



WWF

for a living planet

**GLOBAL
FRESHWATER
PROGRAMME**

Milestones in water conservation





Cover image

Rice terraces, Bontoc Province, near the village of Sagada, Philippines.

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GLOBAL FRESHWATER PROGRAMME

Milestones in water conservation

The crash of freshwater biodiversity - *with more than a 50% decline in species populations since 1970* - says it all: wetlands and rivers are the source of life and they are being destroyed fast. Globally **1.1 billion people** lack access to freshwater and **2.6 billion people** lack adequate sanitation services.

**50%
DECLINE**
in species
populations
since 1970

**1.1
BILLION**
people lack
access to
freshwater

**2.6
BILLION**
people lack
adequate
sanitation services

Since 1961, WWF has been active with governments, local communities and many other stakeholders to save the health of some of the most threatened ecosystems and safeguard the livelihoods they sustain. Many of our actions have been controversial, and the strength of our advocacy and documented proof of better conditions obtained for people and nature have been a beacon of hope in some of the most important freshwater regions in the world. Increasing results have generated support and credibility with partners, including in the agriculture sector that consumes 70% of abstracted water, and businesses, that consume a further 20%.

In stopping large dams on rivers, conserving wetlands, growing more crops from less water, and establishing and strengthening river basin organisations especially among countries sharing a single river, WWF is making a difference in a fight where every drop counts. This summary highlights twelve of the many successes achieved by WWF and our partners:



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Picking cotton for about \$3/ day. Near Piura, Peru.

Dam right!

Stopping dams that fragment rivers beyond repair

Spanish Plans

The Spanish National Hydrological Plan (SNHP) featured the Ebro Transfer which aimed to redistribute water annually into four river systems hundreds of kilometres away. The Plan involved up to 900 infrastructure projects including 120 new dams and threatened about 60% of all Europe's bird species. For every cubic metre of Ebro River water that failed to reach the Mediterranean would reduce the sardine fishery by an estimated 200 Kg - a blow to the area's economy.

A non-government organisation alliance including WWF lobbied the European Union (EU) to demand that funding go only to infrastructure projects that meet EU standards. People from affected areas knocked on EU doors, walked in, and began talking about the reality of their lives and what they would lose if the transfer went ahead. The European Commission received more letters on this than on any previous environmental issue. Scientists provided facts on the effects of climate change, weather patterns, and loss of biodiversity. Through powerful research, lobbying, communications and partnerships, WWF was able to demonstrate the illegality and harmful consequences of the transfer, obtain extensive media coverage in Spain and Europe, delay decision-making in Brussels, convince the Spanish Socialist party who didn't have a clear opinion on the transfer, and finally get three senior members of the European Commission to strongly criticize the project. And when the new Spanish Government was elected in 2004, one of its first acts was

to repeal the SNHP and replace it with a programme of water demand management and desalination. This now opens the door to apply best practices in recycling, waste reduction, fixing leaky pipes, planting crops which don't require irrigation, and replanting river banks.

900
INFRASTRUCTURE
PROJECTS

120
NEW DAMS

60%
of all of
Europe's birds
threatened



Protest against the SNHP painted on the wall of an abandoned house in the Ebro delta.



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Freedom for Norway's Vefsna River

In early 2005, WWF launched a public campaign for protection of the Vefsna River in Norway, one of Europe's last free-flowing rivers. Statkraft, Norway's largest electricity company, had planned to dam the Vefsna River and drill giant tunnels to drain it for hydropower generation.

The Vefsna in northern Norway is a paradise for anglers with its large populations of sea trout and inland trout, and has the second largest spawning area in Norway for the threatened wild Atlantic salmon. Statkraft's large-scale development plans would have taken place near the only healthy population of Arctic fox on mainland Norway, and have a detrimental effect on traditional Sami territory and reindeer herding grounds.

Through 15,000 emails on 'panda passport', WWF urged Statkraft's CEO, Mr. Bard Mikkelsen, to drop the hydropower plans and appealed to Mr. Oeyvind Halleraker, a key Norwegian parliamentarian, to give the Vefsna River the protected status it deserves. National media highlighted that Norway was lagging behind the EU when it comes to nature protection by making concessions to the hydropower industry in a Natura 2000 conservation site. On 13 October, 2005, the new Norwegian government under the leadership of incoming Prime Minister Jens Stoltenberg, of the Social Democratic Party, announced that Vefsna River will now be protected.

**THE VEFSNA
RIVER**
will now be
PROTECTED

Reducing poverty and securing water

MDGs AIMS: reduce by half the proportion of people living without sustainable access to safe drinking water

‘Win-win’ for people and nature

The United Nations Millennium Development Goals (MDGs) aim to halve those living in poverty by 2015 and to “reduce by half the proportion of people living without sustainable access to safe drinking water”. The recently published Millennium Ecosystem Assessment concluded that the degradation of wetland ecosystem services is a significant barrier to achieving the MDGs. Determined to show the link between healthy ecosystems and poverty reduction, results from four WWF case studies in 2005 proved increased income and improved ecosystems at sites in South Africa, China, Colombia and Brazil.

As shown in table 1 from the WWF report *Serving People, Saving Nature*, alongside improved ecosystems and stable fisheries were thriving communities including previously unemployed women and many more people who enjoyed a greater sense of well-being, health benefits and increased income.



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A view of the São João river showing its original meandering course and the new stretch of straightened river; near Boca de São João at Cabo Frio. The Sao Joao River Basin Management project, sponsored by HSBC, will restore the original meandering course of the river, by blocking the canal, and bringing back floodplain habitats and wildlife.

Table 1: Summary of Key Conservation and Livelihood Benefits

Project	Key Conservation Benefits	Key Livelihood Benefits
Working for Wetlands, South Africa	<ul style="list-style-type: none"> Rehabilitation of 40 wetlands 	<ul style="list-style-type: none"> 1,417 previously unemployed people with employment benefits <ul style="list-style-type: none"> 18% employed are youth 54% employed are women 4% employed are disabled
		<ul style="list-style-type: none"> Increased level of confidence and knowledge
		<ul style="list-style-type: none"> Reduced vulnerability - employment
		<ul style="list-style-type: none"> Increased investments in housing
Lake La Cocha, Colombia	<ul style="list-style-type: none"> 3,500 ha of fog forest, paramos and wetlands in La Cocha Network of natural reserves 39,000 ha wetland designated as Ramsar site Unsustainable dam proposal stopped 	<ul style="list-style-type: none"> Increased average family income of project beneficiaries by 2.8 times the average income
		<ul style="list-style-type: none"> 83% self-sustaining in terms of food production compared to 40% before the project
		<ul style="list-style-type: none"> Increased well-being and self-respect
		<ul style="list-style-type: none"> Improved healthcare
		<ul style="list-style-type: none"> Reduced vulnerability - food security, health and conflicts More sustainable use of natural resources - soils, water, flora and fauna
Lake Dongting, China	<ul style="list-style-type: none"> 393,000 ha in 3 natural reserves (East, South and West Lake Dongting) established as Ramsar sites In the Xipanshanzhou polder alone 100 ha wetlands restored 	<ul style="list-style-type: none"> More than 100% increase in income levels
		<ul style="list-style-type: none"> Improved well-being - better housing conditions, improved healthcare, diversified food
		<ul style="list-style-type: none"> More sustainable use of natural resources - organic farming, biogas cooking, decreased use of pesticides and chemical fertilizer
Várzea Flooded Forests of the Amazon, Brazil	<ul style="list-style-type: none"> 60% increased production of commercially valuable fish 	<ul style="list-style-type: none"> 25% increase in average agricultural income
		<ul style="list-style-type: none"> Increased income from sting-less bee raising and shrimp fishing
		<ul style="list-style-type: none"> Strengthening community capacity to resolve collective management problems
		<ul style="list-style-type: none"> Improved health
		<ul style="list-style-type: none"> Reduced vulnerability - resource vulnerabilities, conflict, property rights

Table of plenty – agriculture’s watermark

“Thirsty” crops being quenched

WWF’s freshwater and agriculture experts are focusing on sugar, cotton and rice as three of the “thirstiest” crops that reduce biodiversity in priority river basins and ecoregions. Results of WWF’s work in Pakistan over the last five years demonstrated that more cotton can be grown using up to 30% less water, up to 25% less chemical fertiliser and by more than halving pesticide use while putting more money in farmers’ pockets. Similar results are being found for other major crops such as sugarcane, wheat, rice, and vegetables in other countries. These approaches are currently being scaled up through a combination of support from the EC, the corporate sector and the governmental agencies.

Rice is a basic foodstuff for hundreds of millions of the world’s poorest, especially in Asia. WWF has been supporting farmer pilot projects in the “System of Rice Intensification” (SRI), a way of growing rice under dry conditions. Results from the 2005 season in India received wide media coverage in India, with crop yields and farmer incomes increasing substantially while using less than half the water of normal paddy rice. WWF is now working with international agricultural policy and research bodies such as FAO, IRRI, IWMI and national institutes to a) find ways of promoting means of producing more rice from less water b) establish an international expert panel to validate these farm-based methods. The potential of this work to benefit ecosystems and poor farmers is enormous.

In the past two years, WWF has helped start multi-stakeholder initiatives with leading multinational companies and NGOs in order to change the way that the entire commodity industries operate. For cotton and sugar this is being done by developing new commodity certification programmes that are defined by measurable reductions in the main environmental and social impacts of cultivation. Companies representing approximately 10% of global retail sales are engaged in the commodity initiatives.



Cotton market, Rawalpindi, Pakistan.



Crushing sugar cane for the production of jaggery (or gur), a solid raw sugar. Irrigation for the production of this sugar cane is one reason why only 5% of the Ganga River’s water reaches the sea, threatening species like the Ganga River dolphin and habitats like the Sundarbans.



Dryland rice offers the potential to produce the same or greater yield of grains while using much less water, Peddapapaiahpally village, Andhra Pradesh State, India.

Delivering through dialogue

Linking all of India's Rivers – challenging the logic behind controversial infrastructure

**US\$125
BILLION**

**966km
of CANALS**

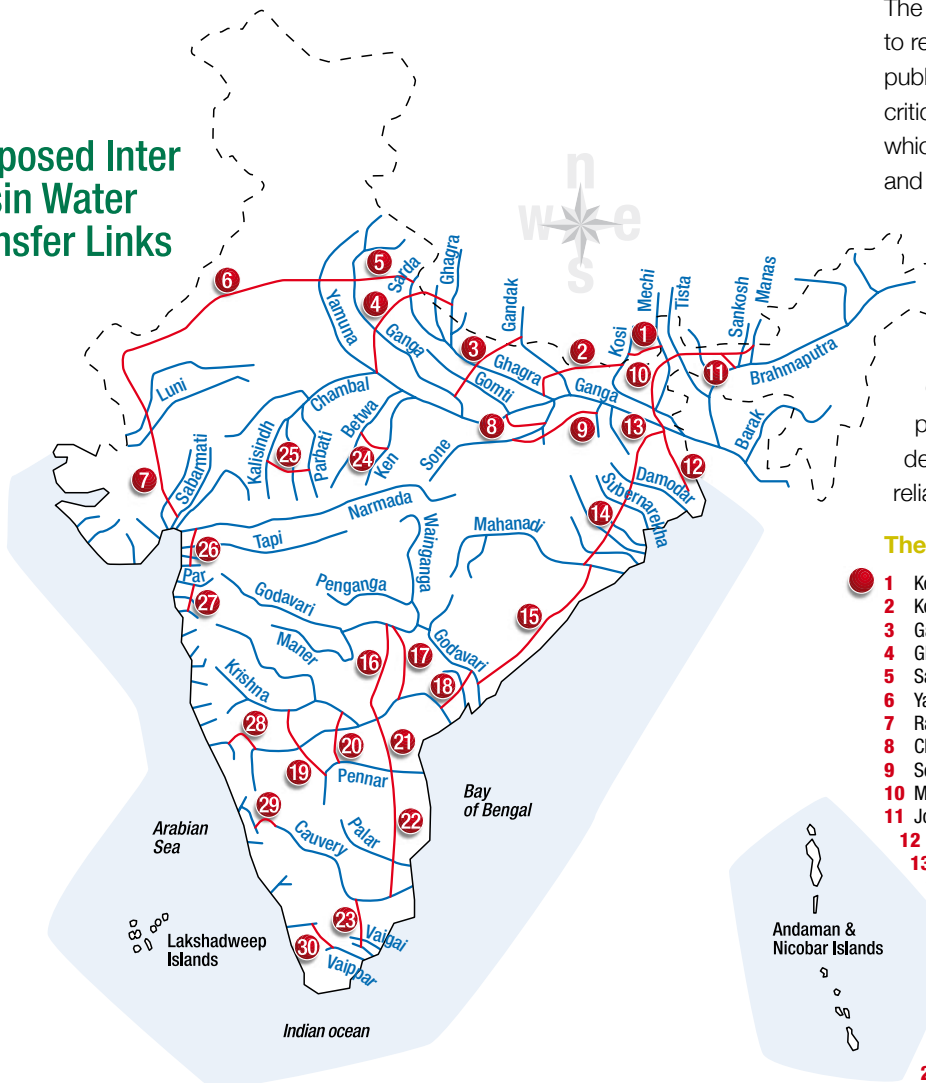
A concept dating back 50 years to link 37 of India's rivers is back on the national political agenda. This mega water infrastructure plan, estimated to cost at least US\$125 billion, would be the most expensive ever in the world in any sector. Infrastructure of such magnitude will have serious consequences for people and ecosystems. Linking rivers from north to south, east to west, by constructing thousands of kilometres of canals, the plan would entail hundreds of reservoirs and digging more than 966 kilometres of canals, while displacing unprecedented numbers of people.

WWF facilitated the set-up of the National Civil Society Committee on Interlinking of Rivers (NCSCIR) that consists of 14 prominent members of Indian society. The NCSCIR was created amid great national controversy to generate public debate, share ideas between civil society and government, and build knowledge through independent studies. The "Interlinking of Rivers" plan was shown to be lacking in consideration of displaced populations, loss to ecosystems, forests, and coastal systems and have the potential to fuel interstate water disputes.

The Committee persuaded the government to release technical information so that public debate can take place; published a critique of the first link in this massive project which raised serious issues affecting people and ecosystems; and highlighted the need for additional studies to properly understand the environmental and economic feasibility of the proposals.

Only by challenging the logic behind such projects can better options be found that deliver more benefits to people lacking reliable water supplies.

Proposed Inter Basin Water Transfer Links



The Links

- 1 Kosi - Mechi
- 2 Kosi - Ghagra
- 3 Gandak - Ganga
- 4 Ghagra - Yamuna
- 5 Sarda - Yamuna
- 6 Yamuna - Rajasthan
- 7 Rajasthan - Sabarmati
- 8 Chunar - Sone Barrage
- 9 Sone Dam - Southern Tributaries of Ganga
- 10 Manas - Sankosh - Tista - Ganga
- 11 Jogighopa - Tista - Farakka (alternative)
- 12 Farakka - Sunderbans
- 13 Ganga (Farakka) - Damodar - Subarnarekha
- 14 Subarnarekha - Mahanadi
- 15 Mahanadi (Manibhadra) - Godavari (Dowlaiswaram)
- 16 Godavari (Inchampalli) - Krishna (Nagarjunasagar)
- 17 Godavari (Inchampalli) - Krishna (Pulichintala)
- 18 Godavari (Polavaram) - Krishna (Vijayawada)
- 19 Krishna (Almatti) - Pennar
- 20 Krishna (Srisailem) - Pennar
- 21 Krishna (Nagarjunasagar) - Pennar (Somasila)
- 22 Pennar (Somasila) - Palar - Cauvery (Grand Anicut)
- 23 Cauvery (Kattalai) - Vaigai - Gundar
- 24 Ken - Betwa
- 25 Parbati - Kalisindh - Chambal
- 26 Par - Tapi - Narmada
- 27 Damanganga - Pinjal
- 28 Bedti - Varda
- 29 Netravati - Hemavati
- 30 Pamba - Achankovil - Vaippar

Going public - Recognising better business in saving nature

HSBC's lending guidelines lead the way

In 2005 HSBC published new guidelines for freshwater infrastructure in order to direct investment and manage risks in this critically important sector, following discussions with WWF under the Bank's "Investing in Nature" Programme.

HSBC is the first global commercial bank to take such positive steps to address the world's growing freshwater crisis. The Guidelines include measures that recognize the global importance of protecting freshwater resources, applying the World Commission on Dams framework as a standard to identifying and finance good practice in proposed water infrastructure developments while also conserving internationally important wetlands, such as "Ramsar" sites. WWF considers that these HSBC guidelines for freshwater infrastructure provide a standard that other banks should follow.

**HSBC
GUIDELINES:
providing a
standard other
banks should follow**

From policy to practice - Defending the laws of nature

Water's first treaty and a chance for remaining wetlands

Wetlands pay for a water-secure future. WWF helped establish the Ramsar Convention on Wetlands in 1971. It is the only environmental treaty for a particular ecosystem and the first global intergovernmental treaty to combine conservation and sustainable use of natural resources. Signed in 1971, it promotes conservation and wise use of wetlands, including rivers, swamps, bogs, lakes, floodplains and coastal wetlands, such as mangroves, coral reefs, and seagrass beds. These ecosystems are extremely important for biodiversity conservation and the well-being of human communities.

A key achievement of the convention, that now has 151 member countries (as at April 2006), has been greater awareness of wetlands' values. Swamps, marshes, bogs, and many other wetlands have traditionally been viewed as undesirable and therefore drained or dammed. Yet in recent years, wetlands' provision of water, food, and raw materials has been increasingly recognized. WWF has been the catalyst for conservation of 59 million hectares of freshwater habitat from 1999-2005, mainly under the Ramsar Convention, that represents around 6% of freshwater habitats globally. Key places to be conserved with WWF assistance include the Inner Niger Delta in Mali, third largest Ramsar site in the world at 4,119,000 hectares and El Abanico del Rio Pastaza in Peru at 3,827,329 hectares.

**151
MEMBER
COUNTRIES**

**6% OF
FRESHWATER
HABITS
PROTECTED**

Further, WWF is now piloting wetlands management tools in sites worldwide in order to guide decisions about how well wetlands are doing and allow us to fine tune management plans.

12,000,000
ha of key wetlands

More than hectares

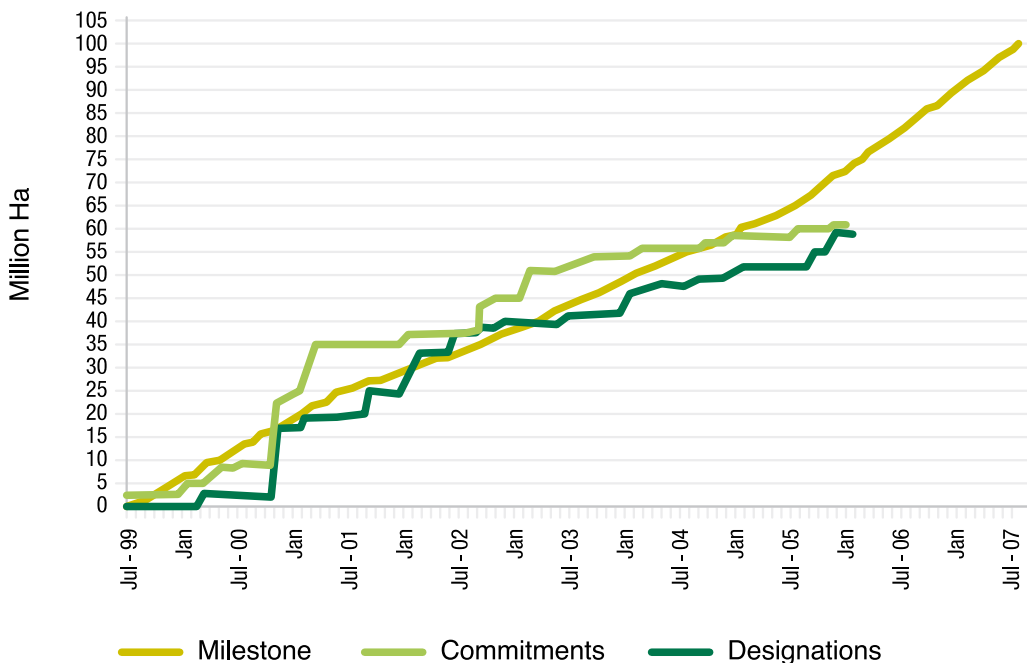
A popular feature of WWF's protection and management of wetlands are initiatives that are widely inclusive - blending local projects with policy implementation, engaging multiple stakeholders to cooperate and attracting the attention of donor giants. One example is the NigerWet Initiative that took its first step in 1999 with the preparation of a conservation vision with key partners in the Niger Basin Authority, Wetlands International, Nigerian Conservation Foundation, and WWF. This was followed by the designation of 16 Ramsar sites with WWF assistance to conserve 12 M ha of key wetlands in the Niger River basin.

WWF then facilitated a partnership between the Niger Basin Authority and the Ramsar Convention, formalized in 2002, providing a framework for ongoing political and technical support. WWF also assisted the basin governments to secure initial Global Environment Facility (GEF) funding of CHF 3 million for implementation of pilot wetland management projects, most of them in existing or planned Ramsar sites, and undertake wetlands management training for local staff. Partnerships with donors like the GEF, and institutions like the Niger Basin Authority, provide long term resources and good governance for this vital ecoregion.

INSPIRATIONAL INITIATIVES

NigerWet's combination of basin government support, multiple partners, good planning and wetland site conservation has attracted aid agency and corporate support. And in November 2005 this example inspired the Council of Ministers of the Congo River Basin Commission resolved to initiate a similar a 'CongoWet' initiative.

Area of Newly Protected Sites



European Law - and history - is made

The EU Water Framework Directive (WFD), a vital piece of European legislation, is designed to protect and improve the quality of European rivers, lakes, groundwater bodies and coastal waters. It offers real hope for restoration and revival of Europe's freshwater ecosystems. This new law, advocated by WWF, and adopted in 2001, obliges 29 European governments to establish river basin management programmes for each of their rivers. It promotes the joint management of all land and waters in a river basin to "prevent further deterioration" by meeting a series of targets that are intended to achieve "good ecological and chemical" condition in all European waters by 2015.

The WFD will help revive European rivers as many have become degraded through conversion to transport canals and drains. With timely and efficient implementation of the WFD, Europeans will benefit from the socio-economic functions of freshwater ecosystems - such as natural flood control, water purification and groundwater recharge. WFD implementation should reduce the impacts from poor water management on EU's environment and citizens. Restoring floodplains and allowing rivers to run their own course will require substantial investments, but the costs of reviving Europe's rivers will be repaid by long-term savings from reduced flood damage, and increased water quality, public health and recreational opportunities.

A key attribute of the Directive is that it sets high, EU-wide standards and targets and delegates to national governments to lead their implementation according to local circumstances by river basin. The European Commission plays a strong role in monitoring and enforcing the implementation of the Directive, including through legal action and fines.

**THE EU WATER
FRAMEWORK
DIRECTIVE (WFD)
- A VITAL PIECE
OF EUROPEAN
LEGISLATION**

Brazil is Latin America's first country to approve a national water law

In an historic move in January 2006, Brazil's National Water Council approved a National Water Resources Plan, to implement its 1997 national water law, becoming the first country in Latin America, to do so.

While the challenge of implementation lies ahead, the plan outlines programmes to 2020 in order to secure water for millions of Brazilians while safeguarding some of the world's richest aquatic life. By looking at the relationships between water, forests and soil usage, the Plan aims to ensure a sustainable future for the species, wildlife, urban centres and local communities of Brazil. An innovative aspect of the Plan is that it promises to make freshwater values an important part of any future infrastructure projects and water policy, reflecting the advocacy of WWF.

The law and the plan engage all key parts of society with an interest to manage water better, including through river basin commissions.

The first river basin commissions are being established, involving WWF, such as in the Sao Joao River basin, and are already resulting in practical action, such as increasing treatment facilities for waste water.

"The Plan brings together major groups such as WWF-Brazil so that each player can make its contribution and make a difference in implementation," said Ninon Machado, from the NGO Ipanema Institute.

The water law and its programmes are urgent in a country where 40 million people have limited or no access to drinking water and sanitation services and about 70% of patients in children's hospitals have water-borne diseases such as dysentery, hepatitis, and leptospyrosis.

**40
million
people in
Brazil
have
limited or
no access
to drinking
water**

**SECURING
WATER FOR
MILLIONS OF
BRAZILIANS**

Conserving water from source to sea

In the past
50 years,
more than
800 lakes
have been lost due
to reclamation of
parts of the central
Yangtze floodplain

China wants a living Yangtze

The Yangtze River is the world's third longest, at 6,378km. The river basin, covering 1.8 million Km² and 11 provinces, is home to about one third of the Chinese population – more than 420 million people – and has the habitats of the giant panda, Siberian crane, leopard and Yangtze River dolphin. Forty per cent of China's freshwater resources – more than 70% of rice, 40% of grain and 40% of China's GDP – are derived from the Yangtze River basin.

In the past 50 years, more than 800 lakes have been lost due to reclamation of parts of the central Yangtze floodplain. There has been a 75% decline in fisheries, and 73% of the basin's pollution – from an annual waste discharge of about 25 billion tons – is dumped in the main river course, affecting drinking water for more than 500 cities. Severe flooding is now an almost annual event with thousands of lives lost and economic losses worth more than US\$70 billion in the last 15 years.

WWF responded with a field programme in the central Yangtze basin that since 1999 that has seen restoration of floodplain areas to safely hold and release flood waters, increasing safety for over 8.3 million people, and restoration and re-linking of 71,000 ha of lakes to the river. Not only have the livelihoods of local people improved (see table 1, page 5), but 450,000 ha of nature reserves have been established and threatened species have returned, including Pere David deer, the oriental white stork and many other bird and fish species. A method for restoring populations of the finless porpoise has also been successfully tested.

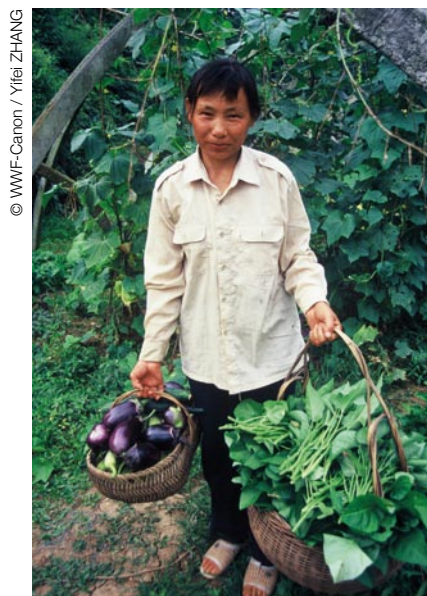
WWF has also sought means to magnify the successes from this local scale work to the broader Yangtze River basin. In April 2005, an unprecedented gathering of provincial and national government leaders from China's water, environment, forest and agriculture sectors resulted in an official agreement to conserve the entire Yangtze River basin. WWF was a key initiator and supporter of this first Yangtze Forum, drawing on our local and international expertise on best practices in river management. Governments participating in the Forum, committed to work together to ensure the integrated management of Yangtze resources leading up to the the 2nd Yangtze Forum in 2007. This example highlights how WWF can link field and policy work at the local, basin, national and international scales to accelerate conservation of river systems.

Tujia boatmen steering sampans (long dugout canoes) through the smallest of the Yangtze's three gorges. Yangtze River, Hubei Province, China.



© WWF-Canon / Claire DOOLE

Women with baskets of organic vegetable in Xipanshanzhou Polder, a demonstration site part of the WWF Yangtze Programme, where organic agriculture is developed as an alternative livelihood, and is supported by WWF after the wetland restoration in 1999. Yuanjiang City, Hunan Province, China.



© WWF-Canon / Yifei ZHANG

WWF is encouraging local farmers to raise ducks, an activity that is not affected by the floods. Dongting Hu Lake, Hunan Province, China.



© WWF-Canon / Michel GUNTHER

And for 13 countries, a Danube Green Corridor

In 2001, Heads of State from countries of the Danube-Carpathian region, 13 in all, gathered for the first time to take action to restore and conserve it at a Summit co-chaired by the President of Romania and HRH The Duke of Edinburgh, WWF President Emeritus.

A WWF study showed that over 80% of the Danube's wetlands and floodplains have been destroyed since the beginning of the twentieth century and pressure continues from dam-building, irrigation and drainage, artificial flood protection schemes, and pollution. Cut off from the network, the floodplains have become isolated islands. The Lower Green Corridor initiative of 2000, agreed to by respective governments, aims to reconnect and conserve 900,000 hectares of floodplains. A pilot project in the Romanian part of the Danube delta, on the islands of Babina and Cernovca, has demonstrated the restoration potential of the damaged wetlands, returning floodplains unsuccessfully drained for agriculture back to their natural states. As a result, local communities have benefited from enhanced fish stocks and livelihoods.

Over 80% of the Danube's wetlands and floodplains have been destroyed since the beginning of the twentieth century



© WWF-Canon / Anton VORAUER

In the Danube, region-wide conservation and a Lower Green Corridor.



A natural resource we can manage

More deaths result from polluted or scarce freshwater than war or natural disasters

Freshwater management is within our control through local level solutions, binding agreements and leadership in sustainable use

It is said that more deaths result from polluted or scarce freshwater than war or natural disasters, yet freshwater management is within our control. Local level solutions, matched by binding national and international agreements, and by leadership in sustainable use by business and the agriculture sectors are crucial. In coming years, to conserve the environment as a source of water for people and nature, WWF will:

Work with corporate leaders, who are willing to move ahead of governments, to set higher standards for freshwater conservation and wise use;

Campaign for implementation of national and international commitments by governments to manage water better, including for the entry into force of the 1997 UN Watercourses Convention;

Deliver and communicate WWF's solutions on the ground through conservation of key river systems.

Support of members and donors helps us restore life in the biome affected by the greatest species losses, and which is inhabited by people in dire need of better water services. WWF continues to:

Ensure healthy environmental processes in at least 50 river basins and ecoregions, including some threatened by unsustainable infrastructure, by 2010.

Promote adoption by government and industry of policies and techniques that conserve life in rivers and reduce poverty for dependent communities by 2010.

Protect and manage 250 million hectares of representative wetlands by 2010.

The mission of WWF is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- conserving the world's biological diversity
- ensuring that the use of renewable resources is sustainable
- promoting the reduction of pollution and wasteful consumption

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WWF Global Freshwater Programme

P.O.Box 7
3700AA Zeist
Netherlands
T: +31 30 693 7803
F: +31 30 691 2064
freshwater@wwf.nl

www.panda.org/freshwater



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