



PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

PART I: PROJECT INFORMATION

Project Title:	A new green line: mainstreaming biodiversity conservation objectives and practices into China's water resources management policy and planning practice.		
Country(ies):	China	GEF Project ID:	5665
GEF Agency(ies):	FAO	GEF Agency Project ID:	622963
Other Executing Partner(s):	Ministry of Water Resources	Submission Date:	January 24, 2014
GEF Focal Area (s):	Biodiversity	Project Duration (Months)	48
Name of parent program (if applicable):		Project Agency Fee (\$):	250,774

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK¹:

Focal Area Objectives	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
BD-2: Mainstream biodiversity conservation and sustainable use into production landscapes, seascapes and sectors.	GEFTF	2,639,726	25,975,000
Total Project Cost		2,639,726	25,975,000

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: To mainstream biodiversity conservation objectives, tools and practices into water resources management policy and planning practice in China.

Project Component	Grant Type ²	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Cofinancing (\$)
Component 1: Institutional and planning framework for mainstreaming biodiversity into water resources management at national and provincial levels.	TA	<p>1. Strengthened MoWR capacity to mainstream biodiversity conservation objectives and practices into key water management planning and policy tools.</p> <p>A significant and measurable increase (at least US\$20 million) in value of Government investment in aquatic biodiversity related water management practices.</p> <p>Biodiversity mainstreamed into at least 3 river water policies and regulatory frameworks.</p> <p>Biodiversity mainstreamed into at least 5 national and sub-national water resources management plans</p>	<p>1.1.1 Department of Planning under MoWR and related provincial level departments in Chongqing and Yunnan have the capacity for mainstreaming biodiversity conservation objectives and practices into water resources management planning and programming.</p> <p>1.1.2. New partnerships among government organizations, universities and NGOs to provide improved access to biodiversity information and expertise to water resource managers at the national, provincial and prefectural level.</p> <p>1.1.3. Biodiversity mainstreaming objectives and priorities incorporated into key water sector planning processes, including: River Basin Master Plans; National Comprehensive Water Resources Plan; Provincial</p>	GEFTF	424,000	4,500,000

¹ Refer to the reference attached on the Focal Area Results Framework and LDCF/SCCF Framework when completing Table A.

² TA includes capacity building, and research and development.

		<p>Increase in the number of water management programs and related budgets that include biodiversity conservation as an objective, resulting in improved habitat conditions and no decline in population for globally significant species such as: Largemouth Bronze Gudgeon (<i>Coreius guichenoti</i>) & Royal Clown Loach (<i>leptobotia elongate</i>).</p> <p>River ecosystem fragmentation and disturbance in pilot province reduced by at least 20% as measured by Green line scorecard.</p>	<p>Water Resources Protection Plan;</p> <p>1.1.4. Pilot GIS-based aquatic biodiversity database links species and ecosystem lists to rivers to enable robust biodiversity-oriented review of water development projects.</p> <p>1.1.5. Official "Green Line" scorecard for certification of advanced ecosystem based river water management.</p> <p>1.1.6. Dam safety guidelines expanded to include biodiversity conservation guidelines to influence both construction and operation of small dams (impact assessment, e-flow).</p>			
Component 2. Pilot mainstreaming into key water sector development programs at the provincial level in Chongqing and Yunnan Provinces.	TA	<p>2.1. Provincial water resource management authorities demonstrate biodiversity mainstreaming practices in key planning and management areas, resulting in:</p> <p>At least 2 new institutional mechanisms for partnering among government and civil society organizations to mainstream biodiversity into water resources management operational at provincial level.</p> <p>Biodiversity/ecosystem vitality objectives and targets mainstreamed into at least 3 water resource management plans in two provinces.</p>	<p>2.1.1. At least 60 Provincial Departments of Water Resources staff in Chongqing and Yunnan trained in the mainstreaming biodiversity conservation objectives and practices into water resources management planning and programming.</p> <p>2.1.2. Biodiversity objectives and priorities incorporated into key provincial level water sector planning processes, <i>i.e.</i> Provincial Water Resources Plan; Water Resources Protection Plan; Water Allocation Plan, and Water Function Zoning.</p> <p>2.1.3. Provincial level assessments and mapping conducted of critical river ecotopes³ necessary to sustain globally significant aquatic biodiversity in the province.</p>	GEFTF	890,000	9,000,000
	TA	<p>2.2. Pu'er Prefecture demonstrates local-level biodiversity mainstreaming into water resources management.</p> <p>Enhanced connectivity within target river systems in Pu'er Prefecture as measured by river km (300 km or 3,000 ha) of habitat not blocked to upstream migration by inadequate culvert, small</p>	<p>2.2.1. Pilot prefecture-level river health assessment including water infrastructure assessment (small dam, culvert) for impacts on biodiversity and ecosystem vitality.</p> <p>2.2.2. New, prefecture level institutional mechanism (working group) for improved biodiversity mainstreaming.</p> <p>2.2.3. Application of improved river health</p>	GEFTF	360,000	3,000,000

³ A particular habitat type within a larger geographic area.

		<p>reservoir and other water infrastructure design, resulting in improved habitat connectivity to sustain globally significant potamodromous fish species such as:</p> <p><i>Tor sinensis</i> 中國結魚 <i>Clupisoma sinense</i> 中華刀鮠</p> <p># of km of river with newly certified "Green Line" water management practices - (500 km or 5,000 ha).</p>	<p>assessment priorities piloted, including "Green Line" certification standards and small infrastructure improvements to enhance connectivity.</p>			
	TA	<p>2.3: MoWR adjusts environmental flow (e-flow) analysis to China conditions and mainstreams e-flow practices and approaches into the management and design review of 1 large and 2 small hydro and flood control dams.</p> <p>Improved adaptive e-flow analysis, criteria and practices demonstrated by 2-4 provincial, prefecture and county level reservoir managers.</p> <p>Number of river km (500 km or 5,000 ha) of improved E-Flow minimizes disturbance of key habitats for rare and endangered species; retains unique riparian plant and animal communities.</p> <p>Design of at least 1 new small-scale hydropower station amended to avoid and/or reduce biodiversity risks.</p>	<p>2.3.1. Compendium of biodiversity regulations, policies and practices for the water reservoir operations developed and integrated into the planning and operational review policies for small scale reservoirs.</p> <p>2.3.2. Operations of existing reservoirs (small scale hydro, flood control, etc.) modified and technologies implemented to ensure and monitor reduction of biodiversity risks.</p> <p>2.3.4. Improved e-flow review methodology piloted by MoWR/Yangtze River Commission for the Xiangjiaba Dam.</p>	GEFTF	370,000	4,000,000
Component 3. Monitoring, Knowledge management, Training, & Scaling up of Biodiversity Conservation Mainstreaming Practices.	TA	<p>3.1 MoWR and Provincial partners elaborate and adopt biodiversity monitoring, knowledge management and training program to institutionalize mainstreaming practices and facilitate scaling up.</p> <p>At least 400 water management professionals trained in biodiversity mainstreaming practices relevant to their area of expertise</p>	<p>3.1.1. Pilot aquatic biodiversity monitoring program in place in two pilot provinces using traditional and modern "environmental DNA" approaches.</p> <p>3.1.2. Biodiversity mainstreaming training program developed and implemented for MoWR, Provincial Water Departments and other partners.</p> <p>3.1.3. Aquatic biodiversity conservation targets (species number and condition; habitat condition; related amount of investment) established and monitored.</p> <p>3.1.4. Dissemination of lessons and sector-wide</p>	GEFTF	320,025	4,575,000

			replication activities. 3.1.5 Action plan for scaling up mainstreaming actions.			
4. Project progress monitoring and information dissemination	TA	4.1 Project implementation based on results based management and application of project findings and lessons learned in future operations facilitated	4.1.1 Project monitoring system operating providing systematic information on progress in meeting project outcome and output targets 4.1.2 Midterm and final evaluation conducted and project implementation and sustainability strategy adjusted to recommendations 4.1.3 project-related "best-practices" and "lessons-learned" published 4.1.4 website to share the experience and information dissemination.	GEFTF	150,000	200,000
Subtotal (Note: does not include PPG)					2,514,025	25,275,000
Project Management Cost (PMC)				GEFTF	125,701	700,000
Total Project Cost					2,639,726	25,975,000

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE & BY NAME IF AVAILABLE, (\$)

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
National Government	Ministry of Water Resources	Cash	19,300,000
Local Government	Yunnan Department of Water Resources	Cash	3,100,000
Local Government	Chongqing Department of Water Resources	Cash	3,000,000
GEF Agency	FAO	In-kind	75,000
CSO	The Nature Conservancy	In-kind	500,000
Total Co-financing			25,975,000

D. INDICATIVE TRUST FUND RESOURCES (\$) REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY¹

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (\$) (a)	Agency Fee (\$) (b) ¹	Total (\$) c=a+b
FAO	GEFTF	Biodiversity	China	2,639,726	250,774	2,890,500
Total Grant Resources				2,639,726	250,774	2,890,500

¹ Indicate fees related to this project.

E. PROJECT PREPARATION GRANT (PPG)

Please check on the appropriate box for PPG as needed for the project according to the GEF Project Grant:

	Amount Requested (\$)	Agency Fee for PPG (\$) ⁴
• No PPG required.	NA	NA
• (upto) \$50k for projects up to & including \$1 million		
• (upto)\$100k for projects up to & including \$3 million	100,000	9,500
• (upto)\$150k for projects up to & including \$6 million		

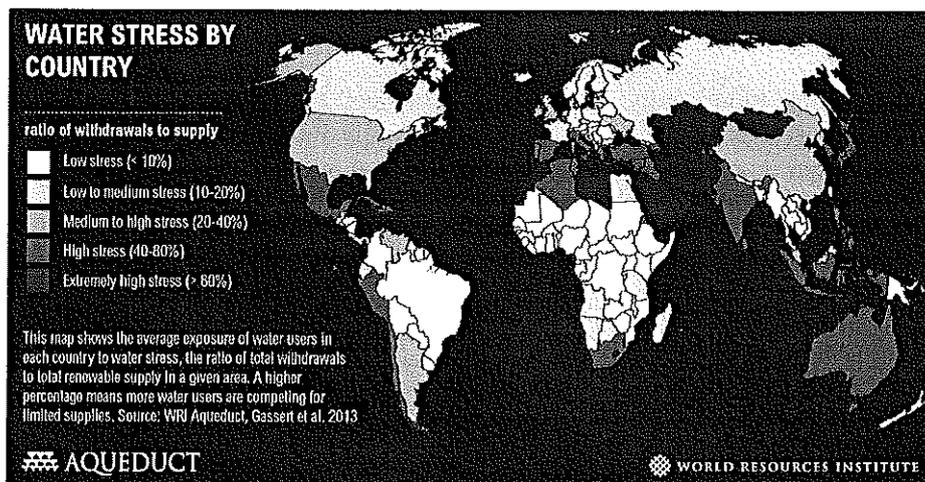
PART II: PROJECT JUSTIFICATION

⁴ PPG fee percentage follows the percentage of the GEF Project Grant amount requested.

PROJECT OVERVIEW

A.1. Project Description:

1. This project focuses on mainstreaming biodiversity conservation practices and objectives into water resources management in China. This project is designed to focus strategically on an area of river water management in China defined by the three primary objectives: power generation and flood control and water supply to meet food security and other human needs, which in turn generate and sustain two critical threats to aquatic biodiversity in China: flow modification and habitat degradation. The project will do this by working at the national level to mainstream biodiversity conservation into key water resources management plans and priorities and by piloting improved planning, review, and management practices at the provincial and county levels in Chongqing and Yunnan pilot provinces.
2. China has rich surface water resources that include over 20,000 rivers draining catchments of 100 km² or more. Of these, 228 have drainage basins exceeding 1000 km², but the Chang Jiang and rivers to the south of it carry 82% of the total runoff of Chinese rivers (Min of Water Resources and Power, 2012). However, in terms of fresh water resources available per capita China has 20% of the world's population but only around 7% of the world's freshwater resources, which results in challenges for efficient water use for human needs. China is one of the world's top 10 countries in terms of numbers of freshwater fish species, with ~ 1,000 species recorded. Southeastern China (Chongqing, Yunnan) encompasses some of the world's most important biodiversity hotspots and globally significant ecoregions and habitats. A recent study on China's freshwater fishes (Kang et al. 2012) identified a total of 613 species as endemic within China. Among them, 216 endemic species are found in Yunnan province. Approximately 58% of the species in Yunnan province are endemic to China, including species from genera such as: *Barbodes*, *Poropuntius*, *Glyptothorax*, *Anabarilius* and *Schistura*; 10 species of *Yunnanilus*; and 11 species of *Cyprinus*. Potamodromous migratory fish species in the Yunnan rivers include *Tor sinensis* and *Clupisoma sinense*. In addition to the nationally protected *Acipenser dabryanus* (Dabry's sturgeon) and *Acipenser sinensis*, endemic and endangered species in the Yangtze River include *Lipotes vexillifer* (Yangtze river dolphin), *Leptobotia elongate* and *Coreius guichenoti*, the latter of which is also a potamodromous migratory fish.
3. In the Upper Yangtze Region including Guizhou and Sichuan (and plausibly Chongqing), includes 303 species. A large number of species are located only in this region in the world, such as *Sinocrossocheilus guizhouensis*, *Cyprinidae*; *Anabarilius qionghaiensis*, *Cyprinidae*; *Homatula wujiangensis*, *Balitoridae*; *Beaufortia szechuanensis*, *Balitoridae*; and *Ctenogobius chengtuensis*, *Gobiidae*.
4. Context: In China, traditional water resources management has been infrastructure focused as in almost every country in the world, even countries with some of the most advanced environmental protection policies and programs. The initial and predominant response to most water management challenges has been "more infrastructure". Rivers have been considered an important resource for irrigated agriculture for food security, as well as water transportation and electricity generating corridors, rather than critical living ecosystems. Environmental concerns in water resources management has focused on water quality/pollution concerns. While this is much needed and important, water managers in China have focused upon meeting peoples' needs first and have not had the experience or the tools historically to consider the biodiversity of a river system (plants and animals and their communities), or to the ecological needs of that diversity of life. Yale University's 2012 Environmental Performance Index (EPI) ranks 132 countries on 22 performance indicators in ten policy categories and two overarching objectives that reflect facets of Environmental Health and Ecosystem Vitality. These indicators provide a gauge of how close countries are to environmental policy goals. Overall, the study highlights the potential for improvement in China and highlights the challenge facing water resources management in China in creating better ecological and biodiversity outcomes. Water management practice in China is in need of new planning and management tools and approaches to mainstream biodiversity into water resources management in order to improve environmental health and ecosystem vitality.
5. Threats to biodiversity: First climate change will imperil both freshwater species and human uses of fresh water, driving engineering responses that will further threaten the freshwater biota. Signs of global climate change impact on rivers are evident from runoff records and warmer water temperatures leading to shifts in geographic ranges or phenology of freshwater animals. CC has begun to affect rivers in SE China; Between 1960 and 2000, for example, mean annual temperatures rose at a rate of 0.01-0.04 C at 12 river stations in Yunnan Province (He & Zhang, 2005). Climate change promises to complicate and aggravate the problems of water stress already faced by China.



6. China currently faces medium to high levels of water stress⁵. This means that 20-40 percent of the water available is withdrawn for agricultural, domestic, and industrial use annually—leaving environment vulnerable to scarcity. In early 2012, Chinese government issued an initiative to develop a strict water resources management system (the three red-line policy described below under

the baseline section). It sets out the target for a “cap” of total water consumption, i.e., 635 billion m³ by 2015, 670 billion m³ by 2020, 700 billion m³ by 2030. Notably, this initiative allows for continuous increase in water use in next 15 years while seeking to improve dramatically water resources management. With the expansion of urbanization, China will build more reservoirs and water transfer projects to meet human needs for water.

7. *Flow modification through river regulation and control*⁶. The main threat to aquatic biodiversity of interest to this proposed project is flow modification through river regulation and control. River regulation has been practiced for centuries in China, but as demand grows for greener energy, more water storage and improved flood control across China, dozens of large dams and thousands of small dams have been built and many more inevitably will be built in years to come. In China’s Yunnan and Chongqing provinces there are 5,593 and 2,852 dams respectively that regulate river flow. With the proliferation of dams, the potential for ecological damage has increased.

8. While providing a major source of electricity, flow regulation from dams reduces flood season peaks in river water discharge, changing the magnitude and extent of flood inundations and land-water interactions, diminishing the health of aquatic ecosystems, and negatively affecting invertebrate and vertebrate life cycles. The loss or degradation of key natural flow regimes undermines a river’s inter-related ecological features and habitats: a) Lateral (river bed/flood plain) and longitudinal connectivity (upstream-downstream); b) Channel form, habitat complexity, and patch disturbance; c) life history patterns (spawning and recruitment). In addition, natural flow regimes discourage invasive species; the loss of those natural regimes provides openings to invasive species.

9. Fish populations are highly dependent upon the characteristics of their aquatic habitat, which supports all their biological functions. For many species, the key habitat is the length of the river itself and the un-hindered ability to move up and down stream. The migration or movement of potamodromous species, whose entire life cycle is completed within the inland waters of a river system, is a key ecological issue. Potamodromous fish require different environments for the main phases of their life cycle. Their breeding migrations may be disrupted because inappropriate dam construction and/or flow management blocks migration routes or alters natural flow regimes so that they fail to stimulate reproduction.

10. This contributes to the decline and even the extinction of species. Experience gained shows that problems associated with downstream migration can also be a major factor affecting fish stocks. Habitat loss or

⁵ World’s 36 Most Water-Stressed Countries, WRI, <http://www.wri.org/blog/world%E2%80%99s-36-most-water-stressed-countries>

⁶ In addition to this threat, there is a range of anthropogenic influences on river system biodiversity in China. Pollution is one widespread and well-known problem in China and one that government and water managers are focusing much effort on addressing (through an emphasis on zoning and the introduction of water management “red lines”). Overexploitation is another threat that primarily affects vertebrate diversity (e.g. fish) and has contributed to the near extinction of many high profile species in China. A third threat is the habitat degradation resulting from direct effects on the aquatic environment such as river sand mining, or indirect effects resulting from land degradation within a watershed or basin, resulting in increased suspended sediment loads and flooding. This is the target threat of the GEF supported Dongting Lake project, currently under the process of endorsement by the GEF CEO and a recently approved GEF PIF in China focused on the Chishui River.

alteration, discharge modifications, changes in water quality and temperature, increased predation pressure on young fish as well as delays in migration caused by dams are significant issues.

11. Dam operations that are insensitive to natural flows generate persistent and severe effects on the river's natural hydrologic regime, resulting in significant changes in flow velocity and water level variation, with devastating impacts on critical habitat parameters. Insensitive dam flow management often results in river water levels being lower than natural during high water times, which can prevent the development of fish gonads and alter fisher reproductive behavior. Hydrological regime changes also degrade the natural river conditions required by pelagic eggs before hatching, resulting in stunting and death of fish egg. The overall impacts of these habitat alterations are of course a reduction in fish populations with attendant impacts on biodiversity and equally important on human nutrition and food security. At the same time hydrological changes also affect the normal growth and succession of river floodplain vegetation, leading to the degradation of biological structure and the reduced critical biomass in river floodplain areas.

12. The impact of this flow modification on aquatic biodiversity in China has been significant albeit how significant is not yet known thoroughly due to a huge knowledge gap with respect to impacts on river systems and on riverine biodiversity itself. Some famous examples of endangered riverine biodiversity in China include, the Baiji river dolphin (*Lipotes vexillifer*), the Chinese paddlefish (*Psephurus gladius*), and the Chinese sturgeon (*Acipenser sinensis*)— all critically endangered and sliding towards extinction.

13. The Ministry of Water Resources water management program, plus the equivalent provincial level programs provide the primary elements of this proposed GEF project's "baseline program", that the GEF's incremental support will complement to support the strengthening of aquatic biodiversity conservation capacity in China.

14. **Baseline Scenario and Program.** China's Government attaches great importance to effective and sustainable water management as expressed in *No.1 Document on Accelerating Water Sector Reform and Development* (2011), which commits China to deep reforms in water management and to the expansion of water infrastructure development supported by the investment of hundreds of billions of RMB over the next 10 years. China's baseline water resources management program has been focused largely on infrastructure/engineering solutions to China's water problems. However ecological needs are gaining more attention under the current Chinese leadership. The size of China's ongoing investments in water resources makes this change even more imperative.

15. The Ministry of Water Resources (MoWR) is the lead Ministry responsible for implementing the policy priorities as expressed in the Number 1 Document. MoWR provides funding, guidance and strategic direction to the Provincial Departments of Water Resources. It does this through a set of key planning processes, including: the National Five-Year Plan (FYP) for the water sector, River Basin Master Plans⁷ for seven major river basins (Yangtze River, Yellow River, Huaihe River, Haihe River, Pearl River, Songliao River and Taihu Lake), the National Comprehensive Water Resources Plan, and the National Water Resources Protection Plan, the Water Allocation Plan and Water Function Zoning. See Annex 1 for an analysis of main elements and mainstreaming gaps in each one. Based upon the priorities expressed in these plans, the MoWR's Department of Planning and Programming leads the process of developing budgeted programmes to implement these plans. Funding for these programs is approved on an annual basis.

16. The State Council's *Decisions on Strict Water Resources Management* (2012), announced key water resource management priorities in the form of "Three Red Lines" that all water management must adhere to in China. These red lines are: 1) to limit total water use by strict demand management, 2) to achieve higher water use efficiency in industry and agriculture, and 3) to improve water quality by a cap on pollution loading within water functional zones. This document sets national targets for each of the Three Red Lines. Among those, 80% of water function zones shall meet standards by 2020, and 90% by 2030. Each province is required to set its targets according to the national requirements and prepare its action plan to meet those targets. These three red lines contribute to environmental conservation and protection in water resources management and they imply the emergence of a fourth line – a "Green Line" -- in water resources management in China.

17. To be sure, there are signs of change, which is what makes this catalytic GEF investment so timely. The MoWR's programme to reestablish natural connections between rivers and lakes previously severed is one

⁷ Each River Basin Master Plan addresses the same key water management priorities of: flood control; hydropower development; water supply; irrigation

example, as manifested in the newly mandated provincial level water resources protection plans. A second example is the Water Resource Department of the Jilin Province intent to balance water resource needs for food security and electricity generation with rehabilitation of wetlands habitat for unique biodiversity in water diversion and control projects in the Western Jilin Province. Another example is a new pilot national "River Health Assessment Program"; these indicate a new nascent interest in ecosystem health and biodiversity.

18. Other MoWR responsibilities relevant to this project's baseline include the review and approval of the operational plans for large dams through its River Basin Management Commissions (e.g. Yangtze River Commission) and small dams through its Department of Construction and Management and its Bureau of Rural Hydropower and Electrification Development. Currently, MoWR's review criteria for large dam operations consider such priority needs as: flood control, water supply, power generation and navigation/sediment control. Under the regulation for water supply it specifies that the dam operation shall meet the requirements for environmental flow. This means that on paper, river ecosystem health is included in the criteria for MoWR's review of dam operations. However, the knowledge of how to determine e-flow requirements is lacking in part because the criteria included in the regulation do not incorporate biodiversity specifically and are not necessarily based upon sound understanding of riverine biodiversity.

19. There is a proliferation of small hydropower projects across China and per the priorities in the Number 1 document this will continue to be a program priority. The MoWR is responsible for supervising small hydropower development for rural electrification as well as the operations of these dams. Currently there are about 45,000 small hydropower stations across China. Approximately 5,200 of these small dams are higher than 30 meters. Most small dams are built under concession from local governments and are often poorly planned. The impact of these small dams on river ecosystem health and biodiversity has never been assessed in China.

20. The contiguous provinces of Chongqing and Yunnan, as all Provinces in China, follow the national approaches for water management. Both are rich in aquatic biodiversity; In Chongqing, the emphasis of water management planning is on developing many more water management projects to meet socio-economic development demands, providing the opportunities and challenges for mainstreaming biodiversity. In comparison, in Yunnan, while meeting human needs is also the top priority, the provincial government has put ecological protection (biodiversity conservation) high on its agenda. Both are part of the Yangtze River Basin, providing opportunities for sharing lessons learned and scaling up. Green development is gaining traction in Yunnan. Pu'er Prefecture has applied to be the green development model for Yunnan province, providing a good basis for piloting mainstreaming activities under the GEF investment.

21. Chongqing Provincial Department of Water Resources: The 12th 5 year plan calls for speeding up water infrastructure development in Chongqing. To do so, the following are examples of water management priorities that the Chongqing Department of Water Resources program will address during the next five year period, with a budget of approximately ¥50 billion.

- Flood control in urban and rural areas to meet standards set by national government through ecological embankment of the rivers and other means.
- Small-medium hydropower development is becoming more of a priority to reduce emissions and impact. In one dam, funds were invested in establishing a fish ladder.
- Improve water quality in Chongqing's rivers through erosion control, aquatic environmental protection and other measures.
- Irrigation and drainage – try to improve production conditions for agriculture..
- Strengthen endangered or degraded reservoirs.
- Emergency response capacity – Hydrology monitoring, drought prevention, flood warning system.
- Extension of water supply network;
- Consider ways to maintain harmony between upstream and downstream flows through new pumping capacity and other means.

22. Yunnan Provincial Water Resources Department. The 12th 5 year plan also calls for significant water infrastructure development in many of the same priority areas listed above for Chongqing. Also in Yunnan, a emphasis is increasingly on improving the condition of rivers and river systems through water function zoning, as mandated in the State Council's *Decisions on Strict Water Resources Management*. This zoning covers 800 rivers in Yunnan province. Currently biodiversity is not mainstreamed into this water function zoning process.

23. The extensive capacity within China's water resources management sector lacks ecological and biodiversity expertise, and lacks the experience of how to apply and integrate such expertise effectively to ongoing planning and review processes. To date, none of the plans mentioned above incorporate biodiversity conservation objectives and targets into their specific area of emphasis. This project marks the first time a GEF biodiversity project has been put forward by the Ministry of Water Resources in China. In the absence of this project, it is very likely that water resource management planning and programming pay inadequate attention to the biodiversity and ecological vitality of these river systems themselves.

24. In recent years, annual investment in water management sector at the national level in China (does not include urban water supply and wastewater treatment investment) amounts to over US\$50 billion. It is said that the total investment in water management will be up to US\$660 billion (RMB 4000 billion) for the period from 2012 to 2022. Great benefit can be achieved if only a small percentage of this investment is biodiversity friendly. In a nutshell, this is the purpose of this strategic and incremental GEF investment.

25. In 1998, the Nature Conservancy (TNC), an international non-profit civil society organization (CSO), commenced work in China through a partnership with the Chinese government. In succeeding years, China's leaders have recognized TNC's contribution to environmental protection in China. TNC's work in promoting and supporting environmentally oriented water management in China forms part of this project's baseline program. TNC has been active in working with Chinese government partners to improve water management for biodiversity conservation. However, most of its work has been focused on either protected areas or on working with the traditional biodiversity conservation partners such as MEP on conducting ecoregional assessments. The GEF investment will enable the MoWR to work together with TNC and other partners for the first time to develop new tools for mainstreaming biodiversity into water resource management. Relevant aspects of TNC's program are the following:

- E-flow recommendations for dam flow management. TNC has been active in working to elaborate environmental flow (e-flow) recommendations for specific dams in the Yangtze basin. As dams alter the natural cycles of a river, TNC is working to determine flow amounts that will mimic natural water cycles, optimizing dam efficiency and minimizing the ecological impact on downstream habitats. The MoWR, which is responsible for reviewing dam operations, will benefit from this experience as part of the project's baseline/incremental approach.
- TNC is assessing the impact of small hydropower stations in cooperation with local governments in China. The method of assessing the impact of small hydropower to aquatic ecosystem will be directly relevant for MoWR to pilot and elaborate further under the GEF project. TNC has been working together with the MEP and the Ministry of Agriculture Bureau of Fisheries to inventory aquatic biodiversity and to better catalogue the information in a modern, accessible database at the national scale and to introduce new conservation planning tools. This is also relevant to helping to fill the information gap on biodiversity in water resources management. However, in the baseline situation, this kind of work will find it difficult to cross over the sectoral divide from the "environmental" sector to the water resources management sector. This GEF incremental investment will catalyze this process of mainstreaming.

26. **Barriers:** The baseline programs described above fall short of achieving the long-term solution of aquatic biodiversity conservation. The following barriers hamper stakeholders' ability to address proximate causes and underlying factors of aquatic biodiversity loss:

Barrier 1: The existing institutional capacity and regulatory and planning framework, while generally supportive of ecological priorities, does not provide sufficient support for and guidance to mainstreaming of biodiversity conservation objectives and practices into water resources management.

27. The Water Law of 2002 has many relevant provisions to the environment and ecology and fisheries. Article 26 calls for hydropower station construction to pay attention to the "ecological environment" and local fisheries. In general terms that the Water Law is supportive of mainstreaming biodiversity conservation objectives and practices into the water sector. It also shows that there are critical gaps in terms of what such general conceptual support in law means in practice. These gaps have been a serious impediment to the effective mainstreaming of biodiversity into current water resources management planning and practice. How do we begin to mainstream biodiversity into water resources management in China and what does it mean in

practical terms? Enabling stakeholders to answer this question is the focus of this project – how to enable a “great leap” across this gap from general legal support to practical implementation results for biodiversity.

28. This gap is also a formidable barrier because of the low level of institutional capacity for biodiversity in water resources management – both at the national and the provincial/local levels. Historically MoWR has been an engineering Ministry. Most of its staff and its provincial level partners have the engineering background; they do not have much knowledge of biodiversity or ecology. Partnerships with other institutions to fill this gap are only starting to appear and cross-sectoral collaboration has not been a priority for the MoWR. Consequently, the typical water resource manager in China does not have access to the growing body of information on aquatic biodiversity. Underlying this has been an unspoken/unwritten common misperception that traditional water resources management concerns such as flood control, hydropower, and irrigation systems are contradictory to ecological concerns – to improving ecosystem vitality and sustaining biodiversity.

29. As an example, the manifestation of these kinds of barriers can be seen in the existing policies governing MoWR’s review process for dam operations. Currently, the MoWR, through the respective river basin commissions reviews dam operations with respect to main priorities such as flood control requirements, irrigation needs and drought relief. Environmental flow (e-flow) is in most cases not considered even though it is required by the regulation of dam operations.

30. There is a very low level of knowledge of China’s aquatic biodiversity within the water management sector. China’s water resources management sector is dominated by engineers with little to no understanding of the importance of natural flow regimes to aquatic biodiversity. There is an inadequate access to biodiversity data and expertise that is aggravated by traditional sector-by-sector divisions in government. Access to information on biodiversity has historically been difficult, particularly for water management professionals. Information on biodiversity has only recently become better developed in China. In 1996 a database of 600 endangered species was produced. In 2001 this was expanded to a list of 5,000 species and was made available on internet. Building on this previous work, a Chinese Red List was produced. Only in 2009 the list of vertebrates was produced, with the work carried out by WCS China and Chinese Academy of Sciences since 2005. Information is not readily available and one of the goals of mainstreaming will be to make it readily available to water managers.

31. There is little incentive for Ministries to move beyond their fairly narrow sectoral approaches. For example, the Ministry of Water Resources has a wealth of hydrology data that is never combined with the biodiversity data of other stakeholders. GEF resources will enable stakeholders to come together to combine this data into new models profiling dam impacts on river ecotopes.

Barrier 2: Minimal experience or expertise among key water management stakeholders in actually doing mainstreaming of biodiversity into water management planning and programs in the field.

32. Often when it comes to adopting new practices, the risk involved in attempting a new approach prevents people from taking those first steps. GEF resources will help to overcome this “proof of concept” barrier by demonstrating practical on the ground mainstreaming work at the policy and planning level, at the provincial level, and the prefecture and local river levels. In the current situation, there is an inadequate level of technical understanding of how to determine ecosystem-based “in-stream flow” requirements for a river system. What level of water is needed when to sustain natural systems while also meeting the needs of development?

33. E-flow is the hydrological conditions required by a river’s aquatic biodiversity needs based upon knowledge of migration, reproduction, and other ecological factors. Ecological base flow is one of conditions to ensure the continuous flow. In addition, it also requires the research on the specific flow window period and hydrological features of various aquatic plants and animals. It is not necessarily a straight forward objective exercise to establish the e-flows in different systems. The challenge is to develop e-flow guidelines that result in win-win results for dam managers, irrigation and food security needs, and for the rivers biodiversity and ecosystem health. This is not easy to do. Indeed, dam operators in China are in the very early stages of establishing effective coordination and communication mechanism with ecological protection authorities, in order to make the reservoir scheduling meet the dam’s function as far as possible while reduce the harmful effects to the river ecosystem. The existing legal and regulatory framework requires clear rules and restrictions in this regard, together with guidelines to apply when reviewing a dam’s operations. There is a lack of clear regulatory guidance on how to review dam operations from an environmental flow perspective.

34. **Incremental reasoning, proposed alternative scenario.** The whole concept of mainstreaming is incremental to the baseline scenario. The catalytic and incremental GEF investment very much builds upon and complements the baseline program funded by the Ministry of Water Resources. The GEF funded alternative will address the capacity constraints and policy barriers to mainstreaming biodiversity conservation into water management practice.

35. Incremental GEF resources will support the mainstreaming of biodiversity conservation objectives into productive water management practices. The proposed project will provide an opportunity for a major scaling up and strengthening of water biodiversity management techniques to address capacity constraints within the water sector. The project will mainstream biodiversity into water management through four interlinked components and related outcomes and outputs as summarized below:

36. **Component 1: Institutional and planning framework for mainstreaming biodiversity into water resources management at national and provincial levels.** Under Component 1, GEF support will enable stakeholders to strengthen the institutional and policy environment for mainstreaming of biodiversity conservation into water resources management.

37. GEF resources will strengthen MoWR capacity to mainstream biodiversity conservation objectives and practices into key water management planning and policy tools as illustrated in Annex 1. GEF resources will support technical assistance to help MoWR and its relevant departments strengthen their capacity for mainstreaming biodiversity conservation objectives and practices into water resources management planning and programming such as the: River Basin Master Plans and the National Comprehensive Water Resources Plan. This will include creating a consultative group and a systematic process for Considering and Integrating Biodiversity Issues into water management programs and projects -- from the first to the last steps of the current planning process – from defining water resource management problems to elaborating the solutions. Implementing new kinds of solutions will require new kinds of partnerships and new kinds of approaches to improve access to biodiversity information and expertise. GEF incremental funding will enable stakeholders to develop practical how-to guidance on enhancing ecosystem connectivity, aquatic ecosystem health.

38. New cutting edge tools will be needed to enable the mainstreaming of biodiversity into water resources management planning and programs. GEF resources, combined with baseline funding from the MoWR will enable stakeholders to pilot GIS-based aquatic biodiversity database that links species and ecosystem lists to rivers to enable robust biodiversity-oriented review of water development projects. Another critical tool will be developed with GEF and MoWR support to facilitate mainstreaming. This will be a new, official biodiversity “Green Line” scorecard for certification of advanced ecosystem based river water management. The scorecard will incorporate standards and principles to be developed to guide mainstreaming planning and actions as well as biodiversity conservation actions and priorities to be developed by MoWR and partners. With this tool, water managers across China in the future will know what kinds of practices are good and how they can have their water management practices given the “Green Line” certification. And finally, practical how-to guidance will be needed. GEF resources will support the expansion of dam safety policies to include biodiversity conservation guidelines to influence construction and operation of small dams (impact assessment, e-flow).

39. **Component 2: Pilot mainstreaming into key water sector development programs at the provincial level in Chongqing and Yunnan Provinces.**

	Province	Chongqing	Yunnan
Priority areas of concern			
National priority for investment in water resources development to meet social-economic needs.		√	
Harbors globally significant aquatic biodiversity		√	√
Environmental issues and biodiversity are priority areas for water management work			√
Potential for scaling up GEF's incremental investment		High	High
Potential for collaborating on mainstreaming biodiversity into river basin master plan shared by both provinces; mechanism for scaling up.		√ (Yangtze)	√ (Yangtze)
Potential for engaging ethnic minorities and civil society		High	High

40. As discussed further in the baseline section of this PIF below, Yunnan and Chongqing provinces and their respective Departments of Water Resources will demonstrate improved biodiversity mainstreaming under this project. In preparing this PIF proposal, both Chongqing and Yunnan Provincial Departments of Water

Resources have committed to working with this project. Each one offers different opportunities for demonstrating effective biodiversity mainstreaming. Chongqing is a priority region for water resource management investment to meet socio-economic development demands and so the need for effective mainstreaming efforts is especially strong here, as is the opportunity for scaling up. In comparison, biodiversity conservation has been given high attention in Yunnan as the provincial government put ecological protection high on its agenda. Both harbor globally significant aquatic biodiversity.

41. Under Component 2, GEF support will enable stakeholders to generate three main outcomes. In the first, provincial water resource management authorities will demonstrate biodiversity mainstreaming practices in key planning and management areas. GEF resources will support capacity building activities for the Provincial Departments of Water Resources in Chongqing and Yunnan to enable the mainstreaming of biodiversity conservation objectives and practices into water resources management planning and programming. This will include establishing provincial level partnerships among the Department of Water Resources, the Department of Environmental Protection and the University of Yunnan. Building on the work done under Component 1, stakeholders will integrate biodiversity objectives and priorities into key provincial level water sector planning processes, i.e. Provincial Water Resources Plan; Water Resources Protection Plan; Water Allocation Plan, and Water Function Zoning. To do this, new information will be needed at the provincial level and GEF resources will enable the piloting of provincial level assessments and mapping of critical river ecotopes necessary to sustain globally significant aquatic biodiversity in the province.

42. Under Component two, GEF resources will pilot mainstreaming at the prefecture level, enabling Pu'er Prefecture in Yunnan Province to demonstrate local-level biodiversity mainstreaming into water resources management. To support this work, a pilot prefecture-level river health assessment will be carried out, which will include, among other things, an assessment of the existing water infrastructure (small dams, culverts) for impacts on biodiversity and ecosystem vitality. One inappropriately installed or designed culvert can block access to hundreds of kilometers of riparian habitat. A re-evaluation of small hydropower development on different scales is critical to protecting the connectivity of river and important freshwater habitats. These results will then be mainstreamed into the prefecture's water resource management plan and the application of these improved river health assessment priorities piloted, including "Green Line" certification standards and small infrastructure improvements to enhance connectivity.

43. And finally under Component 2, GEF resources, combined with co-funding from the MoWR and TNC baseline programs, will enable the piloting of E-Flow practices and approaches for mainstreaming biodiversity conservation into the management and design review of 1 large and 2 small hydroelectric and flood control dams. A Compendium of sustainable design, construction, operation and evaluation regulations, policies and practices for the water reservoir operations will be developed and integrated into the planning and operational review policies for small scale reservoirs. This will be piloted in Pu'er Prefecture to modify the operations of existing reservoirs (small scale hydro, flood control) and implement practices to ensure and monitor reduction of biodiversity risks. The removal and/or relocation of some existing small hydropower dams may offer practical restoration solutions for fragmented stream segments, and may offer some highly visible restoration work that will emphasize the need for good planning for future projects. At the large dam level, GEF and MoWR co-financing will enable TNC-derived environmental flow review methodologies to be piloted by MoWR/Yangtze River Commission for the Xiangjiaba Dam. To enable this work, GEF and co-financing resources will finalize the implementation plan for each site; in-the-field training to trigger the implementation of the solutions; technical assistance for actual implementation of the technologies, and the implementation of a biodiversity monitoring plan.

44. **Component 3: Knowledge building, Capacity strengthening & Scaling up of Mainstreaming Practices.** Under this component, GEF resources will support pilot monitoring, knowledge management, training, and scaling up of mainstreaming practices. With GEF, MoWR, and TNC co-financing, a pilot aquatic biodiversity monitoring program in place in two pilot provinces using traditional and modern "environmental DNA"⁸ approaches. Aquatic biodiversity conservation targets (species number and condition; habitat condition; related amount of investment) established and monitored. GEF resources will provide the technical assistance to help MoWR, Provincial Water Departments and other partners to elaborate a biodiversity mainstreaming training program. During the PPG process, private sector involvement in piloting and scaling up mainstreaming activities will be explored.

⁸ "Environmental DNA" surveys analyze DNA fragments in water samples to identify number of species living in the water.

45. Stakeholders will record lessons learned and capture good practice and elaborate cutting-edge training modules to train MoWR and other stakeholders in how to mainstream biodiversity conservation into plans and then to begin to implement those plans step by step. Stakeholders will develop practical, “how-to” guidelines for use by water managers based upon this material. The project will enable stakeholders at national, regional and local level to have access to improved knowledge and data to manage sustainably water resources by developing new mechanisms for effective learning, systematic long-term approaches to capacity building, and by disseminating information on mainstreaming practices.

46. GEF resources will enable stakeholders to build on this good practice so that MoWR can scale up improved mainstreaming across all of China’s major river basins. The technical capacity of national professionals will be upgraded through on-the-job training with world-class training professionals in the field and in the classroom. Cross group study tours to different sites, peer-to-peer training will be enabled to exchange experiences and good practice among stakeholders. Lessons learned from these experiences and field site implementation will be used to develop training modules for replication and scaling up. The project will also help to establish an active learning network.

47. The project will support targeted education to promote the benefits of healthy aquatic ecosystems. Information from specific studies will feed into these campaigns, including on the value of watershed services as developed under another GEF investment in China (see section on coordination). An emphasis will be made on enabling MoWR departments to form partnerships with research and academic institutions worldwide on mainstreaming biodiversity into water management. This knowledge will be systematically integrated in all relevant project activities to improve efficiency and sustainability and it will be widely disseminated and made available to non-project stakeholders through public awareness campaigns, dissemination of guidelines and workshops at regional and local levels.

48. Global environmental benefits.

Global Benefits
<ul style="list-style-type: none"> • A significant and measurable increase (at least US\$20,000,000) in value of Government investment in aquatic biodiversity related water management practices. • Biodiversity mainstreamed into at least 3 river water policies and regulatory frameworks. • Biodiversity mainstreamed into at least 5 national and sub-national water resources management plans • Increase in the number of water management programs and related budgets that include biodiversity conservation as an objective, resulting in improved habitat conditions and no decline in population for globally significant species such as: Largemouth Bronze Gudgeon (<i>Coreius guichenoti</i>) & Royal Clown Loach (<i>leptobotia elongate</i>). • River ecosystem fragmentation and disturbance in two pilot provinces reduced by at least 15% as measured by Green line scorecard. • Biodiversity/ecosystem vitality objectives and targets mainstreamed into at least 3 water resource management plans in two provinces. • Enhanced connectivity of 300 km or 3,000 hectares⁹ of target river systems in Pu’er Prefecture as measured by river km of habitat not blocked to upstream migration by inadequate culvert, small reservoir and other water infrastructure design, resulting in improved habitat to sustain globally significant potamodromous fish species such as: <i>Tor sinensis</i> 中国结鱼 & <i>Clupisoma sinense</i> 中华刀鲶 • 500 km (5,000 hectares) of river with newly certified “Green Line” water management practices. • Environmental flow practices demonstrated by 2-4 provincial, prefecture and county level reservoir managers. • At least 500 km (5,000 hectares) river of improved E-Flow minimizes disturbance of key habitats for rare and endangered species; retains unique riparian plant and animal communities. • Design of at least 1 new small-scale hydropower station amended to avoid and/or reduce biodiversity risks.

49. **Innovativeness, sustainability and potential for scaling up.** This project is innovative in that it is designed to work with non-traditional partners to achieve global biodiversity benefits and national water and ecosystem health benefits. In requesting GEF assistance, the MoWR is “pushing the envelope” and seeking to

⁹ Assumes river corridor 100 m wide; 300 km x 100 m = 30,000,000 m² or 3,000 hectares

develop and adopt new and innovative approaches to water resources management. To do this, the project will enable stakeholders to form new and innovative partnerships across sectors and to develop new and innovative tools such as DNA-based water monitoring for biodiversity, which reduces the burden of the traditional fishing method of monitoring aquatic diversity. China has recently instituted “3 Red Lines” so that all of its water management efforts must respect as described above. The catalytic and incremental GEF funding in this project will enable MoWR to establish a fourth “Green Line” that all water management efforts can subscribe to, enabling the water management sector to generate global benefits in terms of conserved aquatic biodiversity and improved aquatic ecosystems as well as significant critical national benefits in terms of enhanced aquatic ecosystem functioning which is closely tied to food security over the long term.

50. Sustainability is central to this project’s definition of success. By building on the significant baseline of water resources management in China, the GEF incremental investment will be designed to achieve maximum sustainability at the institutional level. Sustainability will be partly achieved through improved planning. By helping the Ministry of Water Resources and Provincial Water resources Departments to mainstream biodiversity priorities into their planning processes and products, biodiversity priorities will become embedded into the plans that trigger budget allocations for implementation. This is how the project can target an increase of approximately US\$20,000,000 in investment in biodiversity related work (see GEB above). By focusing on biodiversity conservation in the productive water resources sector, the project brings significant improvements to the level of environmental sustainability of China’s water resources management efforts over time. The project will be designed to maximize the potential for scaling up and to catalyze the scaling up process during the life of the project itself. By mainstreaming into big plans and policies, the impact of this small GEF investment could be far larger, going from one river basin management plan to all seven for example, and enabling other provinces in China to learn from and build upon the experiences in Chongqing and Yunnan.

A.2. Stakeholders. Identify key stakeholders (including civil society organizations, indigenous people, gender groups, and others as relevant) and describe how they will be engaged in project preparation.

Stakeholder Institutions	Relevant Roles/Responsibilities
Ministry of Water Resources (MoWR)	The project will be executed through the MoWR. The MoWR is the national level body responsible for water resource management in China. It provides financing and strategic direction and guidance to the nation’s provincial Departments of Water Resources.
Department of Planning and Programming	Will be key actor in mainstreaming biodiversity into the overall planning process. Develops national strategies for water resources development; Formulates national comprehensive plans; Assesses flood impacts of & approves proposals and feasibility studies for key national water projects; Proposes water investment for Central Government.
Department of Water Resources	In its role to manage, allocate, conserve and protect water resources, the DoWR will be key to mainstreaming biodiversity into water resources planning and management through its work to oversee implementation functional zoning of water bodies and the use of EIA in water resources planning and water project construction.
Department of Construction and Management	Will be key stakeholder in applying biodiversity mainstreaming practices to reservoir planning and operations management and standards setting. Provides guidance on management of water infrastructures, sand mining and river channel planning; culverts and gates; Oversees construction of water projects and quality control.
Bureau of Rural Hydropower and Electrification Development	Provides guidance and planning to rural hydropower (RH) development. Formulates and implements strategies, policies, regulations, technical norms on RH. Surveys hydropower potential of rivers and manages information system. Directs formulation and implementation of RH plan, manages permits and approves RH projects subsidized by the Central Government. Provides guidance on construction/ rehabilitation of RH network.
River Basin Management Commissions (RBMC)	RBMCs are responsible for basin planning, unified water resources management, conservation, allocation, drought control and relief, river course management, infrastructure construction, sand mining management, soil conservation, collection of hydrological information. Changjiang (Yangtze) Water Resources Commission is one of 7 RBMCs.
Provincial Departments of Water Resources	Will be lead actors in demonstrating mainstreaming of biodiversity conservation objectives and practices into water management, through the Provincial water resources protection planning process and the demonstration or piloting of other key mainstreaming activities.

Ministry of Agriculture Fishery Bureau	The Aquatic Wild Animal Protection Agency of the Fishery Bureau is an important stakeholder when it comes to monitoring aquatic biodiversity, gathering information about aquatic diversity and enabling that information to be used for mainstreaming purposes.
Ministry of Environmental Protection	Guides, coordinates and supervises ecological and biodiversity conservation. Develops ecological conservation plan, organizes the assessment of water quality. Coordinates environment protection in rural areas; Manages the China Biodiversity Information System.
State Forestry Administration	Plays a role in aquatic biodiversity conservation through its management of wetland protected areas. Organizes and guides the protection and use of the wild land based animals and plants. Manages the China Biodiversity Information Management System.
Chinese Academy of Sciences (CAS)- China Species Information Service (CSIS)	CAS initiated CSIS in 1996. The CSIS is managed jointly by Wildlife Conservation Society (WCS) and CAS. Currently working on Biodiversity Atlas of China aims at producing set of maps for the protection and management of the biodiversity.
Yunnan University; Asian International Rivers Center	An important regional center of knowledge and expertise on hydro-ecological processes and aquatic biodiversity and ecosystem health. Could play an important role in strengthening capacity for mainstreaming in Yunnan Province. Specific roles and responsibilities will be elaborated during the project preparatory process.
The Nature Conservancy (TNC) China	TNC is an international environmental civil society organization (CSO). It commenced its work in China in 1998, focusing on biodiversity conservation, often in partnership with the government. TNC is an important civil society partner in the conceptualization of this project and will play an important role in implementation. This role will be determined during project preparation.
Prefecture level government and civil society	Prefecture level stakeholders will play a key role in piloting mainstreaming activities at the local level. This will be particularly the case in Pu'er Prefecture, which is tentatively targeted for demonstration level activities to be elaborated further during the project preparatory phase. A local prefecture level steering committee will be established to guide project preparation and implementation at this level and to ensure fair and equitable participation by relevant ethnic minorities and civil society.
Ethnic minorities	Mainstreaming biodiversity into water management must include a social component since people will do this mainstreaming work and since knowledge and local knowledge will be critical to its success. For example, more than 33 different ethnic groups live in Pu'er Prefecture; six of these have officially designated ethnic administrative units in Pu'er, including the ethnic groups: Dai, Yi, Hani, Meglian, Mojiang and Wa. More than 50 ethnic groups inhabit Chongqing, including the two largest groups the Tujia and the Miao. During the PPG phase there will be consultations with ethnic minority groups to ensure adequate participation based upon the social safeguards policy.

A.3 Risks:

Risk	Rating	Mitigation measures
Development pressure may continue or increase to dam rivers and alter aquatic habitats at unsustainable rates going forward, maintaining or increasing degradation rates for aquatic biodiversity.	Medium	<p>This project is designed to mitigate this risk directly. Indeed, GEF's BD-2 Objective is designed to do this. First, the context for this project is important as it addresses one of the central tenets of new Chinese leadership's priority platform – to ensure China's development results in a modern ecological society. This project will provide specific and practical tools and approaches to the water resources management sector to reduce and minimize pressure on riverine biodiversity by better planning and improved understanding of river ecosystems and their biota and applying that understanding to improve related policies, regulations and plans.</p> <p>As explained in the baseline section of this PIF, national and provincial political and institutional commitment will also play a key role in mitigating this risk. This commitment is expressed in terms of the Number One Document on Accelerating Water Sector Reform and Development. It is also expressed in the fact that this project itself is being proposed by the Ministry of Water Resources.</p>

The capacity at Provincial water department level to support mainstreaming is just emerging and may be difficult to operationalize effectively.	Medium	The project is designed to strengthen capacity of water resources managers in two ways. First, it will help stakeholders create new partnerships among existing institutions. This will provide new capacity to MoWR and its sector almost immediately in the short term. Second, the project will enable stakeholders to begin a long-term process of strengthening their biodiversity mainstreaming capacity through the elaboration of new training modules and the design and implementation of new field demonstrations and pilots.
Increased frequency or regularity of temperature extremes caused by CC may alter the flow regimes of many of China's glacier fed river systems.	Uncertain	The same knowledge and capacity that water management stakeholders will gain in refining and strengthening their e-flow river management prescriptions will aid their efforts in the future to understand impacts of climate change on river flow and river biota.
Climate change may continue to drive water engineering responses in China that will continue to imperil freshwater biota.	Medium	The project is designed to give water resource managers the tools needed to begin to understand the impact of climate change and people on freshwater biota and to proactively respond to minimize and reverse this impact by improving water management practices.
Coordination between the national and provincial level actors is a potential risk, as it is not unusual for different interests and views to come to the surface.	Medium	The project team has already begun to mitigate this risk by consulting with provincial stakeholders during the PIF preparation process. This risk will be mitigated during project implementation in two ways. First, the project design aims to help mainstream biodiversity conservation priorities into national level water resource management planning. These priorities can then be addressed/adopted in different ways by provincial and prefecture level actors. This flexibility will be an important mitigator of this risk. Second, the project steering committee will have representatives from stakeholders at the national and provincial levels. There will be other advisory committees also organized in this way.

A.4. Coordination. Outline the coordination with other relevant GEF financed and other initiatives:

51. This project will seek synergy with the GEF/UNDP financed project, "Payment for Watershed Services in the Chishui River Basin for the Conservation of Globally Significant Biodiversity," which focuses on mainstreaming biodiversity conservation and developing capacity among MEP and local governments across the watersheds of Chishui River (in Guizhou province). The project will also seek lessons learned from the GEF/ADB financed project, "CBPF Integrated Ecosystem and Water Resources Management in the Baiyangdian Basin", which is designed to introduce integrated ecosystem and water management to conserve biodiversity and improve environmental conditions in the Baiyangdian Basin, in particular in establishing viable mechanisms for integrated ecosystem management (IEM), including monitoring biodiversity conservation. The Terms of Reference for this FAO-GEF project's Project Management Office will include the proactive engagement of projects like Chishui to learn lessons and exchange experiences.

52. The project will also seek to share lessons learned and synergies with the GEF/FAO supported project "Conservation of biodiversity and sustainable land management in the soda saline-alkaline wetlands agro pastoral landscapes in the western area of the Jilin Province" currently under full project preparation. The Jilin project is led by the Water Resource Department of the Jilin Province and will provide an on-the-ground case for balancing biodiversity conservation with flood control, electricity production and irrigation and food security needs in a concrete water diversion and control investment. Lessons learned from coordination with the environmental sector and setting up criteria and practices for water quality and quantity management allowing for rehabilitation of wetlands and related biodiversity could be very useful for the proposed project. Further, synergies between the proposed project and the Jilin project, which is building up from a concrete on-the-ground challenge of setting the right balances seeking win-win solutions in a particular challenging ecosystem with scarce water resources and land and wetlands biodiversity degradation problems, could be very important for both projects. These synergies will be supported by FAO as the GEF Agency for both projects.

53. The project will also benefit from FAO's institutional capacity for carrying out GEF financed projects in the area of mainstreaming biodiversity conservation in freshwater and estuary areas in China, including "Demonstration of Estuarine Biodiversity Conservation, Restoration, and Protected Area Networking" and

“Securing Biodiversity Conservation and Sustainable Use in China's Dongting Lake Protected Area”. The Australian Government-MoWR project entitled, “Australia-China Environment Development Partnership” conducted technical pilots for river health assessments that will serve as a good foundation and reference point to build upon and will be able to inform this project’s more applied planning and management orientation. Coordination of these FAO GEF projects will include annual meeting of FAO-GEF project managers to discuss common areas of work and to share lessons learned.

54. This project is closely linked with the GEF supported “China Biodiversity Partnership and Framework (CBPF) for Action. In particular, this project will contribute to three of the five priority “Themes” of the CBPF: *Theme 1 - Improving Biodiversity Governance*, *Theme 2- Mainstreaming Biodiversity into Socio-Economic Sectors, Plans and Investment Decision-Making*; and *Theme 4- Reducing Biodiversity Loss Outside of Protected Areas*. The project will contribute to the achievement of specific results under each one of these Themes, including: Results 1 and 3 under Theme 1 related to strengthening institutions and policies for biodiversity conservation; Results 10 & 11 under Theme 2 related to mainstreaming biodiversity into relevant plan and laws of sectoral ministries and departments and into local plan; and finally Results under Theme 4 related to considering biodiversity in water use zoning plans and in restoring freshwater ecosystems in a way that incorporates biodiversity objectives. This project will seek to participate in the CBPF lessons learned and knowledge management activities.

55. In addition, the GEF supported CBPF initiative is supporting the MoWR’s Research and Development Centre (DRC) with a small grant to develop a strategy and action plan for mainstreaming biodiversity into China’s Water Sector. This proposed project will coordinate closely with this effort to both inform its work and benefit from its work during the project development process. Potential specific coordination measures include side meetings organized as part of the MoF’s annual meeting on GEF projects in China, where lessons learned can be exchanged and updates on progress provided. And finally, a useful potential coordination mechanism will also be semi-annual meetings with UNDP-China and other GEF Agency counterparts to update each other on project progress and to develop additional opportunities for achieving synergies.

B.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NBSAPs, TNAs, NCSAs, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.:

56. The proposed project is consistent with the China National Biodiversity Action Plan (NBAP) and Strategy. The NBAP for China was revised for the period 2010-2030 and comprises eight strategic tasks, 29 actions and 11 safeguarding measures. The project design supports key NBAP geographic priorities: Geographic Priority Area A (inland terrestrial and aquatic biodiversity conservation) #6 & #8: The Hilly Regions of Central, South and West China, including the part of Chongqing, Sichuan and Yunnan provinces: “Improve conservation of rare and endemic fishes and their habitats along the upper reaches of the Yangtse River.” # 8: The Lower Hilly Region of South China includes part of Yunnan province. The project design supports key NBAP thematic priorities: Priority Domain (PD) 1, Action 3: Establish and enhance bodies for biodiversity conservation and management and improve the inter-agency coordination mechanism. PD-2: “Incorporate biodiversity conservation into sectoral planning and promote sustainable use.” In particular, the project design supports the following points under PD-2’s various key Actions:

- Action 4: Incorporate biodiversity conservation into relevant sectoral and regional planning, including: a) the development of “sectoral strategies and action plans for biodiversity conservation ... in the field of... water resources...”; and b) Provincial and local level biodiversity conservation planning.
- Action 5: Ensure sustainable use of biodiversity: Disseminate concepts and codes of conduct favorable to biodiversity conservation in the sectors of ... water resources...
- Action 7: Carry out baseline surveys on biological resources and ecosystems including aquatic species of rivers.
- Action 13: Improve conservation in priority areas of biodiversity conservation. In particular to strengthen the conservation in the Hilly Plain Region of East and Central China with a focus on... rare fish species.

B.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities:

57. The project is consistent with the GEF Biodiversity (BD) Focal Area strategy. The project advances the goals of GEF BD-2 “Mainstream Biodiversity Conservation and Sustainable Use into Production Landscapes, Seascapes and Sectors”. It is designed to support the achievement of Outcome 2.1: “Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation.” And Outcome 2.2: Measures to

conserve and sustainably use biodiversity incorporated into policy and regulatory frameworks.” Under Outcome 2.1, the project addresses Output 1: Policies and regulatory frameworks for production sectors; and Output 2: National and sub-national land-use plans (in this case water resources) that incorporate biodiversity valuation. Under Outcome 2.2, the project addresses Output 3 (Certified production landscapes and seascapes) through the development and implementation of the Green Line scorecard for certification of advanced ecosystem based river water management.

58. The Project will contribute directly to the achievement of the following Aichi Biodiversity Targets:

Strategic Goal A: Address underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

Target 4: By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use.

Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

B.3. The GEF Agency’s Comparative Advantage for Implementing the Project:

FAO has a long history of partnership with the Government of China in its quest to improve food security in part through better water management. FAO’s Regional Office for Asia and the Pacific has been involved in several water management initiatives and irrigation system modernization projects at various locations in China. Currently, FAO is assisting the Ministry of Water Resources in mainstreaming irrigation system modernization as a priority in National Water Resources Plan.

FAO has long and deep experience in working in the fisheries and aquatic biodiversity sectors in the Asia Pacific Region. In recent years FAO’s Fisheries Department and the Regional Office for Asia and the Pacific have been instrumental in providing guidance in the enhancement of aquatic biodiversity in another similar GEF project in China. FAO’s Regional Office for Asia and the Pacific has a team of six professional officers in the areas of water and fisheries including several senior level officers.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

- A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):** (Please attach the Operational Focal Point endorsement letter(s) with this template. For SGP, use this OPF endorsement letter).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Ms. Jiandi Ye	Deputy Director, IFI Division III, International Department	Ministry of Finance	12/07/2013

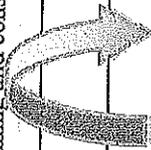
B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
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Annex 1. Water Resources Management Planning & Mainstreaming Entry Points

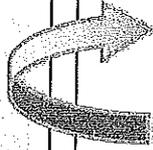
National Comprehensive Water Resources Plan (NCWRP)

- Main purpose: To balance total water resources available with total water resources demand
- Coordinated by Dept of Planning and Programming & led by Dept of Water Resources.
- The focus is solely water supply, not water ecosystems.
- Funding programs elaborated from these.
- Mainstreaming entry point (MEP): Revise guidelines to incorporate biodiversity mainstreaming into key areas of the NCWRP, dam operations review, dam planning and construction.



Provincial Water Resources Plan (PWRP)

- Focused on water resources development.
- Water demand analysis triggers project-based solutions to water supply problems.
- **MEP:** Incorporate biodiversity into water demand analysis based upon an assessment of water needs to sustain critical ecotopes.



River Basin Master Plan (RBMP)

- Main purpose: to manage river resources on a basin-wide level.
- Led by Department of Planning and Programming;
- Done for 7 river basins around China
- Different priority elements: Flood control; Hydropower development; Water supply; Irrigation; Biodiversity/ecosystem health not on the list.
- RBMP spawn very large funding programs.
- **MEP:** Pilot identification of aquatic biodiversity rich areas in one RBMP for provincial-level action. Revise guidelines to incorporate biodiversity mainstreaming into key areas of the RBMP.

Strategic Guidance: 3 Red Lines must be integrated into plans and programs
 Total Water Use Water Efficiency Water Quality
 + Green Line (Biodiversity and ecosystem vitality)

Water Resources Protection Plan (WRPP)

- Needs cooperation of other sectors
- First time this has been done and many provinces have not yet completed these. This planning process was created because the protection of water resources is becoming more important.
- Main priorities: a) Assess and reduce Total Pollution Load. Have to submit to MEPP for their approval. b) reconnection of wetland to rivers.
- **River Health Assessment Pilot (WRPP). Needs cooperation of other sectors**
- **MEP: Include targets for sustaining critical ecotopes necessary to sustain biodiversity.**

Water Allocation Plan (WAP)

- Main priorities in order are: 1) Domestic; 2) Industrial/Agriculture; 3) Ecology.
- **MEP:** Currently allots a % allocation for "environment" - not based upon understanding of or even information on aquatic biodiversity or ecology.

Water Function Zoning