conditions of the fishes	Questionnaires to the local fishermen	Monitor group of villagers	Period of fishing prohibition per year

e. The cognitive assessment of peasants' attitudes toward wetland protection:

Thoughts on wetland protection: Have you seen anyone hunting migrant birds? Have you seen anyone catching fishes with nets connected with electricity? Do you have friends or neighbours who are participating in sand excavation? Is the way of fishing "dig the autumn lake" common to see?

If you can get capital support from local government or projects, which way would you prefer to improve household economic situation? (Cash offer, trainings on cultivation and aquaculture, and utilization of substitution resources, etc.)

5. Suggestions on participatory management of communities surrounding the wetlands

The participatory management of the natural reserves of China is also called community co-administration. Since 1990s, the theories and practices of community co-administration and participatory development have started to draw attention in China. They were firstly applied in projects like supporting the poor, rural development, and environment protection. Gradually, they changed from purely protecting the nature to the combination of protection and production, from having only one target to developing comprehensively, from rural projects to development projects of small towns. The development of community co-administration in the natural reserves of China are pushed forward mainly by projects with international aids. Until now, community co-administration exists in the management of reserves with various forms. It gains remarkable effects and pushes forward local economy, especially in the regions of Qinling Mountains of Shanxi Province, Baima Mountain and regions of Zhongdian in Yunnan Province, Fanjing Mountain of Guizhou Province, Source of Three Rivers in Qinghai Province, the wetlands at middle and lower reaches of Yangtze River, and other reserves.

The practices of community co-administration in the natural reserves of China have been through several stages, including bringing in the participatory methods, developing Participatory Rural Appraisal PRA tools, test and demonstration of co-administration (mainly focus on projects), community co-administration (more comprehensive), co-administration of surrounding communities and so on. Until now, the Committee of Community Co-Administration and the management committees of surrounding areas are included in the design and construction of co-administration system as indispensable parts. The concept of community co-administration defines that the object is natural resources. Under the guidance of the management body of the reserves, the objects are mainly the natural resources of the reserves, and some individual peasants of the community can take part in the protection and management of the natural resources in the reserves as messengers or supervisors. During the period of rapid development of community co-administration, the objects started to diversify. As the funds of international nature protection increased and the practices of community co-administration deepened, the objects cover community economy, infrastructures, projects and their achievements, community affairs and so on. The expansion of objects promoted the comprehensive development of local communities, which expresses the benefits of communities participating co-administration. After correctly defined the functions of the management body of the reserves, the objects are focusing on the biodiversity of the reserves, the forest of the communities, NTEP, pastures and other natural resources.

Moreover, the basic meanings of community co-administration of the natural reserves in China have been extending as well, mainly showing at two aspects: one is that the participatory method has got developed and applied as a necessary condition for launching community co-administration; the other is that to build community co-administration as a long-term mechanism of the management of natural reserves.

This plan adopted the advanced experience of other reserves, combined the social and economic situations of surrounding communities of Poyang Lake with the threats faced by the wetlands, and gave suggestions on launching participatory management projects in Poyang Lake wetlands:

Firstly, clearly define the purposes of launching participatory management in Poyang Lake wetlands: improve the management ability of the staff of the Reserve, promote the economic development of local areas, help communities lessen the dependence on wetland resources, educate local residents to protect wetland environment actively, and let the residents share the benefits from protecting wetlands.

The first step of the project should receive the support of village leaders with the company of the staff of the Reserve. Under the principle of voluntary, a Villager Co-Administration Committee made up mainly by local residents should be built. The Committee represents the common benefits of the communities and the Reserve. Its duties include draw up the plan of participatory management, monitor and assess the influences from communities to the wetlands, and draft the management plan of natural resources in the communities.

According to the order of threats from peasants to wetlands in the report, and the needs of peasants to improve household economic situation, the research team thinks that the participatory management project of Poyang Lake wetlands should contain following aspects:

5.1 A substitution plan of the utilization of wetland resources

In recent years, the instability of the runoff of Poyang Lake and the longer dry seasons have caused shortages of fishes and water resources, which are the main factors influencing the income of local residents. As long as the wetlands resources cannot meet the needs of sustainable development of local areas, the most efficient solution is to help the peasants who rely on wetland resources to develop substitution industry, letting them get rid of the extensive utilization of animal and plantation resources of wetlands. Take the group of professional fishermen as an example. Since the natural yield of the lake regions cannot make the ends of fishermen households meet, and most fishermen don't have arable lands to increase the family income, a substitution way of production should be found as early as possible. Under these circumstances, training the fishermen the skills of aquaculture and marking out part of the water body as breeding places is the most operable plan.
Funds and other needs: This project needs the support of county government, and scientifically breed aquatics in the water body out of the Reserve of Poyang Lake.

5.2 Trainings on agricultural farming technology oriented by circular economy

As the environment pressure of the resources in the lake regions increased in a large scale, developing circular economy is an inevitable choice of the surrounding communities of wetlands. From the perspective of national situations, modes of circular economy in rural areas, such as multi-storey cropping and raising, have received good benefits economically and ecologically. From the rural practices in Hebei Province and Tianjin, multi-storey cropping and raising can provide 5 to 6 times of economic benefits from 1 mu of rice under the situation that not decreasing the area of wetlands. This will lighten the pressure from production to ecosystem. Based on the characteristics of Poyang Lake, which is the hometown of fish and rice, we think that multi-storey ecological raising modes, such as rice and loach, rice and crabs, and rice and fishes, are the best choices. Meanwhile, make use of the faeces of pigs, ducks and other livestock as biogas resources. In addition, the Community Co-Administration Committee could also be creative to break the restraints of tradition agricultural production. According to different features and similarities, combine crops, livestock, fish, shrimp and crabs of two or more different kinds with each other to form a new idea of agricultural production.

Funds and other needs: (1) Need to invite agro-technicians of multi-storey cropping and raising to give trainings, and arrange the members of Community Co-Administration Committee to visit places with better practices. (2) Need the support of funds, which is about 20,000 to 30,000 yuan.

5.3 The construction of methane tanks in the rural lake regions

From researches, the energy of Poyang Lake regions is mainly coal and natural gas. Currently, there has been no biogas equipment yet. However, it is very necessary to popularize rural methane tanks in wetland areas. The biogas of rural areas connects the industry of aquaculture and cultivation – one is production, and the other one is life. It can not only provide high-quality energy for peasants' lives, which optimize the energy consumption structure of rural regions, but decrease the emission of greenhouse gases and improve the development of low-carbon economy. In spite of considering from the perspective of environment, developing rural biogas can also mobilize the development of ecological aquaculture and efficient cultivation of local areas in an indirect way. As practices have shown that the ecological and cyclical pattern of energy which is connected by biogas, such as the "pig – biogas – plants (vegetables, crops and teas)", can reduce the application amount of pesticides and fertilizers by more than 20%. Because of the limitation from wetland protection, local peasants have little substitution resources to develop economy. Therefore, developing efficient and ecological aquaculture is the best way that satisfies the needs of peasants at the same time. From researches, the team found that the increasingly severe problem of aquaculture pollution is a big threat to the environment of Poyang Lake. While collecting the wastes produced from aquaculture to build methane tanks is an important way with multiple achievements.

Funds and other needs: (1) Need to plan and operate on the county level. Try hard to include the construction of methane tanks into the new rural reconstruction of local areas and obtain the financial support from the national government. (2) Need to make overall plans in the range of the Reserve, and pick one or two villages as testing places. (3) It is known that building a large- or medium-sized methane tank should be applied only to the local agricultural bureau. As long as it is ratified, there will be state subsidies of about 40% of the needed fund. (4) Based on the experiences of other places, a general price of building a methane tank should be from 400 to 500 yuan per cubic meters. A methane tank of 8 cubic meters can satisfy the needs of 5-person household. At present, large- and medium-sized methane tank is the trend of development. Therefore, an estimate can be made that a testing village may need 50,000 to 80,000 yuan to build methane tanks.

5.4 The construction of supporting-the-poor projects in communities

From the general situations of the investigations of the residents near reserves over years, it can be found that the peasants who are poorer with lower family income tend to be lack of expertise. Their needs to develop are urgent and rely more on local resources consequently. Therefore, their threats to the reserves are bigger. For Poyang Lake, the same situation exists. In order to avoid this problem to worsen the threats to the Reserve, it is necessary to provide aids and supports to local poor peasants. For instance, the Community Co-Administration Committee could include poor peasants into the daily work of the Reserve, such as migrant bird patrols, environment monitoring, community survey and so on, on the basis of certain subsidies for these peasants. Similarly, aid-and-support activities can be organized according to the needs of local poor peasants, including arranging trainings of agricultural technology and offering job information. For the senior, the young, orphans, widows and other kinds of poor households, aid-and-support activities can be organized with the help of local peasants, which can guarantee the livelihood and development of the poor households.

5.5 Building a mutual-aid microfinance facility of the villagers

With the purpose of satisfying the urgent needs of developing economy and changing production mode of local peasants, the Community Co-Administration Committee should help communities to set up Economic Mutual Funds for the villagers, providing microfinance for the peasant households. In recent years, there are many mutual funds cooperatives popping up in rural areas of the provinces of Jilin, Hebei, Sichuan, Henan, Zhejiang and so on. Of all informal financial institutions, the form of mutual funds based on members is a kind of informal financial institutions with a long time of history and common to see in developing countries including

more than 80 counties and districts on the five continents. Compared to formal financial institutions, informal institutions, such as mutual-aid organizations, have advantages in information, guarantee, and transaction cost. Being capable of making full use of local resources is one of the great advantages as well. In the research, the team found that many peasants have financial needs to develop household economy. But currently, the way of getting funds is mainly to borrow from relatives and friends, and the scale is limited. While helping build mutual-aid microfinance facilities for the villagers is in favour of launching diversified productions and operations for the peasants in the lake regions, and in the meantime, it can assist to aid and support the poor in communities.

Funds and other needs: (1) Setting up mutual funds cooperatives for the villagers need to get supported and monitored by local governments. The Community Co-Administration Committee should get along well with the government and other departments, winning their trust and support. (2) At the beginning of establishing the fund, the project can provide start-up capital of about 50,000 to 100,000 yuan. (3) The fund should be operated in accordance with regulations, managed and monitored by the Community Co-Administration Committee, forming a long-term mechanism.

6. Programs for capacity building in the surrounding communities

The capacity building of communities includes not only the staff of the Reserve, but mainly the Community Co-Administration Committee. The trainings aim at improving their understanding of participatory management and leading them to become the main force of protecting and managing wetland resources.

6.1 How to monitor the biodiversity of the wetlands

- First of all, the staff of the Reserve should acquire the support of county government and the committee of villages to the participatory management program, and set up an on-going communication mechanism.
- Under the support of the committee of villages, the staff of the Reserve should call the villagers together to form the Community Co-Administration Committee, and divided them into research & monitoring team, administration team, and fund planning team, etc.
- The staff of the Reserve should introduce the management of routine patrols and other resources of the Reserve to the Community Co-Administration Committee, and publicize the knowledge of ecological protection of wetlands to the residents.
- The Community Co-Administration Committee should learn the method of participatory management, analyse and discuss the number and structure of population and the household production, and draw the map of community resources together.
- Based on the work done by the team of the project, the staff and the co-administration committee should draft the researching plan and the questionnaires to peasants together.
- The staff and the co-administration committee should set up a fixed mechanism of meetings and communication, analyse the results of research and monitoring, and inform to all the residents of the communities.

6.2 How to implement the agreement of participatory management

- Communicate with the government and obtain financial support. Every step of participatory management agreement cannot succeed without the support of the government. The government should not only participate into the drafting work of the agreement, but also try to invest some capital. Therefore, communicating with the government is the key to implement the participatory management agreement. This requires more on the ability of the staff of the Reserve.
- The participatory management agreement should be operated on the level of villages. The publicity within the communities and the support of most peasants are the keys to realizing the expected effects of the project. Letting the residents enjoy the benefits of protecting wetland resources and improving their survival skills to lighten the pressure on wetlands are the core parts of the participatory management agreement. Under the initial framework, these can be adjusted and improved in accordance with the needs of communities.
- The staff of the Reserve should form the awareness of servicing the local residents. They should act as

coordinators and servants, not leaders or administrators.

- The Community Co-Administration Committee should form a long-lasting mechanism of decision-making and supervision. Participating in the decision-making step is an important part of participatory management and implementing the participatory management of ecological public welfare forests. In order to attract peasants into the management to the maximum extent, the design of the participatory management program should follow certain principles. The program must attract a wide range of peasants to take part into it, put the interest of peasants in the first place, coordinate the relationship between protection and economic development, and maximize the benefits of resources. Every once in a while, together with the leaders of villages and the peasants of the Community Co-Administration Committee, the staff of the Reserve should check the performance and the indicators of management effects and the situations of wetland resources. The stations of the Reserve should be ready to receive interviews of peasants, collect information and accept any queries at any time.

7. The studies on the practices of ecological compensation abroad and at home

7.1 The practices of ecological compensation abroad

In an international context, ecological compensations are called payment for ecological/environmental service. It means that by improving the situations of the ecosystem in a place where the plantation is destroyed or by building a new habitat that has similar ecosystem functions or qualities to compensate the deterioration or damage of current ecosystem functions and qualities caused by economic development or economic construction. The practices of ecological compensation abroad came into existence as early as 1930s. As the problems of ecological environment are getting intensified, the compensation in foreign countries covers forests, wetlands, farmlands, natural reserves, water resources, river basins, mineral resources and other areas. Divided by the ways of ecological compensation, there are several kinds of ecological compensation abroad, such as directly public compensation, cap-and-trade scheme, one-to-one personal direct compensation, and eco product certification, etc. From the perspective of the subjects of payment, ecological compensation can be divided into individuals, enterprises, regions and governments. Usually, individuals, enterprises and regions pay for the environment services they enjoy by signing cooperation agreements. The governments often pay for or purchase ecological regions or ecosystems of great importance. Divided by the degrees of the participation of governments, the compensation can be divided into 3 types: government direct payment, government led and complete market operation. In the range of the globe, some mature and influential PES practices include The National Mechanism for Ecological Service Payment in Costa Rica and Mexico, The Program for Agricultural Environment, The Protective Reserve Program, and The Mechanism for Forest Carbon Sequestration in Europe and United States. Some international organizations, such as Forest Trends and International Institute for Environment and Development (IIED), have also taken part into the practices of ecological compensation. Through 3 comprehensive research reports provided by Landell-Mills, Perrot-Maitre and Pagiola, these organizations studied and analysed hundreds of market transactions cases of ecological environment service around the world.

Table 7-1 The Practices of Ecological Compensation Abroad

Type		Country	Details of the means
Government Payment	Central financial payment	United States	The Program of Protection and Land Reserve: The government purchase ecological benefits, provide the capital for compensation, and buy lands of important ecological value from peasants.
		Sweden	Based on the improvement of quantitative biodiversity, make compensation to peasants. 90% of the peasants can be compensated.
		Germany	For the peasants in the water resource conservation zone specified by the government, if they follow the plan of nitrogen management, and the nitrogen content of the collected land is lower than the limit, the peasants will be compensated.
Government led	Ecological compensation fund	Mexico	Set up a fund of 20 million US dollars, and compensate the ecological service provided by forests every year at certain level per hectare.
		Costa	By ways of setting up national funds and FONAFIFO, establish a national

		Rica	system of environmental payment, collect money from ecological beneficiaries and resource users, and compensate the landowners who provide ecological services at certain standard.
		Ecuador	In Quito, set up a fund of water and soil conservation to protect water and soil of upper reaches and ecological preservation areas.
	Ecological tax	Countries of OECD	Compensate ecological environment with various kinds of taxations related to environment (Green Tax). The taxations include the emissions of carbon, nitrogen and sulphur, landfill, energy sales and so on.
		Columbia	Collect ecological service tax. Use it on the watershed management done by private landowners and improving the watershed management of hydrological sensitive lands purchased by governments.
		Brazil	Collect 5% of ICMS as ecological value-added tax. Return the money to the governments of states having reserves based on the areas, qualities and other factors of the reserves.
	Regional transfer payment	Germany	A specific horizontal transfer payment system is set up between states. Meanwhile, make an agreement with the Czech Republic, which is located at the upper reach of River Elbe to establish a bilateral cooperation organization to deal with the pollutions of the river.
		United States	In order to get safe drinking water, New York City decides to purchase the ecological service of River Delaware and the upper reach of River Catskill. By providing 40 million US dollars to the owners of dairy farms and forestry centres of the upper parts of the river basin, the government wants them to adopt environment-friendly production mode to improve the water quality.
Complete market operation	One-to-one personal trade	France	The bottled water company – Vittel has always been protecting river basins. They purchased 243 ha of farmlands near the spring, and signed agreements of 18 – 30 years with peasants who are important to the protection work. The peasants agree to apply more environmental cultivation methods on the other 1620 ha of lands.
		Costa Rica	Del Oro is a company doing oranges plantation and juice production. Every year, they pay 480,000 yuan to the adjacent goanna protection zone for its ecological service, including controlling the number of forest-insects, water supply and the natural degradation of fruit peels and other wastes.
	Quota or credit compensation trade	EU	At present, EU-ETS and the CDM of Kyoto Protocol are the two biggest and most familiar cap-and-trade programs of carbon dioxide. In 2005, they completed 362 million t and 400 million t of carbon dioxide trading, respectively.
		United States	The companies with less pollution emission sell the saving emission index (i.e. credit) to other companies who think that the cost of buying credit is lower than that of following the standards. In this way, the total amount of emission is under control.
		Australia	The Mullay-Darling basin in Australia has severe salinization of soil because of deforestation. The evapotranspiration credit has been applied. It means that the farmers of upper reaches should pay 17 Australian dollars for the transpiration of 1 million litter of water. Or they can also pay 85 Australian dollars per hectare every year to make compensation. The due time is ten years, and the money is used to improve the quality of local soil.
		Costa Rica	The government issues CTOs in a way of developing carbon vouchers. The enterprises and investors can transfer or sell the emission right of carbon dioxide and other greenhouse gases through CTOs.
	Eco labelling	United States	Give green and ecological identifications to those wood products that have been approved and cut in a sustainable way. Sell these products at a higher price. In this way, the consumers pay for the ecological environmental service.

7.2 The practices of ecological compensation at home

The practices of ecological compensation in China started from 1980s. After the development of 30 years, the ecological compensation has transferred from negatively charging fines on behaviours of ecological damage to positively encourage and coordinate the protection and construction behaviours of ecological environment. The areas of compensation cover forests, farmlands, natural reserves, river basins and the development of mineral resources, shown in Table 2-5. However, the laws and systems of ecological compensation on the national level of China have not been set up completely. The current ecological compensation focuses on the policies of some departments and the practices of local areas. These are mainly realized by National Ecological Construction Project, National Finance Transfer Payment, Regional Finance Transfer Payment, Ecological Compensation Tax and other forms. The only system established on the national level from the perspective of ecological compensation is The System of Compensation Fund of Forestry Ecological Efficiency.

Table 7-2 The Practices of Ecological Compensation in China

Types of ecological compensation		**Ways of compensation**
National Finance Transfer Payment	Ecological Compensation Fund for the Key Public Welfare Forests; Projects of returning farmlands to forests (or grasslands); Projects of natural forest protection; The balance system of farmland requisition-compensation; Projects of returning farmlands to lakes;	The major capital is provided by the central finance. Recover and compensate the resources and environment of great significance and ecological functions. The most complete ones are mainly the ecological compensation of forests.
Regional governments led	The compensation of Beijing Miyun Reservoir; The ecological compensation of Dongjiang riverhead area in Jiangxi Province; The compensation for the river basins between the upstreams and the downstreams of Minjiang River and Jiulong River in Fujian Province; The supporting-the-poor compensation of "Geographical Development" in Jinpan, Zhejiang Province;	The capital of compensations is from financial transfer payments or subsidies paid by provincial or municipal governments. Usually, it is realized by regional transfer payments from richer areas of the downstream to the reservoir areas or water source areas of the upstream.
Trading between river basins	The ecological compensation of the river basin of Xiaozhaizi River – the water purchase agreement of Jinji Village and Luozhai Village; The ecological compensation of the river basin of Supa River in Baoshan Mountain – the model of hydro-electric company payment; The long-acting mechanism of ecological compensation in Deqing County of Zhejiang Province;	If there are specific beneficiaries and providers of resources and environment, purchase the ecosystem service through consultations, agreements and other forms.
The model of water right trade	The water right of the river basin of Heihe River; Water right trade in Dongyang and Yiwu; Water transfer of the river basin of Zhanghe River over provinces;	Under the leading of market, local governments and institutions of river basin management act as intermediaries to negotiate and draft regulations of the water right trade.
The system of ecological tax	The ecological compensation of mineral resources; Sewage charge; Farmland occupation tax; Tax on using urban land;	Regulate the behaviours of economic subjects using resources by taxation and other market economic means, control the externalities of economic activities, and collect capital to protect ecological environment.

All of the practices of ecological compensation abroad and at home have reference significance to the practices of ecological compensation of wetlands in China. Of foreign practices, there are several aspects of directive functions. First, the value of ecological service should be widely recognized by all of the beneficiaries. The precondition of realizing ecological compensation with efficiency is that the two parties of compensation (the payer and the receiver) or the buyers and sellers of ecological service know the value of ecological service well. The understanding of ecological protection and the value of ecological service directly influences the original intention and the desire of taking part into the compensation. Second, governments are the pusher and supervisor of ecological compensation. Every successful practice of ecological compensation, either it is an international

cooperation or a national or regional practice, has close relationship of governments and the cooperation between governments. Third, take the functions of market economy seriously. From the practices of buying ecological services in foreign countries, it can be found that governments and the market are not completely opposite to each other, though some practices are led by governments, while some are led by the market. Especially in individual trading, market trades and ecological label system, the direction and supervision of governments are essential. Fourth, the standard of compensation is rational, flexible and easy to implement. Take the agricultural compensation policies in EU as an example. Under certain methods of compensation, each country arranges the detailed measures according to its own situations, including applying for ecological measures, standards and the scale of compensation. In Australia and United States, the tradable ecological credit provides specific standard of calculation and form a trading market. Therefore, the compensation mechanism is easy to operate and can be implemented continuously. Fifth, combine the capital compensation with other policies of compensation. No matter to take measures of public payment or purchase ecological service based on the market, the realization of the purposes of ecological compensation cannot be reached simply by drafting capital compensation policies. It has to be combined with the adjustment of other policies. Capital compensation is merely a means, while letting the public know the value and meanings of ecological service and applying sustainable production mode is the essence of ecological compensation.

For the practices of ecological compensation in China, they are all built upon the basic policies of resources and environment. It applies the situation of China, and therefore, it has specific guidance on the ecological compensation of wetlands. First of all, the compensation of the ecological benefits of forests and farmlands has already been launched and implemented provides the basis of the ecological compensation of wetlands. Both the foundation of the ecological compensation fund for forests and the implementation of farmland occupation tax and the balance policies of farmland requisition-compensation have given great directions for the system of ecological compensation of wetlands. Secondly, the studies on the compensation standard and the method targeting at forests, grasslands, wetlands and other areas have offered references to the establishment of the system of ecological compensation of wetlands in China.

Annex 9: Ecosystem Health Index (EHI): Methodology and Results

1. Overview of Ecosystem Health Index Results for Jiangxi Province

The Ecosystem Health Index (EHI) for Jiangxi Province was established under the leadership of the Biodiversity Monitoring Expert hired for the project preparation phase. In addition to the information in this annex, the EHI Scoring Sheets for each project sites, and the EHI Monitoring Protocols for each site, are available upon request.

EHI Site Selection

Following the recommendations of the MSL Programme EHI expert[17], three protected area sites were selected for inclusion in the Jiangxi EHI process by the Biodiversity Monitoring Expert and the project proponents at the Poyang Lake National Nature Reserve. These sites were the following:

- Poyang Lake National Nature Reserve: This national-level reserve is one of the key target sites for the proposed GEF project. The PLNNR is a large Protected Area (22,400 ha.) and has significant management capacity, though it is subject to a variety of threats to its biodiversity. It is expected that the activities of the project should have a significant positive impact on the overall EHI score and on the species identified for monitoring during the project using the EHI Monitoring Protocols.
- Yiyang Chinese Merganser Nature Reserve: This county-level nature reserve is outside the direct focus of the project as it is not technically a wetland reserve; however, there are significant wetlands within the reserve and therefore the area should see some direct benefits from the provincial level activities of the project to strengthen all wetland areas. Yiyang is relatively small (2,827 ha.) and is managed by the local forestry bureau, although in fact there is no special office within the bureau for this reserve and management activities are extremely limited. At present the environment of Yiyang remains relatively intact, but the reserve faces significant possible threats from urbanization and industrial growth.
- Guanshan National Nature Reserve: This national level reserve is a forestry reserve located in a remote highland area of Jiangxi Province. The reserve is relatively small (1,200 ha. in the "core area", and 1,000 ha. in the "experimental zone"). It is not expected that the activities of the proposed GEF project will have a significant impact on this reserve, except that the success of provincial level efforts to address threats to water flows, quality and quantity throughout the Poyang Lake basin (which includes Guanshan) ideally will spur changes in management practices in these upstream sites. The reserve has a fairly strong management regime and thus far has been able to effectively address most of the existing threats to biodiversity within its boundaries.

Summary of EHI Scoring Results

As noted above, the detailed EHI Scoring Sheets are available upon request. The following table shows the overall scores and the scores for the three components of the EHI for the three selected reserves:

	Poyang Lake		**Yiyang**		**Guanshan**	
EHI Components	Baseline	Target	Baseline	Target	Baseline	Target
Habitat Health	52%	55%	76%	70%	94%	94%
Species Health	47%	60%	70%	70%	83%	83%
Env. Context Health	50%	78%	22%	44%	83%	89%
Total	**50%**	**64%**	**56%**	**61%**	**87%**	**89%**

[17] Pers. Comm.: "Each project should undertake EHI for at least 3 different sites. Ideally one site would be a focal PA directly benefitting from the project, one site should be a wetland site benefitting from the more systemic approaches of the project (law revision, data management and sharing, capacity) and the 3rd site to be a non-wetland site to reflect background improvement of the entire Chinese PA system."

It is important to note that the targets indicated for the Guanshan and Jiangxi Yiyang reserves are only estimates of what it is hoped will change by the end of the project, since these two sites are control sites and are outside of the direct influence of the GEF project.

Summary of EHI Monitoring: Selection of Species and Threats for Monitoring

As noted above, the detailed monitoring protocol sheets are available upon request. The following table shows the list of species selected to be included in the monitoring activities at each of the three reserves

Species	Poyang	Yiyang	Guanshan
Target Species			
1.Siberian Crane	X		
2.Oriental Stork	X		
3.Tundra Swan	X		
4.Swan Goose	X		
5. Chinese Merganser		X	
6. Silver Pheasant			X
7. White-necked, long-tailed pheasant			X
8. Rhesus macaque			X
Vertebrate indicators			
1.Little Grebe	X	X	
2.Spot-billed Duck	X		
3.Pintail	X		
4.Grey Heron	X		
5.Black Drongo	X		
6.Long-tailed Shrike	X	X	
7. Wild Boar			X
8. Red-billed Blue Magpie			X
Invertebrate Indicators			
1. Dragonfly	X		X
2. Moth	X		
3. Cicada		X	
Plant indicators			
1.Vellisneria	X	X	
2.Triarrhena	X		
3. Chloranthus multistachys			X
4. Wild Chinese Viburnum			X
Alien Invasive species			
1.Red Swamp Crayfish	X	X	
2.Daucus carota	X		
3.Camomileleaf Soliva	X		
4. Crassocephalum crepidioides			X
Human activities			
1.Grazing	X		
2.Fishing	X		
3.Grass collecting	X		
4.Artemisia collecting	X		
5. Routine patrolling	X	X	X
6. Electronic fishing		X	
7. Sand excavation		X	

8. Bamboo cutting			X

Process for EHI Scoring and Development of Monitoring Protocols

The Biodiversity Monitoring Expert worked together with teams from each of the three selected nature reserves to establish baseline and target scores for the EHI at each site. These same groups also agreed on the selection of species to be included in the EHI monitoring protocols, as well as the details of the monitoring protocols in terms of scope, frequency, reporting, financing, etc. Furthermore, it was agreed that for non-bird species, staff of each of the three reserves would need training in order to carry out the monitoring activities.

2. Brief Summary of the EHI Methodology

Definition: Ecosystem Health is taken to be the suitability of a site to continue to provide secure conditions for survival of component species and delivery of key ecological services, including resilience to climate and other changes.

Objective: EHI is a not an evaluation. It is a dynamic, constantly varying index that reflects biodiversity health, just as a financial index reflects economic performance.

- EHI provides a baseline against which targets for maintaining or achieving a given level of health can be set
- EHI can be used as a results based indicator of project achievement and impacts
- EHI can indicate where the project is succeeding or failing and allow revision of activity efforts throughout the project
- EHI is complimentary to the Management Effectiveness Tracking Tool (METT) in project monitoring and evaluation.

Introduction: Ecosystem health is reflected in the ability of a site to maintain its biodiversity values and ecological functions. These will vary significantly from site to site. The index developed to assess this health has three components: 1) score of habitat suitability for maintaining important biodiversity; 2) status of that biodiversity and 3) the broader environmental context. The score does not necessarily indicate stability. Many wetland sites are very dynamic but what we are interested in is the ability of the biota to adapt to or even thrive with the changes. This will become increasingly important as climate and water flow patterns change. A simple scoring system is recommended to give the results transparency and robustness. Each site using this index should undertake a baseline survey that also selects indicators and target species for subsequent surveys. Indicators should include key wetland birds, important aquatic fauna – fish, mollusks; selected indicator insects; endangered mammals; major components of vegetation; incidence of AIS.

The index establishes a snapshot value at the time of surveying; can relate present scores against baselines established at an earlier date, identifying trends in the different indicators; and can establish reasonable targets for improvement for each different indicator, and compare current state against identified targets.

Just as a human body may appear healthy in not yet showing much physical deterioration, we can identify several indicators of lifestyle that certainly constitute health threats (excessive drinking and smoking habits, lack of sleep, lack of inoculation, living in region of known diseases, poor hygienic habits, lack of medical facilities etc.). In the same way we can recognize several threats to ecosystem health in the external context that may not be immediately reflected in condition of habitat or status of species. Such indicators include the levels of external development threats, the level of secure legal protection enjoyed, and the level of human use pressures being applied or expected in the future.

Use of the EHI score sheet

- **Forming the monitoring team**

Should include manager, ecologist, consultant, local experts and if possible local community member/members)

- **Classifying and mapping main habitat types**

The scoring of habitat sub-index requires assessing whether the extent, diversity, connectivity and condition of key habitats is maintained. For this it is necessary to classify, map, measure extent and status of specific habitats. For ease of work and subsequent analysis it is recommended to use a simple hierarchical habitat classification. An example for Poyang Lake is given below but it is not important to follow any formal classification system and use of whatever classification is already used by management or researchers in the area is usually adequate. If no suitable classification is already in use, it is recommended to follow the classification system of wetlands international (see Asian Wetlands Inventory Handbook) for wetland types. For terrestrial vegetation, use classifications in current use at local level. Google maps can be downloaded from Internet and provide basis for mapping different recognizable vegetation formations. These can then be compared with later imagery to monitor changes in distribution. Use of GIS is useful but not essential. Once mapped, the area of habitat types can be calculated by counting dots on transparent sheets. Retain maps and results for future comparisons.

Suggested habitat classification and hierarchy (example only; not comprehensive for China!)

Ist Order	2nd Order	3rd Order	4th Order
Water bodies	Natural Fresh Water	Lakes	Open Lake
			Shallows
			Small Lake
		Rivers	Large River
			Small River
	Artificial	Ponds	Reservoir
			Small Pond
Terrestrial	Barren	Sparse vegetation	Beach
			Mudflats
		No natural vegetation	Bare Land
			Urban area
	Arbour	Woodlands	Willows
			Poplar plantation
			Mixed plantations
			Natural mixed forest
		Scrub	Scrub
	Herbaceous	Marshes	Reed-beds
			Lotus-beds
		Grasslands	Miscanthus meadow
			Phalaris meadow
			Carex meadow
			Artemesia meadow

3.Identify main threats to be monitored

- Key threats have already been identified for each project area at the PIF stage. These can be reviewed at PPG stage.
- Additional threats can be tagged for attention when local teams are assembled or if unpredicted changes occur during the project cycle. There should be a good match between indicator species selected and the specific threats they indicate.

4.Identifying suitable indicator species to be monitored

- Conservation target species (n.b. rarely seen species give little data)

- Commoner species that are sensitive to habitat quality – amphibia, dragonflies, birds
- Easily identified – large mammals
- Easily quantified (harvest levels of fish, crabs etc. or plants)
- Alien species of concern

5.Undertake baseline measurements
This will involve checking in the field, examining plans, maps and other documents, interviewing managers and local community members and undertaking status assessments of selected indicator species (this latter task should be incorporated into routine monitoring activities but baselines need to be established).

6.Calculate baseline indices
Pick the score for each indicator that best meets your observations. Most important is to complete the notes explaining on what basis this score was selected and listing the requirements that should be targeted by the project for improving this score. Identification of areas where improvement can be expected is the key to calculating the target index score that the project can realistically hope to achieve.

7.Periodically repeat measurements (minimum would be mid-term and end of project).
Routine monitoring of indicator species should be more often than this and at least twice per year.

8.Analyze observed changes in relation to established targets
Note changes in relation to baseline or previous evaluations

9.Report results and feed into project planning revisions
Append full notes, maps, tables of scored species, or any data on human uses and activities, tourism entries etc. on which the answers were based. This is important as the next team to evaluate may be different and need to see the basis for determining if conditions change or get worse.

It is recommended that the first 6 steps will have expert assistance, but local teams can undertake subsequent monitoring and scoring.

The EHI scorecard
The EHI scorecard is designed for simplicity and robustness.

Different teams should reach similar scores. In our training exercises, robustness was tested. Five independent scorers reached almost identical scores for Dongzhaigang NNR (mangroves) in Hainan and 6 different teams scored almost identical scores for Jiulongshan NNR (forest) in Hubei. Team members do not require high levels of literacy, biological knowledge or statistical skills!! The EHI scorecard is designed to match and augment the Management Effectiveness Tracking Tool (METT) being used in GEF Biodiversity projects and can be filled out at the same time.

At national level, SFA should monitor EHI scores of focal sites, other wetland sites within project provinces and a selection of sites not directly affected by the project as part of overall monitoring of conditions and programme impacts.

Annex 10: GEF BD-1 Tracking Tool

Summary of PA sites' Management Effectiveness Tracking Tool (METT)

See Separate Document for detailed METT information

Name of Protected Area	Poyang Lake National Nature Reserve	Nanji Wetland National Nature Reserve	Duchang Provincial Migratory Water Bird Nature Reserve
Is this a new protected area?	No	No	No
Area in Hectares	22,400	33,300	41,100
Global designation or priority lists	Ramsar Site, WWF Global 200		
Local Designation of Protected Area	National Nature Reserve	National Nature Reserve	Provincial Nature Reserve
IUCN Category	4	4	4
METT Score 2013	69	61	44
METT Score 2013 (% of possible)	67.6%	59.8%	43.1%

Annex 11: Knowledge, Attitudes and Practices Survey

Note: The overall KAP Survey report for Jiangxi Province, with additional details on Background; Survey Methodology; Explanations of the KAP Components; Data Processing; and detailed results to all survey questions, is available upon request.

PART I – Overview of KAP Survey

Survey Methodology

The KAP Survey was carried out at three levels: a national level survey in Beijing, and two provincial level surveys in Jiangxi and Hainan provinces. Both qualitative interview and quantitative survey were used to collect data. In addition, a qualitative interview guide was developed to have in-depth discussions with the representatives from the target groups, focusing on understanding the information needs and the preferred information channels of them, so as to develop the communication strategy. The surveys and interviews were mainly carried out by face to face, supported by telephone, e-mails, and post mails.

Overall, the quantitative survey with questionnaires was applied to collect data from the following seven target groups; the total sample size is 611.

- 104 officials from line ministries (in Beijing) and the departments at provincial, city, county, and township levels (in Jiangxi and Hainan Provinces), included State Forestry Administration, Ministry of Environment Protection, Ministry of Agriculture, Ministry of Land Resources, State Ocean Administration, etc.
- 94 managers and technicians from enterprises, including both environment sensitive and environment non-sensitive enterprise, and with a focus on brand name enterprises, both national and international.
- 102 managers and staff from International and National NGO, including both environment and non-environment NGOs, focusing on well-known NGOs.
- 68 journalists (both environment and non-environment journalists) and from media, with a focus on influential media, including State media and local media.
- 100 university students, with a focus on university-level students from Beijing, Jiangxi, and Hainan provinces, including both environment-related majors and non-environment related majors.
- 97 respondents from rural communities: the communities were selected near the wetland in project areas in Jiangxi and Hainan。
- 44 respondents from the urban communities: the communities were selected near the wetland in project areas in Jiangxi and Hainan.

In Jiangxi province, the quantitative survey collected 197 questionnaires, of which, 20% are from government officials at provincial, city, county, and township levels, 9% from enterprises, 10% from NGOs, 11% from media, and 16% from university students, 23% from rural community people, 12% from urban community people near the project sites (Table 1). Annex 1 provides a list of the communities and institutes where the respondents are from.

Table 1: Sample distribution by groups – Jiangxi Province (n=197)

Groups	Officials	Enterprises	NGO	Media	Students	Rural	Urban	Total
Quantity	39	17	19	22	31	46	23	197
% of total	20	9	10	11	16	23	12	100

Of all respondents, 67% are male and 33% are female. The majority of respondents are among 18-49. In terms of education, the majority of student, media, NGO, and official group hold university or above degrees. The majority of the enterprise people hold senior high school degrees (62.5%). About 30% of urban residents and rural residents completed senior high school education, and about 30% of them completed the primary school

education. 28.3% of rural residents and 43.5% of urban residents completed middle school education. More details on the survey group are available in the overall KAP Survey report.

KAP Components

The survey questionnaires cover 4 components: Knowledge, Attitude, Practices, and Information Needs.

- **Knowledge.** This part mainly includes the questions to ask the respondents on their self-assessment on the knowledge related to wetland and biodiversity, understanding on the concept, categories, and value of the wetlands, awareness on the policies and regulations related to wetland conservation.
- **Attitudes.** This part intends to get the respondent opinions on the importance attached to wetlands, relationship between economic development (or poverty) and wetlands conservation, perceived barriers in wetlands conservation, measures to overcome barriers and enhancement of capacities, and National priority areas to conserve wetlands
- **Practices.** This part asks the respondents on their activities to conserve wetlands, integration of wetlands into sector development plan or enterprise strategy, and the monitoring of wetlands conservation plans or projects and environmental impact assessment.
- **Information Needs.** This part mainly asks the respondents on their information needs and information channels, and suggestions for information dissemination.

Data Processing

The quantitative data was inserted into excel sheet, the descriptive statistics was used to process the data. The percentage and means was calculated. The data was disaggregated among different target groups. The qualitative data was analyzed by the main issues and themes, and was used to supplement the quantitative data. The data results were used to analyze the gaps in knowledge, attitude, and practices regarding the wetland conservation, and develop the communication strategies to mainstream the wetland conservation among the public and the sector and enterprise development plan. To measure the overall respondent knowledge, attitude, and practices on wetland conservation, the key questions were selected from the questionnaires and the answers to these questions were graded for scores, which were used as indicators to gauge programmatic and project level impact on stakeholder perception and behavior.

PART II – Key Results and Scores of KAP Survey

Justifications for doing livelihoods activities and environmental education, and for focusing the latter on local residents:

- Overall, majority of the respondents have positive attitude toward the importance of wetlands, and they tend to give priority to wetland when wetland is conflicting with other issues (such as economic development). However, there are significant differences between urban groups and rural people in terms of their attitudes toward wetland issues. The urban groups tend to give more priority to wetland conservation, and the rural people tend to have more concerns on their own livelihoods. Many of the rural people do not support the establishments of natural reserves since they think the natural reserves reduced their income-generating opportunities and it is difficult for them to find alternative employment. Therefore, information on wetlands should address the concerns of rural communities on livelihoods and be relevant to their daily lives when reaching rural people.
- Overall, the participants have few opportunities to participate in activities related to conserving wetlands. Therefore, the project should generate opportunities suitable for different target groups to participate in activities to conserve wetlands.
- Many respondent institutions or communities seldom or never disseminate information on wetlands. The project should develop some standard information materials (such as posters and brochures) so that each institute or community can further disseminate this information within their institutes.
- The media is a key group for the project. However, many of the media group did not write news related to wetlands often, and one of the key barriers that they face is the lack of information and understanding

on wetlands. The training should be provided to journalists on how to write wetland related news, and the related information and materials should be provided to them, so that they can become more active in disseminating information on wetlands.

- Overall, many of the respondents seldom or never receive the information and training on wetlands. In addition, most of the respondents have high willingness to receive such information. This provides good opportunities for the project to make impacts and differences.

Communications Strategy - General Channels / Mechanisms

- The KAP survey results indicated that the top four information channels are: TV, Internet, public information dissemination activities, and newspapers and magazines. Therefore, the project should focus on these four channels as a main means of communication to address all target groups.
- The public is using blogs and micro-blogs more and more often, and some opinion leaders' blogs have attracted the attention of many fans. Such opinion leaders should be located and the project can provide information to the opinion leaders and ask them to visit the project sites, so that these opinion leaders can write blogs on wetland issues, which can attract the public attention significantly. Senior experts on wetlands can be also invited to write blogs related to wetland issues.
- Any wetlands website for information sharing should be based upon on existing websites, and should include regularly updated data and survey results on wetlands. In addition, some interviewed respondents said that if the website can disclose the cases of damage to wetlands, so that the public can report and monitor such cases, this can also enhance public interest in wetland issues.
- For volunteer and public information dissemination activities, the project should work with Jiangxi-based environment NGOs (such as Love Bird Association, and Environment Protection Association of Jiangxi Norman University), which have experience in information dissemination to local communities
- Since Poyang Lake is a famous tourism area in Jiangxi, it is important to disseminate information on the scenic spots and to educate tourists. Posters, advertisements, and exhibitions with photos of wetlands and birds can be developed and displayed at scenic spots. Information on wetlands conservation can also be put on entrance tickets and brochures. Public advertisements and posters in the airport, train stations, and bus stations are also effective communication channels to reach the public.
- The project can develop standard information materials such as films, videos, posters, brochures, and books so that the partner institutions, local governments, etc. can disseminate these materials through their own channels.

Communications Strategy - Channels and Messages by Group (based on survey results, interviews with key informants, and the consultant expertise and experiences in related areas or projects)

- Officials: Training and study tours and high level meetings are effective approaches to mainstreaming wetlands conservation into the government system. For example, policemen from the county-level Industry and Commerce Bureau want to know how to differentiate wild birds from human-raised birds so that they can enforce laws against selling of wild birds. In addition, experiences and best practices from previous projects (e.g. the EU-China Biodiversity project), such as how to implement demonstration projects and how to do communication and information campaigns, should be summarized and shared with officials at various institutions. The project should also study the options for including wetland conservation in the performance appraisal criteria for official performance.
- Private Enterprises: Training programs should focus on policies and regulations related to wetland conservation, the potential impacts of enterprise operation on wetland conservation, the relationships between wetland conservation and enterprise development, and the approaches that the enterprise can adopt to conserve the wetland. For larger enterprises, the project can contact their corporate social responsibility (CSR) department to include clauses related to wetland conservation in their CSR requirements and activities, or to ask for donations from their CSR fund for project activities. The project can provide training to tourism related companies, educating them on wetlands conservation practices so that they can introduce this knowledge to their clients. For enterprises that make direct use of wetlands, such as aquaculture and raising ducks, information should be shared on "green" production practices, and on how to promote their "green" products.

- NGOs: For environment focused NGOs, the project can make use of their technical expertise and advanced experiences in wetland conservation. The project can invite these NGOs to provide technical support and to be partners in outreach and education.
- Media: Many members of the media lack understanding and information on wetland issues, which is a barrier for them to report news on wetland related issues. Therefore, training materials should be developed and training workshops should be delivered to journalists on knowledge related to wetlands and on how to report wetland-related issues. The project can organize special tours and invite journalists to visit the project sites and write news and information on wetland issues.
- Students: The project can organize volunteer activities with student associations for activities related to wetland conservation. For students in primary, secondary, and high schools, the project can support schools in developing their curriculum related to wetland conservation, and in creating competitions for student artwork on wetlands, which can then be used for posters, brochures, or calendars.
- Urban residents: They can be reached through general information dissemination activities, such as meetings, posters, brochures, exhibitions in communities, and the mass media (e.g. TV and internet).
- Rural residents: Many rural communities near wetlands depend on the wetlands for their livelihoods, and some conservation activities have had negative effects on their livelihoods and thereby reduced support for wetlands conservation. Therefore, the most important thing is to help rural residents to develop production activities that will not damage wetlands (and to see that "green" production can generate higher market prices); to generate new income producing activities (e.g. eco-tourism) that support and even depend on healthy wetlands; and to understand the numerous ecosystem services provided by wetlands that create socio-economic benefits (tourism; flood prevention and mitigation; fisheries; etc.). Rural residents also need education on how various activities can negatively impact such services and benefits, for example road building in wetlands areas, or the over application of chemicals, fertilizers, and pesticides. Simple and easily understood materials such as posters, calendars, and brochures should be used in rural communities; in addition, local operas and plays can be used to disseminate information. For criminals who hunt protected wild birds, if they can be punished severely and the cases can be disseminated to the local communities, this will raise awareness among local communities.

Score of Knowledge, Attitudes, and Practices – Jiangxi Province

To measure the overall respondent knowledge, attitude, and practices on wetland conservation, the key questions were selected from the questionnaires and the answers to these questions were graded for scores. The results of the scores are presented in the following tables.

As for the knowledge, the NGO group got the highest score and the enterprise group got the lowest score, and the overall score across all groups is 56 of 112, which is 50% of the full score (Table 65). As for the attitude, the media group got the highest score and the rural resident group got the lowest score, and the overall score across all groups is 42.5 of 58, which is 73% of the full score (Table 66). As for the practices, the official group got 63% of the full score and the student group got 33% of the full score, and the overall score across all groups is 69.6 of 144, which is 48% of the full score (Table 67).

Table 65 Scores on knowledge

	Full scores	Scores attained	% of full scores
Officials	16	8.4	53
Enterprise	16	6.1	38
NGO	16	9.3	58
Media	16	8.8	55
Student	16	6.9	43
Rural	16	8	50
Urban	16	8.5	53
Sub-total	**112**	**56**	**50**

Table 66 Scores on attitude

	Full scores	Scores attained	% of full scores
Officials	8	6.9	86
Enterprise	8	5.1	64
NGO	8	6.0	75
Media	8	7	88
Student	8	6.1	76
Rural	9	5.3	59
Urban	9	6.1	68
Sub-total	**58**	**42.5**	**73**

Table 67 Scores on practices

	Full scores	Scores attained	% of full scores
Officials	25	15.7	63
Enterprise	21	8.4	40
NGO	12	6.9	58
Media	22	13.5	61
Student	16	5.3	33
Rural	24	10.9	45
Urban	24	8.9	37
Sub-total	**144**	**69.6**	**48**

As for the overall score of KAP, the media group got 64% of the full score and the enterprise group got 44% of the full score, and the overall score across all groups is 168.1 of 314, which is 54% of the full score (Table 68).

Table 68 Overall Scores of KAP

	Full scores	Scores attained	% of full scores
Officials	49	31.0	63
Enterprise	45	19.6	44
NGO	36	22.2	62
Media	46	29.3	64
Student	40	18.3	46
Rural	49	24.2	49
Urban	49	23.5	48
Sub-total	314	168.1	54

PART III – KAP Survey Questionnaire

Knowledge, Attitude and Practice Survey about Wetland
Government Official Questionnaire

Survey Place: Province County (Municipality) Town
Questionnaire No.: Time: Investigator:

Dear Friend:

Welcome to the wetland survey organized by China Agricultural University. This survey aims to collect public opinions about wetland. There are no right or wrong answers for the following questions, and we will keep all your answers confidential.

China Agricultural University

(Notes: All questions are single choice questions except for questions with clear indication of multiple choices question)

- **Knowledge about Wetland**

- How do you rate your knowledge about definition, function, and conservation of wetland?
(1) Know quite well [ ] (2) Know well [ ] (3) Know some [ ]
(4) Know a little [ ] (5) Don't know [ ]

- How do you rate your knowledge about definition, function, and conservation of biodiversity?
(1) Know quite well [ ] (2) Know well [ ] (3) Know some [ ]
(4) Know a little [ ] (5) Don't know [ ]

- Do you think Hainan has serious problems in wetland conservation?
(1) Very serious [ ] (2) Serious [ ] (3) not quite serious [ ]
(4) Not serious [ ] (5) I don't know [ ]

4) Do you know the policies and programs to conserve wetland in Hainan?
(1) Know quite well [ ] (2) Know well [ ] (3) Know some [ ]
(4) Know a little [ ] (5) Don't know [ ]

- Which policies or measures are effective in wetland conservation perceived by you?
(open-ended questions)

- Do you think which of the following are considered as wetland **(multiple choices)**?
(1) marsh [ ] (2) river and lakes [ ] (3) reservoir [ ]
(4) paddy field [ ] (5) shallow sea [ ] (6) mangrove forest [ ]
(7) Rain forest [ ] (6) I don't know [ ]

- Do you think that the mangrove forestry have benefits for human beings?
(1) Don't know (2) No, it does not (3) Yes, it has

- If you answered "yes" for the above question, what are the benefits derived from mangrove forest: **(multiple choices)**

(1) providing habitant for wild animals, especially the wild birds [ ] (2) enhance the resistance to the winds and waves from the sea [ ]
(3) Purify the sea and the air [ ]
(4) Enhance the banks and dams along the sea [ ]
(5) Reduce the sedimentation from the inland to the sea [ ]
(6) Development of leisure activities and eco-tourism
(7) Use for industry and medicine [ ]
(8) Development of aquaculture
(9) Provide food to human beings and animals (such as fishes and shrimps)
(10) Others (Please indicate):

From the above benefits (if selected more than 2), please pick up the most important three perceived by you:
1. ____ 2.____ 3.

- What are the main factors you think endanger wetland? **(Multiple choices)**

(1) Unreasonable exploitation of wetland [ ]
(2) Intrusion of foreign species [ ]
(3) Lack of effective wetland conservation [ ]
(4) Climate change [ ]
(5) Incomprehensive policies, laws, regulations, or programs
(6) Lack of sufficient enforcement and supervision
(7) Lack of coordination and cooperation among different departments and sectors
(8) Natural causes [ ]
(9) Others, please specify:
(10) I don't know [ ]

From the above benefits (if selected more than 2), please pick up the most important three perceived by you:
1. ____ 2.____ 3.

- **Attitude about Wetland**

10）How do you think about the relationship between the wetland and your social and economic welfare?
(1) closely related [ ] (2) somehow related, but not closely [ ]
- not related [ ] (4) I don't know [ ]

- How do you feel about the public awareness on wetland conservation in Hainan?
  - High [ ] (2) So-so [ ] (3) Low [ ] (4) I don't know [ ]

12) Do you think whether the farmers near the wetland should drainage the water from the wetland, so as to increase the arable land, plant rice, and increase income?
(1) Should (2) Should not (3) Don't know
(4) It depends, please specify:

13) Do you think whether the government should support the above activities?
(1) Should (2) Should not (3) Don't know
(4) It depends, please specify:

o How do you feel about the Hainan government efforts to protect the wetland
(1) Very good (2) Good (3) So-so (4) Not good (5) Don't know

- Protection areas can provide many functions as follows, please **rank** the importance of them

(1) Protect habitat of rare species of plants and animals (such as precious wild birds) [ ]
(2) Provide important eco-system services (such as purify the sea) [ ]
(3) Provide opportunities for eco-tourism [ ]
(4) Preserve gene pool [ ]
(5) Don't know

Please rank your choices if you chose more than 2
1. ____ 2.____ 3.____4.

- How do you think about the relationship between protecting wetland and economic development?
  - Protecting wetland is preferential, economic development could slow down. [ ]
  - Economic development is preferential, protecting wetland could be considered later. [ ]

- If there is an enterprise which have provided good economic benefits to local people and local government, but it is severely harmful to local natural wetland. What should be done perceived by you?

(1) Close this enterprise [ ] (2) Do not close this enterprise. [ ]

- Do you think your institution should enhance its role in wetland conservation?

(1) Yes, should very much (2) Should (3) No, since it is not our responsibilities.
If yes, in which way:

- Who do you think is mainly responsible for protecting wetland? (multiple choices)

(1) Public [ ] (2) Government [ ] (3) Private sectors [ ] (4)NGOs [ ]

- What do you think Hainan should do in enhancing wetland conservation?

- Improving the laws and regulations . [ ]
- Enhance the law enforcement and supervision. [ ]
- Enhance the cooperation of line agencies. [ ]
- Reduce the damage of economic activities on the wetland (such as aquaculture) . [ ]
- Enhance the international cooperation and exchange. [ ]
- Enhance the public awareness and training. [ ]
- Enhance the research and studies on wetland conservation . [ ]
- Enhance the public participation . [ ]
- Build up more natural reserves [ ]
- Speed up the economic development [ ]
- Others: (Please indicate)

Pick up the most important three if your choices are more than 2:
1. ____ 2.____ 3.

- **Practices on wetland conservation**

21) Do you want to contribute some money for protecting wetland?

- Yes, I do. [ ] (2) No, I do not. [ ] (3) Don't know

22) Do you want to contribute some time for protecting wetland?
(1)Yes, I do very much. [ ] (2) Yes, I do. [ ]
(3) Not really. [ ] (4) No, I do not. [ ]

23) Which wetland conservation activities below have you taken part in? **(Multiple choices)**

(1) Develop policies and regulations [ ]
(2) Research and investigation [ ]
(3) Observe and track the birds [ ]
(4) Information dissemination [ ]
(5) Provide technical support [ ]
(6) Provide funding [ ]
(7) Lobby and advocacy
(8) Monitoring, law enforcement [ ]
(9) Others: (Please indicate)
(10) Never

- How often did your institute disseminate information on wetland conservation?
  - Quite often[ ]
  - Some time [ ]
  - Seldom [ ]
  - Never [ ]

If yes, in which way:

- Does your department evaluate the impact on wetland in the planning of big programs?

(1) Yes, we often do that. [ ] (2) Sometimes [ ] (3) Seldom [ ] (4) Never [ ]
(5) Don't know [ ]

- In case of negative impacts, has your department taken countermeasures to alleviate the negative impacts on wetland conservation?

(1) Yes, we often do that. [ ] (2) Sometimes [ ] (3) Seldom [ ] (4) Never
(5) Don't know [ ]

27) Did your institute include wetland conservation into policies and programs?
(1) Yes, we often do that. [ ] (2) Sometimes [ ] (3) Seldom [ ] (4) Never
(5) Don't know [ ]

28) Were the issues, measures, and strategies related to wetland conservation shared among your institution and others?
(1) Yes, we often do that. [ ] (2) Sometimes [ ] (3) Seldom [ ] (4) Never
(5) Don't know [ ]

29) Perceived by you, which of the following activities in mangrove will damage the mangrove? Do you support to reduce or even stop such activities? If yes, please tick "√". (multiple choices

Human activities in mangrove	**Will damage the mangrove?**	**Support to reduce or stop?**
(1) Discharge the industry waste water and urban waste water and trash		
(2) Discharge the wastes from agriculture and livestock		
(3) Develop aquaculture		
(4) Development livestock (raising ducks)		
(5)Fishing		
(6)Hunting wild birds		
(7)Cut mangrove forest		
(8) Harbor of boats and ships		
(9)Develop tourism		

- **Media and Information**

- How often do you receive training program or information about wetland in recent years?

(1) Often [ ] (2) Sometimes [ ] (3) Seldom [ ] (4) Never [ ]

- Do you want to learn more knowledge about wetland conservation?

(1) Yes, I do very much. [ ] (2) Yes, I do [ ] (3) No, I do not. [ ]

- Which information do you want about wetland if any? (multiple choices)
    - Laws, regulations, and policies related to wetland conservation [ ]
    - Ecologic and economic functions of wetland and the meaning to human being [ ]
    - Status, data, and research of wetland conservation in China [ ]
    - Good international and national practices on wetland conservation [ ]
    - Opportunities to participate in wetland conservation [ ]
    - How to protect wetland from daily human life [ ]
    - How to harmonize the wetland conservation and economic development[ ]
    - Others, please specify:

- If interested, where do you prefer to get the information on wetland? (Multiple choices)

(1) Television [ ] (2) Radio [ ]
(3) Internet [ ] (4) Newspapers & magazines [ ]
(5) Institutional activities [ ] (6) Public awareness programs [ ]
(7) Training courses [ ] (8) Volunteer activities [ ]
(9) Policies and laws [ ] (10) Meetings [ ]
(11) Others: (Please indicate)

34) What additional information you need on wetland conservation? What suggestions do you have to enhance the public awareness on wetland conservation?

- **Basic Family Information**

(1) Sex:
(1) Male [ ] (2) Female [ ]

(2) Age:
(1) 18-29 [ ] (2) 30-39 [ ] (3) 40-49 [ ] (4) 50-59 [ ] (5) more than 60 [ ]

(3) Your department: Your post:

PART III - List of Institutions and Communities Surveyed or Interviewed

Official Group
Poyang Lake Natural Reserve Management Bureau
Department of Science and Technology, Jiangxi
Department of Forestry of Jiangxi
Department of Finance of Jiangxi
Bureau of Forestry of Yongqiu County, Jiangxi
Bureau of Industry and Commerce, Yongqiu County, Jiangxi
Sanjiao Township Government, Yongxiu County, Jiangxi

Enterprise Group
Forestry Industry Company of Yongxiu County, Jiangxi
Chen's Livestock Company, Yongxiu County, Jiangxi
Wucheng Transportation Company, Yongxiu County, Jiangxi

NGO
Environment Protection Association
Association of Mountain, River, and Lake Sustainable Development
Love Bird Association

Media
Central China TV, Jiangxi Station
Jiangxi Daily

University
Jiangxi Norman University
Jiangxi Science and Technology College
Jiangxi Finance and Economy College
Nanchang Aviation College, Jiangxi

Urban Community
Wucheng Town Community, Yongxiu County, Jiangxi

Rural Community
Tongxing Village, Wucheng Township, Yongxiu County, Jiangxi
Dingshan Village, Wucheng Township, Yongxiu County, Jiangxi

Annex 12: UNDP Capacity Development Scorecard

Overview of Scoring Process and Participants: The Capacity Scorecard was completed by a range of relevant institutional actors, each of which is a key player in the management of wetland ecosystems in Jiangxi Province: 1) the Poyang Lake National Nature Reserve; 2) the Nanji National Nature Reserve; 3) the Duchang Provincial Nature Reserve; 4) the Jiangxi Provincial Department of Agriculture; 5) the Jiangxi Wildlife Protection Administration (JWPA); and 6) the Jiangxi Forestry Department Wetland Protection and Management Office (JFDWPMO). Each of these institutions completed the scorecard based on analysis of the entire provincial institutional capacity for management of wetlands and wetland reserves, and their scores were consolidated in the tables below.

Table 1: Project Baseline Scores

Strategic Areas of Support	Systemic			Institutional			Individual			Average %
	Project Scores	Total Possible	%	Project Scores	Total Possible	%	Project Scores	Total Possible	%	
(1) Capacity to conceptualize and develop sectoral and cross-sectoral policy and regulatory frameworks	4	6	66%	2	3	66%	NA	NA	NA	66%
(2) Capacity to formulate, operationalize and implement sectoral and cross-sectoral programmes and projects	6	9	66%	19	27	70%	8	12	66%	69%
(3) Capacity to mobilize and manage partnerships, including with the civil society and the private sector	4	6	66%	4	6	66%	2	3	66%	66%
(4) Technical skills related specifically to the requirements of the SPs and associated Conventions	2	3	66%	2	3	66%	3	3	100%	78%
(5) Capacity to monitor, evaluate and report at the sector and project levels	4	6	66%	4	6	66%	2	3	66%	66%
Total Score and Average for %s	**20**	**30**	**66%**	**31**	**45**	**69%**	**15**	**21**	**71%**	**69%**

Table 2: Project Target Scores

Strategic Areas of Support	Systemic			Institutional			Individual			Average %
	Target Scores	Total Possible	%	Target Scores	Total Possible	%	Target Scores	Total Possible	%	
(1) Capacity to conceptualize and develop sectoral and cross-sectoral policy and regulatory frameworks	4	6	66%	2	3	66%	NA	NA	NA	66%
(2) Capacity to formulate, operationalize and implement sectoral and cross-sectoral programmes and projects	7	9	78%	19	27	70%	10	12	83%	75%
(3) Capacity to mobilize and manage partnerships, including with the civil society and the private sector	6	6	100%	4	6	66%	2	3	66%	80%
(4) Technical skills related specifically to the requirements of the SPs and associated Conventions	2	3	66%	2	3	66%	3	3	100%	78%
(5) Capacity to monitor, evaluate and report at the sector and project levels	4	6	66%	5	6	83%	2	3	66%	73%
Total Score and Average for %s	**23**	**30**	**77%**	**32**	**45**	**71%**	**17**	**21**	**81%**	**75%**

Table 3: Capacity Development Scorecard

Strategic Area of Support	Capacity Level	Issue	Outcome Indicators	Score			Evaluative Comments
					Bsl[18]	Tgt[19]	
1. Capacity to conceptualize and formulate policies, legislations, strategies and programmes	Systemic	1. The protected area agenda is being effectively championed / driven forward	There is essentially no protected area agenda;	0	**2**	**2**	In Jiangxi, many stakeholders pay attention to migratory birds and wetland protection, including leaders of the provincial party committee, the provincial government, the provincial people's congress, the provincial people's political consultative conference, news media, Society of Bird Lovers, WWF, ICF, etc.
			There are some persons or institutions actively pursuing a protected area agenda but they have little effect or influence;	1			
			There are a number of protected area champions that drive the protected area agenda, but more is needed;	2			
			There are an adequate number of able "champions" and "leaders" effectively driving forwards a protected area agenda	3			
	Systemic	2. There is a strong and clear legal mandate for the establishment	There is no legal framework for protected areas;	0	**2**	**2**	In China, there are ordinances on nature reserves and wild animal protection, but there in no special law
			There is a partial legal framework for protected areas but it has many inadequacies;	1			
			There is a reasonable legal framework for protected areas but it has a few weaknesses and gaps;	2			

[18] Baseline score at start of project
[19] Target score for end of project

Strategic Area of Support	Capacity Level	Issue	Outcome Indicators	Score			Evaluative Comments
					Bsl[18]	Tgt[19]	
		and management of protected areas	There is a strong and clear legal mandate for the establishment and management of protected areas	3			or ordinance on wetland protection. Instead, the provinces make their own wetland protection regulations, which makes wetland protection measures such as wetland ecological compensation lacking in legal support and thus difficult to implement
	Institutional	3. There is an institution or institutions responsible for protected areas able to strategize and plan.	Protected area institutions have no plans or strategies;	0	**2**	2	
			Protected area institutions do have strategies and plans, but these are old and no longer up to date or were prepared in a totally top-down fashion;	1			
			Protected area institutions have some sort of mechanism to update their strategies and plans, but this is irregular or is done in a largely top-down fashion without proper consultation;	2			
			Protected area institutions have relevant, participatorially prepared, regularly updated strategies and plans	3			
2. Capacity to implement policies, legislation, strategies and programmes	Systemic	4. There are adequate skills for protected area planning and management	There is a general lack of planning and management skills;	0	**2**	**2**	
			Some skills exist but in largely insufficient quantities to guarantee effective planning and management;	1			
			Necessary skills for effective protected area management and planning do exist but are stretched and not easily available;	2			
			Adequate quantities of the full range of skills necessary for effective protected area planning and management are easily available	3			
	Systemic	5. There are protected area systems	No or very few protected area exist and they cover only a small portion of the habitats and ecosystems;	0	**2**	**3**	
			Protected area system is patchy both in number and geographical coverage and has many gaps in terms of representativeness;	1			
			Protected area system is covering a reasonably representative sample of the major habitats and ecosystems, but still presents some gaps and not all elements are of viable size;	2			

Strategic Area of Support	Capacity Level	Issue	Outcome Indicators	Score			Evaluative Comments
					Bsl[18]	Tgt[19]	
			The protected areas includes viable representative examples of all the major habitats and ecosystems of appropriate geographical scale	3			
	Systemic	6. There is a fully transparent oversight authority (there are fully transparent oversight authorities) for the protected areas institutions	There is no oversight at all of protected area institutions;	0	**2**	**2**	
			There is some oversight, but only indirectly and in a non-transparent manner;	1			
			There is a reasonable oversight mechanism in place providing for regular review but lacks in transparency (e.g. is not independent, or is internalized);	2			
			There is a fully transparent oversight authority for the protected areas institutions	3			
	Institutional	7. Protected area institutions are effectively led	Protected area institutions have a total lack of leadership;	0	**2**	**2**	Apart from the national nature reserves and one provincial nature reserve (Duchang), the remaining provincial and county nature reserves have no special organizations, staff or funds.
			Protected area institutions exist but leadership is weak and provides little guidance;	1			
			Some protected area institutions have reasonably strong leadership but there is still need for improvement;	2			
			Protected area institutions are effectively led	3			
	Institutional	8. Protected areas have regularly updated, participatorially prepared, comprehensive management plans	Protected areas have no management plans;	0	**2**	**2**	
			Some protected areas have up-to-date management plans but they are typically not comprehensive and were not participatorially prepared;	1			
			Most Protected Areas have management plans though some are old, not participatorially prepared or are less than comprehensive;	2			
			Every protected area has a regularly updated, participatorially prepared, comprehensive management plan	3			
	Institutional	9. Human resources are well qualified and motivated	Human resources are poorly qualified and unmotivated;	0	**2**	**2**	Motivation is a key problem; the nature reserves need highly qualified staff to be effective, but because
			Human resources qualification is spotty, with some well qualified, but many only poorly and in general unmotivated;	1			
			HR in general reasonably qualified, but many lack in motivation, or those that are motivated are not sufficiently qualified;	2			

Strategic Area of Support	Capacity Level	Issue	Outcome Indicators	Score			Evaluative Comments
					Bsl[18]	Tgt[19]	
			Human resources are well qualified and motivated.	3			of difficult conditions and low salaries, few highly qualified persons are willing to work in the reserves.
	Institutional	10. Management plans are implemented in a timely manner effectively achieving their objectives	There is very little implementation of management plans;	0	**2**	**2**	
			Management plans are poorly implemented and their objectives are rarely met;	1			
			Management plans are usually implemented in a timely manner, though delays typically occur and some objectives are not met;	2			
			Management plans are implemented in a timely manner effectively achieving their objectives	3			
	Institutional	11. Protected area institutions are able to adequately mobilize sufficient quantity of funding, human and material resources to effectively implement their mandate	Protected area institutions typically are severely underfunded and have no capacity to mobilize sufficient resources;	0	**2**	**2**	
			Protected area institutions have some funding and are able to mobilize some human and material resources but not enough to effectively implement their mandate;	1			
			Protected area institutions have reasonable capacity to mobilize funding or other resources but not always in sufficient quantities for fully effective implementation of their mandate;	2			
			Protected area institutions are able to adequately mobilize sufficient quantity of funding, human and material resources to effectively implement their mandate	3			
	Institutional	12. Protected area institutions are effectively managed, efficiently deploying their human, financial and other resources to the best effect	While the protected area institution exists it has no management;	0	**2**	**2**	
			Institutional management is largely ineffective and does not deploy efficiently the resources at its disposal;	1			
			The institution(s) is (are) reasonably managed, but not always in a fully effective manner and at times does not deploy its resources in the most efficient way;	2			
			The protected area institution is effectively managed, efficiently deploying its human, financial and other resources to the best effect	3			
	Institutional	13. Protected area institutions	Protected area institutions totally untransparent, not being held accountable and not audited;	0	**3**	**3**	

Strategic Area of Support	Capacity Level	Issue	Outcome Indicators	Score			Evaluative Comments
					Bsl[18]	Tgt[19]	
		are highly transparent, fully audited, and publicly accountable	Protected area institutions are not transparent but are occasionally audited without being held publicly accountable;	1			
			Protected area institutions are regularly audited and there is a fair degree of public accountability but the system is not fully transparent;	2			
			The Protected area institutions are highly transparent, fully audited, and publicly accountable	3			
	Institutional	14. There are legally designated protected area institutions with the authority to carry out their mandate	There is no lead institution or agency with a clear mandate or responsibility for protected areas;	0	**2**	**2**	The Jiangxi Wildlife Protection Administration (JWPA) is in charge of nature reserves and wildlife protection management work in the Province. The Jiangxi Forestry Department Wetland Protection and Management Office (JFDWPMO) is in charge of wetland protection management work in the Province. The Poyang Lake National Nature Reserve is a wetland nature reserve. There are some overlaps in responsibilities among these three institutions.
			There are one or more institutions or agencies dealing with protected areas but roles and responsibilities are unclear and there are gaps and overlaps in the arrangements;	1			
			There are one or more institutions or agencies dealing with protected areas, the responsibilities of each are fairly clearly defined, but there are still some gaps and overlaps;	2			
			Protected Area institutions have clear legal and institutional mandates and the necessary authority to carry this out	3			
	Institutional	15. Protected areas are effectively protected	No enforcement of regulations is taking place;	0	**2**	**2**	
			Some enforcement of regulations but largely ineffective and external threats remain active;	1			
			Protected area regulations are regularly enforced but are not fully effective and external threats are reduced but not eliminated;	2			
			Protected Area regulations are highly effectively enforced and all external threats are negated	3			
	Individual	16. Individuals	No career tracks are developed and no training opportunities are provided;	0	**2**	**3**	

Strategic Area of Support	Capacity Level	Issue	Outcome Indicators	Score			Evaluative Comments
					Bsl[18]	Tgt[19]	
		are able to advance and develop professionally	Career tracks are weak and training possibilities are few and not managed transparently;	1			
			Clear career tracks developed and training available; HR management however has inadequate performance measurement system;	2			
			Individuals are able to advance and develop professionally	3			
	Individual	17. Individuals are appropriately skilled for their jobs	Skills of individuals do not match job requirements;	0	**2**	**2**	
			Individuals have some or poor skills for their jobs;	1			
			Individuals are reasonably skilled but could further improve for optimum match with job requirement;	2			
			Individuals are appropriately skilled for their jobs	3			
	Individual	18. Individuals are highly motivated	No motivation at all;	0	**2**	**3**	
			Motivation uneven, some are but most are not;	1			
			Many individuals are motivated but not all;	2			
			Individuals are highly motivated	3			
	Individual	19. There are appropriate systems of training, mentoring, and learning in place to maintain a continuous flow of new staff	No mechanisms exist;	0	**2**	**2**	
			Some mechanisms exist but unable to develop enough and unable to provide the full range of skills needed;	1			
			Mechanisms generally exist to develop skilled professionals, but either not enough of them or unable to cover the full range of skills required;	2			
			There are mechanisms for developing adequate numbers of the full range of highly skilled protected area professionals	3			
3. Capacity to engage and build consensus among all stakeholders	Systemic	20. Protected areas have the political commitment they require	There is no political will at all, or worse, the prevailing political will runs counter to the interests of protected areas;	0	**2**	**3**	
			Some political will exists, but is not strong enough to make a difference;	1			
			Reasonable political will exists, but is not always strong enough to fully support protected areas;	2			
			There are very high levels of political will to support protected areas	3			
	Systemic	21. Protected areas have the public support they require	The public has little interest in protected areas and there is no significant lobby for protected areas;	0	**2**	**3**	
			There is limited support for protected areas;	1			
			There is general public support for protected areas and there are various lobby groups such as environmental NGO's strongly pushing them;	2			

Strategic Area of Support	Capacity Level	Issue	Outcome Indicators	Score			Evaluative Comments
					Bsl[18]	Tgt[19]	
			There is tremendous public support in the country for protected areas	3			
	Institutional	22. Protected area institutions are mission oriented	Institutional mission not defined;	0	**2**	**2**	
			Institutional mission poorly defined and generally not known and internalized at all levels;	1			
			Institutional mission well defined and internalized but not fully embraced;	2			
			Institutional missions are fully internalized and embraced	3			
	Institutional	23. Protected area institutions can establish the partnerships needed to achieve their objectives	Protected area institutions operate in isolation;	0	**2**	**2**	
			Some partnerships in place but significant gaps and existing partnerships achieve little;	1			
			Many partnerships in place with a wide range of agencies, NGOs etc., but there are some gaps, partnerships are not always effective and do not always enable efficient achievement of objectives;	2			
			Protected area institutions establish effective partnerships with other agencies and institutions, including provincial and local governments, NGO's and the private sector to enable achievement of objectives in an efficient and effective manner	3			
	Individual	24. Individuals carry appropriate values, integrity and attitudes	Individuals carry negative attitude;	0	**2**	**2**	
			Some individuals have notion of appropriate attitudes and display integrity, but most don't;	1			
			Many individuals carry appropriate values and integrity, but not all;	2			
			Individuals carry appropriate values, integrity and attitudes	3			
4. Capacity to mobilize information and knowledge	Systemic	25. Protected area institutions have the information they need to develop and monitor strategies and action plans for the management of the protected area system	Information is virtually lacking;	0	**2**	**2**	
			Some information exists, but is of poor quality, is of limited usefulness, or is very difficult to access;	1			
			Much information is easily available and mostly of good quality, but there remain some gaps in quality, coverage and availability;	2			
			Protected area institutions have the information they need to develop and monitor strategies and action plans for the management of the protected area system	3			
	Institutional	26. Protected	Information is virtually lacking;	0	**2**	**2**	

Strategic Area of Support	Capacity Level	Issue	Outcome Indicators	Score			Evaluative Comments
					Bsl[18]	Tgt[19]	
		area institutions have the information needed to do their work	Some information exists, but is of poor quality and of limited usefulness and difficult to access;	1			
			Much information is readily available, mostly of good quality, but there remain some gaps both in quality and quantity;	2			
			Adequate quantities of high quality up to date information for protected area planning, management and monitoring is widely and easily available	3			
	Individual	27. Individuals working with protected areas work effectively together as a team	Individuals work in isolation and don't interact;	0	**3**	**3**	
			Individuals interact in limited way and sometimes in teams but this is rarely effective and functional;	1			
			Individuals interact regularly and form teams, but this is not always fully effective or functional;	2			
			Individuals interact effectively and form functional teams	3			
5. Capacity to monitor, evaluate, report and learn	Systemic	28. Protected area policy is continually reviewed and updated	There is no policy or it is old and not reviewed regularly;	0	**2**	**2**	
			Policy is only reviewed at irregular intervals;	1			
			Policy is reviewed regularly but not annually;	2			
			National protected areas policy is reviewed annually	3			
	Systemic	29. Society monitors the state of protected areas	There is no dialogue at all;	0	**2**	**2**	
			There is some dialogue going on, but not in the wider public and restricted to specialized circles;	1			
			There is a reasonably open public dialogue going on but certain issues remain taboo;	2			
			There is an open and transparent public dialogue about the state of the protected areas	3			
	Institutional	30. Institutions are highly adaptive, responding effectively and immediately to change	Institutions resist change;	0	**2**	**2**	
			Institutions do change but only very slowly;	1			
			Institutions tend to adapt in response to change but not always very effectively or with some delay;	2			
			Institutions are highly adaptive, responding effectively and immediately to change	3			
	Institutional	31. Institutions have effective internal mechanisms for monitoring,	There are no mechanisms for monitoring, evaluation, reporting or learning;	0	**2**	**3**	
			There are some mechanisms for monitoring, evaluation, reporting and learning but they are limited and weak;	1			
			Reasonable mechanisms for monitoring, evaluation, reporting and learning are in place but are not as strong or comprehensive as they could be;	2			

Strategic Area of Support	Capacity Level	Issue	Outcome Indicators	Score			Evaluative Comments
					Bsl[18]	Tgt[19]	
		evaluation, reporting and learning	Institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning	3			
	Individual	32. Individuals are adaptive and continue to learn	There is no measurement of performance or adaptive feedback;	0	**2**	**2**	
			Performance is irregularly and poorly measured and there is little use of feedback;	1			
			There is significant measurement of performance and some feedback but this is not as thorough or comprehensive as it might be;	2			
			Performance is effectively measured and adaptive feedback utilized	3			
	TOTAL SCORE			**96**	**66**	**72**	

Annex 13: Baseline Projects and Related Initiatives

Table 1: Potential Future Baseline Projects with which the FAO-GEF project may be able to cooperate

Project Title	Impl. Agency	Funding Agency	Budget (USD)	Time-frame	Project Objectives	Opportunities / Mechanisms for Coordination with GEF project
Potential Future Projects (it is expected that all of these "regular" projects of the wetland reserves will be funded during the period of the FAO-GEF project, but exact funding amounts and durations are not known at this time)						
3rd Phrase Construction Project of Poyang Lake National Nature Reserve	PLNNR	SFA	???	???	To promote the construction of the reserve, and the establishment and improvement of its rules and regulations, and to further improve its work on protection management, scientific monitoring and public education, etc.	This project can effectively improve the infrastructure of PLNNR and its capacity of protection, scientific research and public education, which will lay solid foundation for the GEF project and improve the implementation effect and quality.
Wetland Protection Subsidies	PLNNR, Nanji Reserve	SFA	???	???	To purchase and maintain the monitoring and supervising facilities in wetlands of international importance and wetland nature reserves, restore the degraded wetland and improve management capacity.	This project can effectively improve the infrastructure of PLNNR and Nanji Reserve and their capacity of protection, scientific research and public education, which will lay solid foundation for the GEF project and improve the implementation effect and quality.
Forestry National Nature Reserve Construction	PLNNR, Nanji Reserve	SFA	???	???	To monitor water level and the changing process of the key elements of wetland ecosystem such as water area, grassland caused by the change of water level, do research on the protection measures of ecosystem function and biodiversity in the lake area and support the maintenance of Poyang Lake ecosystem function and the diversity of species	This project can effectively improve the infrastructure of PLNNR and Nanji Reserve and their capacity of protection, scientific research and public education, which will lay solid foundation for the GEF project and improve the implementation effect and quality.
The State Forestry Administration (SFA) Demonstration Nature Reserve Capacity Building Project	PLNNR	SFA	???	???	With regard to aspects of management system, operation mechanism, policies, funds, projects, skills, personnel, to probe, summarize, refine and establish a set of operational and replicable nature reserve development system and pilot system which is practical at home and abroad, to strive to establish a nature reserve adopted to the international trend and with standard construction management, effective protection achievements and obviously advanced experience to guide and improve management capacity of other nature reserves in China.	This project can effectively improve the infrastructure of PLNNR and its capacity of protection, scientific research and public education, which will lay solid foundation for the GEF project and improve the implementation effect and quality.
The Wetland of International Importance	PLNNR	SFA	???	???	According to the criterion and requirement of the Ramsar Convention to carry out wetland monitoring and update data, to fulfil the obligations in the convention to provide basic	This project can collaborate with the monitoring work of the GEF project to get mutual promotion.

Project Title	Impl. Agency	Funding Agency	Budget (USD)	Time-frame	Project Objectives	Opportunities / Mechanisms for Coordination with GEF project
Monitoring and Data Updating Project					data and improve monitoring and management capacity of the wetland of international importance.	

Table 2: Completed Projects (including those ending in 2013) on which the FAO-GEF project can build and draw lessons learned

Project Title	Impl. Agency	Funding Agency	Budget (USD)	Time-frame	Project Objectives	Lessons Learned / Conditions Strengthened for GEF project
Siberian Crane Wetlands Project (SCWP)	ICF	GEF - UNEP	$10,350,000	2003-2009	Regional project to protect a network of globally important wetlands in Asia that are of critical importance for migratory water birds and other wetland biodiversity. The project used the globally threatened Siberian Crane (Grus leucogeranus) as a flagship species, linking activities at 16 key wetlands along the species' western and eastern flyways in Russia, Kazakhstan, Iran and China.	Details describing how the proposed project will build on the lessons learned from the Siberian Crane Wetlands Project are provided in section 2.6
China Nature Reserve Management Project	SFA	GEF - IBRD	17,900,000	1995 - 2002	Site-based project focused on five PAs across China, of which Poyang Nature Reserve was one. The project also worked on national level PA information management efforts. Activities in Poyang Lake included ecological / environmental and socio-economic baseline investigation, NR management plans, public education, community co-management, facilities for protection, scientific research, office work, transportation and telecommunication.	Details describing how the proposed project will build on the lessons learned from the China Nature Reserves Project are provided in section 2.6
Jiangxi Poyang Lake National Nature Reserve Wetland Protection Construction Project	PLNNR	The Provincial Development and Reform Committee	4,083,871	Ending in 2013	To establish new management stations (sites) and monitoring stations (sites), forming a complete and reasonable "three-level" management system of Administration – Station - Site; to carry out research on the effect of wetland ecological change on wintering migratory bird habitats; to improve the infrastructure and the facilities of PLNNR to promote the public education and arouse public awareness on protection.	This project has improved the infrastructure of PLNNR and its capacity for protection, scientific research and public education, which will lay a solid foundation for the GEF project and improve the implementation effect and quality.
The Second Poyang Lake Scientific Investigation	Office of the Mountain - River - Lake Development Committee of Jiangxi Province	Jiangxi Provincial Finance	1,612,903	Ending in 2013	To master the overall eco-environment and social economic conditions in Poyang Lake to provide scientific evidence for the ecological protection and economic development decision making in Poyang Lake.	The results of this project can be incorporated into the wetland nature reserve training project of GEF project as one of the methods to strengthen capacity building of wetland nature reserves, to promote scientifically based adaptive management ability.
Administration of NR Relocation and	???	SFA	12,023,400	1999-2003	NR's administration relocation, maintenance and updating of protection equipment, establishment of public education	Finished the office building and staff dormitory construction and three

Project Title	Impl. Agency	Funding Agency	Budget (USD)	Time-frame	Project Objectives	Lessons Learned / Conditions Strengthened for GEF project
the Continued Construction Project					facilities.	protection stations construction.
Identified Boundary markers and Protection and Management Ability Construction	PLNNR	MoEP, MoF[20]	700,000	2003	Setting up boundary markers, maintaining patrol line, buying management and protection equipment.	Identified reserve boundary markers and improved the ability of protection.
Poyang Lake Wetland Protection and Restoration	PLNNR	Provincial finance (BOF)	10,000,000	2007-2009	Solving the problem of basic old-age insurance and medical insurance of fishery staffs in the NR, long-time leasing three lakes for conservation.	Solving the problems left over by the relocation of fishery staffs, leasing three lakes and increasing habitat for waterbirds.
Studies of Ecological Relationships Among Waterbirds, Water Levels, and Aquatic Food Plant	ICF	ICF	$111,000	1999-2010	Periodic monitoring of waterbirds, aquatic plants and water levels and also collecting meteorological data.	Created ten-year monitoring data of waterbirds, aquatic plants and water levels in the four lakes and meteorological data of Poyang Lake, and have published a memoir "Ecological Study of Wetlands and waterbirds at Poyang Lake".
2nd phase construction of Poyang Lake National NR	PLNNR	SFA	8,720,000	2007 - 2013	Include protection and restoration project; scientific and educational project; infrastructure construction project.	The infrastructure of the reserve improved; protection and management facilities and equipment developed; migratory birds and wetland management ability, scientific and public education ability improved
Partnership for a Living Yangtze	WWF China Freshwater Program	HSBC	10,000,000 (funding level of 4th phase)	1999 - 2013	The program aimed to integrate wetland conservation with wise use of natural resources in many protected areas that are part of the Yangtze River Basin PA Network.	Lessons on effective wetland PA management practices and information / data on critical species such as the Finless Porpoise
Ecological compensation mechanism survey in Poyang Lake	WWF	WWF	48,800	2009	According to domestic wetland ecological compensation experience and through the actual survey in Poyang Lake, proposing practical advices and making survey report on Poyang Lake wetland ecological compensation.	The first draft of the survey report has been finished according to the survey and existing materials.
Survey of waterbirds habitat protection and community co-	WWF	WWF	47,400	2009	Accumulating experience for promoting effective management mode of Poyang Lake wetland through the exploration of lake leasing and co-management experience in two lakes (Xianghu and Changhuchi), which are inside the	The first draft of the survey report has been finished. Report's information to be incorporated into this GEF project's ecological health monitoring program

[20] Ministry of Environmental Protection (MoEP) and Ministry of Finance (MOF)

Project Title	Impl. Agency	Funding Agency	Budget (USD)	Time-frame	Project Objectives	Lessons Learned / Conditions Strengthened for GEF project
management mechanism in Poyang Lake National NR					reserve.	demonstration as part of the "science-based adaptive management" capacity building for wetland PA management work.
Poyang Lake National NR wetland conservation and capacity building project	PLNNR	Central government (40%) and provincial government (60%)	3,900,000	2010-2012	Build new management and monitoring stations (sites) to form a three-tiered management system; research on the impact of wetland ecological change on winter habitats for migratory birds; provide scientific evidence for the government on wetland conservation and sustainable use plan; improve reserve infrastructure; enhance the reserve public education and conservation awareness raising function for effective wetland conservation.	This infrastructure development and capacity strengthening is an important part of the baseline that has established the conditions needed for a systemic approach to wetland PA management in the province
PLW Legislation Need and Survey of Implementation and Revision of PLW Regulation Conservation Provincial Law	WWF	WWF	66,100	Beginning in 2009	Ascertaining the implementation situation of Poyang Lake Wetland Conservation Provincial Law and making preparation for its revise proposal.	Legal and policy analysis and revisions that support more effective wetlands conservation
CCICED Ecosystem Management Strategy Task Force	CCICED	EU-China Biodiversity Program	600,000	2009 – 2011	• Assess the economic and social benefits of sustainable ecosystems management based on an ecosystem service approach; • Identify better practices in ecosystem management from Chinese and international experiences; and • Recommend how to better integrate ecosystem services into development decision-making in China. • Focus on forests, grasslands and wetlands.	This project developed information on best global practices of ecosystem management, as well as integration of ecosystem services into development decision-making, including a case study of Poyang Lake, that the proposed GEF project can benefit from.
Construction Subproject on Poyang Lake Basin Wetland Geographic Information Management System	PLNNR	???	87,097	2004 - 2009	Database collected most migratory bird research data around Poyang Lake from 2005-2008. Project was implemented by the Jiangxi Provincial Wildlife Conservation Administration (a part of the Jiangxi Forest Department)	The proposed project should adopt an internet and Client/Server model to build an information and data management platform that can incorporate the data from this and other existing databases.
Poyang Lake International Cooperation Project	PLNNR	???	8,065	2004 - 2008	Database developed by the Poyang Lake National Nature Reserve	Same as above

Project Title	Impl. Agency	Funding Agency	Budget (USD)	Time-frame	Project Objectives	Lessons Learned / Conditions Strengthened for GEF project
Poyang Lake Nature Reserve Information Management System	PLNNR	???	Unavailable	2010	A simple database platform for monitoring and economic statistical data, including data from Poyang Lake International Cooperation Project. There is little GIS function in the system but it is useful to identify the location of migratory birds from the electronic map.	Same as above
Poyang Lake Data Collection System	PLNNR	???	Unavailable	2009	This is a bird investigation and information collection software platform through the internet, and for the work of field personnel doing bird monitoring. It provides a mobile method to collect data and the manager can learn the position of personnel in the field.	It is a good example for the proposed project because it is very easy to use and saves time for inputting investigation data
Earth integrated management information system	Nanji National Nature Reserve	???	Unavailable	2011 - 2012	Unavailable	Unknown