

# Yangtze



## Summary of basin characteristics

The Yangtze – at 6,300km the third longest river in the world, with a basin covering 1.8 million square kilometres – rises at an altitude of over 5,400m in the Tibet Plateau of western China. The river and the floodplain wetlands it feeds undergo extreme seasonal changes. During the summer rainy season, the swollen waters of the Yangtze flood into

the surrounding lake basins, while during winter and spring, when water levels are low, the lakes drain back into the river. Fish and animals have adapted to these changes and – under natural conditions – move freely among areas connected by seasonal flooding.

### **Socio-economic importance**

Four hundred million people – one-third of China's population – live in the Yangtze basin. The alluvial

soil is so fertile that it permits two harvests per year. In the lower reaches of the river, the abundance of flat land and water has facilitated the growth of densely populated and heavily industrialized cities. The central Yangtze is known as China's 'home of rice and fish'.

### **Biodiversity values**

China's two biggest freshwater lakes – Dongting Lake and Poyang Lake – are in the central Yangtze basin and, together with the river's vast floodplains, provide habitat for some 300 species of bird, including internationally protected migratory waterbirds such as cranes and storks. The lakes and adjacent floodplains are home to two species of freshwater dolphins, more than 80 other mammal species, 200 species of fish, more than 60 species of amphibians, and around 90 species of reptiles.

### **Priority issues for river basin management**

Since the 1950s, China's population has more than doubled, with the main concentrations of people located along major river valleys. This has placed great pressure on the Yangtze floodplain ecosystem, with conversion to farmland having greatly reduced the ability of the floodplain, rivers and lakes to buffer flood peaks. The loss of functional floodplains, combined with deforestation in the watershed, has led to increasingly serious flood events over the past several decades.

After the devastating floods of 1996 and 1998 (in 1998 alone, more than 4,000 people died and damage reached an estimated US\$25 billion) the Chinese government issued the so-called '32 character policy' aiming to reduce flood threats by working with nature rather than fighting it. Interventions include:

- a ban on logging in the upper catchments
- returning cultivated steep slopes to forest
- relocating settlements from flood-prone areas to higher ground safe from flooding
- restoration of wetlands in the Yangtze floodplain
- reinforcing embankments
- maintaining river courses, for example by dredging.

Within this overall policy, the central Yangtze basin, including the two major lakes of Dongting and Poyang, has been the focus of special attention because of its combined socio-economic significance and ecological values.

The lakes serve as natural buffers by storing freshwater and reducing the extent and impact of flooding in areas occupied by people. However, intensive land conversion – the building of dams, dykes and polders – over 50 years has replaced wetlands with agriculture and urban settlements. This has disrupted natural processes and fragmented habitats, endangering species such as Yangtze dolphin *Lipotes vexillifer*, Yangtze alligator *Alligator sinensis* and Chinese sturgeon *Acipenser sinensis*.

In summary, the key issues to be addressed in reversing degradation of the central Yangtze basin are:

- loss of natural wetland functions due to fragmentation and degradation
- upstream erosion leading to accelerated downstream siltation
- lack of knowledge about wetland functions and values among decision-makers
- failure of development and land-use policies
- institutional conflicts.

### **Role of WWF and its partners**

WWF's Yangtze Programme aims to restore the Yangtze as a living river by securing effective management of a significant area of wetlands in the central Yangtze basin over a period of 25 years. It includes restoration and ecotourism activities at Dongting Lake and integrated river basin management of Poyang Lake basin, using a combination of policy work and rehabilitation of ecological processes at demonstration sites. It is hoped that successes at both Dongting and Poyang Lakes will catalyse the adoption of similar approaches in the wider central Yangtze basin.

WWF's specific objectives are:

- Restore Dongting Lake and its wetlands to their 1950s extent (4,350km<sup>2</sup>) within ten years and manage the area sustainably, providing high-quality habitats for wetland biodiversity and

livelihood opportunities for local people.

- Establish ecotourism in the Dongting Lake region as one means of supporting wetland restoration and protection.
- Demonstrate integrated coordination and management of Poyang Lake basin.
- Restore the natural connections between Zhangdu Lake and the Yangtze River.
- Facilitate the establishment of an effective Integrated River Basin Management Committee to restore a 'Living Yangtze'.

Key activities:

#### **Restoration of Dongting Lake**

- Working principally with the China Youth Development Foundation, 150ha of Xibanshanzhou polder (part of the drained Dongting Lake wetlands) have been restored through removal of the surrounding dyke. One hundred and fifty families are now protected from flooding and have increased their income by approximately 40 per cent through applying diversified flood-adapted farming techniques. Farmers and officials in neighbouring areas are developing plans to implement the approach demonstrated in Xibanshanzhou.
- The government of Hunan Province has incorporated WWF's input into its '4350 Programme' to restore 1,700km<sup>2</sup> of farmland to wetlands.
- WWF is actively lobbying and undertaking fieldwork with Hunan Forestry Bureau to promote establishment of 11 additional nature reserves (totalling 450km<sup>2</sup>) under the 4350 Programme.

#### **Ecotourism at Dongting Lake**

- Local fishermen, supported by WWF, have set up an ecotourism company and are working closely with the West Dongting Nature Reserve to develop a co-management plan for the reserve.
- A workshop on ecotourism organized jointly by WWF and the Changde Tourism Department of Hunan Province included stakeholders from government, the business sector and the local community.

- Public awareness of the tourism value of Dongting Lake was greatly enhanced through a nationwide birdwatching competition in 2002, organized by East Dongting Nature Reserve of Hunan Province.
- An ecotourism planning process in Hanshou County, facilitated by WWF, attracted participation from a wide range of stakeholders, including local government, nature reserve managers, community leaders, fishermen and community-based tourism companies.

#### **IRBM demonstration projects in Poyang Lake basin**

- An integrated valuation study of Poyang Lake wetland, carried out by WWF working with partners including the Mountain-River-Lake Office of Jiangxi Province and institutes of the Chinese Academy of Sciences and Beijing Normal Universities, used the Millennium Ecosystem Assessment approach to place values on wetland services such as flood retention, purification, biodiversity, and recreation potential.
- Stakeholder surveys, analysis of the root causes of biodiversity loss, and studies of possible ecological compensation mechanisms are being carried out in consultation with partners.
- The 'Mountain-River-Lake Development' master plan, established in 1992, was relaunched in 2003 as a natural resource management strategy at the basin scale. WWF facilitated the process and worked with the Jiangxi Mountain-River-Lake Office to draw up the IRBM master plan and associated action plan.

#### **Demonstration project to relink Zhangdu Lake with the Yangtze River**

This project consists of three elements: new models for alternative livelihoods; habitat rehabilitation and establishment of wetland nature reserves; and effective relinkage of lakes and rivers.

- WWF is working to restore Zhangdu Lake as a natural wetland by opening the existing flood-gates that cut the lake off from the Yangtze River. The main partners include the Yangtze Water Resource Protection Commission,

Yangtze Fishery Management Commission, State Forest Administration, Hubei Forestry Bureau, State Council Centre for Development Research, and institutes of the Chinese Academy of Sciences. The aim is to restore 60km<sup>2</sup> of wetland (the lake is currently 40km<sup>2</sup>) and to secure a commitment to restoring a much larger area. WWF has set a target of 200km<sup>2</sup> of wetland restoration through relinking lakes, including Zhangdu, with the Yangtze.

- Beyond the obvious benefits for biodiversity, initial hydrological calculations show that the additional flood retention area created as a result of WWF's work will be 80 million cubic metres – the equivalent of 30,000 Olympic-sized swimming pools.
- Based on the results of a scientific study, WWF will establish the optimum method for introducing fry into the river/lake system to support the recovery of fish populations. WWF is also seeking to re-establish the important function of flood control that the river/lake linkages have historically provided, helping to reduce future flood damage.

#### **Policy work**

To underpin its demonstration projects, WWF is working to influence national policies related to fresh water that may help to restore the Yangtze River as a whole.

- WWF has been instrumental in the recent establishment of an IRBM Task Force, under the China Council of International Cooperation and Development (CCICED), and the Yangtze Forum. The Task Force will provide a stepping stone to high-level government officials and is intended to address IRBM policy nationally, with members including six international river basin management experts and six national experts, with more than 20 government officials as observers. The Yangtze Forum will act as a mechanism for a wide range of stakeholders from all provinces of the Yangtze region to discuss and formulate a comprehensive plan; it will also promote knowledge exchange and training.

By drawing together all these important stakeholders, WWF aims to produce a common vision for the Yangtze River basin and propose solutions to the many challenging freshwater issues. The recommendations will be submitted to the central government with the aim of securing official support for an effective River Basin Management Committee to drive the long-term restoration of a 'Living Yangtze'.

#### **Conservation method demonstrated**

**Showcasing sustainable wetland restoration** – restoring reclaimed agricultural land to floodplains to reduce flood damage. This involves developing alternative livelihoods for local people, in close collaboration with all relevant stakeholders.

**'Magnification' of the wetland restoration model** – using successful projects as models to influence provincial government policies, planning and expenditures for wetlands restoration.

**Showcasing on-the-ground IRBM practice** – demonstrating IRBM in practice in one of the sub-basins of the Yangtze River as a model for the entire basin.

**Influencing policy** – building and strengthening influential governmental institutions to promote IRBM at the state level, based on WWF's field experiences, with the aim of influencing state and provincial-level policies for establishing IRBM for the whole Yangtze.

**Communicating successful approaches** – WWF's 'Wetland Ambassador' campaign has been used as a communications tool to spread the wetland restoration concept to a wide audience in the Yangtze basin.

**Establishing broad partnerships** – this has led to effective leverage of partners' resources to promote IRBM.

#### **Resources devoted**

WWF's existing and projected investment (to 2007) is in excess of EUR8 million. Investment by partners in China is 50-100 times this level.

## Chronology

### Late 1999 onwards

- WWF, together with Hunan Forest Bureau, help build capacity for West Dongting Lake Natural Reserve. The reserve is formally established in October 2001 and listed as a Ramsar Site and recognized by WWF as a 'Gift to the Earth' in February 2002.

### January 2000 onwards

- WWF and the China Youth Development Foundation develop a showcase of wetland restoration and alternative livelihood projects, including flood-adapted farming at Xiban-shanzhou Polder in Hunan Province.

Increasing numbers of national and international visitors visit the demonstration site.

### October 2001 onwards

- WWF works to establish the IRBM Task Force.

### December 2002 onwards

- June: vision statement and conservation objectives for the Yangtze River and Lakes Ecoregion completed as the basis for future IRBM and other conservation efforts.

### 2003

- March: IRBM Task Force formally launched.

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## Lessons learnt

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### **1. Establish and maintain a clear 'niche'**

Organizations like WWF can have an important role to play in supporting the development and implementation of government policies that are favourable for river basin management. In the case of the Yangtze it is considered that WWF should remain in the role of facilitator, partnership builder, 'honest broker', coordinator, and promoter. This maximizes potential to manage interaction with partners (especially local government and local resource users) and to motivate their involvement.

### **2. Working at several levels simultaneously achieves more than focusing exclusively on a single approach**

Demonstration projects can be combined with communications and policy work to build a persuasive case based on actual field experience.

### **3. Environmental issues must be linked with socio-economic concerns**

This means seeking 'win-win' solutions and considering the interests and expectations of different stakeholders. In the case of wetland restoration in the Yangtze basin, the national government's interest is to increase water retention capacity to mitigate flood losses. Similarly, local governments want to reduce compensation payments for flood damage. Local communities, on the other hand, require secure and stable livelihoods, whereas WWF's main aim is to maintain and increase wetland biodiversity.

### **4. Diversified partnerships enable WWF to leverage additional resources and help to build 'ownership' of projects among the partners – especially local communities and local government**

### **5. Different approaches are required with different stakeholder groups**

For example, participatory planning has been used at the community level, but other means are needed to influence stakeholders responsible for setting the policy framework and to ensure that field-level experience is properly embedded in policy development processes.

### **6. A common platform (in this case, the IRBM Task Force) is needed where top-level government officials and experts can work together to formulate policy recommendations**