

The newsletter

of Wetlands International

April 2005 Number 13

# Wetlands

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**Wetlands and  
the tsunami**

**Global Strategy  
development**

**Freshwater fish**



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*Wetlands* is the newsletter of  
Wetlands International  
ISSN 1362-4598 Number 13 April 2005

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## Wetlands International

### Mission:

**To sustain and restore wetlands, their resources and biodiversity for future generations**

## 50th anniversary awards

On 25 November 2004, 75 Members, staff and special guests gathered to celebrate Wetlands International's 50th anniversary. Master of Ceremony Tunde Ojei guided the guests back through 50 years of wetland conservation history and several guests shared their vision of the future.

Jane Madgwick, Wetlands International CEO, then came to the podium to honour Dr Luc Hoffmann, a founder of Wetlands International and life-long champion extraordinaire of wetlands. Recognising Luc's continuing source of inspiration and support to those who share his passion for wetlands, Wetlands International has established the Wetlands International Luc Hoffmann Medal for Wetland Science and Conservation.

Luc enriched the celebration by personally presenting the first Medal to Theunis Piersma, for "excellence in wetland research, especially in waterbird ecology and physiology, and his outstanding communications, team work and collaboration worldwide for the active promotion of wetland conservation and wise use." Wetlands International President Max Finlayson presented the President's Medal for Staff Excellence to Charles Mamady Bèye, and Chair Stew Morrison inaugurated Alison Russell-French as an Honorary Director.



*Luc Hoffmann presenting the Wetlands International Luc Hoffmann medal to Theunis Piersma.  
Photo: Doug Taylor*



*Award winners Charles Mamady Bèye, Theunis Piersma and Alison Russell-French.  
Photo: Chris Gordon*

# President's report – Max Finlayson



Late in 2004 we held our Board of Members meeting in Bangkok, Thailand. During this meeting we obtained approval for a renewed strategic direction, based on extensive consultation and the results of our previous strategy and experience. The renewed strategy is far-reaching; it has established goals and targets for reporting. At the same time as we adhere to our strategic directions we also need to take notice of other programs and events; two are foremost in my mind.

*First*, many of you are aware of the global programme – the Millennium Ecosystem Assessment ([www.millenniumassessment.org](http://www.millenniumassessment.org)) that has been underway for the past few years. On 30 March 2005 it published its results, which included separate reports on wetlands and a synthesis report to the Ramsar Convention. A few of the results are paraphrased here. Namely, wetlands are in dire straits and global climate change is expected to exacerbate the current problems. Recent biodiversity-based analyses indicate that: 41% of all waterbird populations are in decline; many reptiles are globally threatened; an estimated 20% of the world's 10,000 described freshwater fish species are threatened or extinct; some 964 amphibian species from freshwater and especially flowing freshwater habitats are under threat; more dragonflies and damselflies are now regarded as critically threatened than previously recognised; the Living Planet Index illustrates that between 1970 and 2000 freshwater species declined at an average rate of 50%. These are alarming figures – we are not succeeding! The Assessment also considered the delivery of services from ecosystems and how this affected human well-being. Given the outcomes it

is likely time that we further consider how we do business – are we making a difference and/or should we make further major change?

*Second*, is the recent tsunami that devastated much of the coastal environment of southern Asia. The humanitarian needs and responses are very much in our minds. At the same time there is an increasing environmental response focusing on analyses of the roles of coastal wetlands and other ecosystems in mitigating the effects of such events. There has been some very neat analysis and a lot of speculation. There has also been a high level of collaboration between wetland-related organisations with Wetlands International being particularly involved in formal events arranged by the Ramsar Convention (World Wetland Day, 2 February 2005, Gland, Switzerland) and the Asian Wetland Symposium 2005 (9 February 2005, Bhubaneswar, India). We have also worked closely with many other organisations to establish links and partnerships that can assist in delivering sensible advice and analyses on the role of coastal wetlands in mitigating storms and tidal surges etc. The recent global interest has been stimulated by the tsunami, but the implications of our efforts extend far beyond dealing with natural events – we also have an opportunity to address mitigation and adaptation to climate change and to again consider the wisdom of many coastal development policies and practices.

We have accepted the challenge of making wise use of wetlands and we have a new strategy to implement; as we do this we will be challenged by events and analyses – these will test the maturity of our organisation and further guide us into the future.

## Word from the CEO – Jane Madgwick

Although Wetlands International has just celebrated its 50th birthday, we enter the next decade knowing that the challenges for wetlands are intensifying. That the rate of wetland loss and degradation is higher than for any other ecosystem. In 2004 we reviewed our Strategy as an organisation – region by region – and at the global level. As a result of this process, we have strengthened our partnerships and our resolve to champion wetlands conservation and wise use as a contribution to sustainable development. Our Strategic Intent for 2005–2014 includes an ambitious and compelling set of goals and targets. Plans for strengthening our institutional capacity and partnerships to meet these are already moving forward. I thank all staff, partners, members and donors for your strong support and encouragement at this time.



# Wetlands International 2005–2014 Strategy development process



Wetlands International has always shared the common goal to sustain and restore wetlands, their resources and biodiversity for future generations through research, information exchange and conservation activities, worldwide. This was one of the reasons for developing a Strategy in 2001 for the period 2002–2005. However, during the review in 2003 of the now old Strategy 2002–2005, the Wetlands International Board requested a Strategy that tends towards building one global organisation: one global Strategy, developed through a participative process on a need-basis and in consideration of our present and future niche.

Following this, an internal and external review process was initiated through an external consultant, Delmar Blasco. He held consultations with key staff and associates for the internal component, and then externally with our partners, including NGOs, governments, multilateral environmental agreements such as the Ramsar Convention, and members of the Board. The review was quite thrilling in the sense that it gave the organisation a mirror to view itself. It enabled the organisation to determine its niche from a global perspective and to identify areas where appropriate gap filling roles were needed.

The outcome of the review process was the development of a framework for the new Strategy, which consists of:

- **a ten-year Strategic Intent document**
  - vision, mission, core values, partners
  - ten-year strategic goals
  - internal guide, external communication tool
- **a five-year Global Strategy**
  - five-year global targets and indicators, showing regional emphasis
- **an annual Action Plan**
  - anticipated projects and outcomes for the year, linked to budgets and offices.

In May 2004, a workshop involving regional and global staff, partners and technical staff was held at the Station Biologique de la Tour du Valat, France. The key outcome of this workshop was the development of the draft ten-year Strategic Intent document, which then formed the consultation document for the regional consultations.

Between August and September 2004, seven regional workshops were held with partners, directors, members, donors, specialist groups and staff for the Americas, North-east Asia, South-east Asia, South Asia, Oceania, Africa,

and Europe/Central Asia/Middle East. Regional-based staff led the process for their respective regions, with a Global Management Team staff member supporting each region.

The regional consultations delivered relevant outputs in the form of an analysis of regional priorities, based on a problem analysis and consideration of threats and opportunities. Furthermore, it provided feedback on the proposed global goals and targets and added draft regional targets.

The September 2004 meeting of the Heads of Office held in Kuala Lumpur, Malaysia had workshop sessions to review the global goals and regional targets from the workshops in Tour du Valat and in the respective regions. This led to further revisions in November 2004 by the Global Management Team and the staff network of the regional and national targets.

At the meetings of the Board of Directors and Board of Members from 24–27 November 2004 in Bangkok, Thailand, the Strategy was presented by CEO Jane Madgwick. At both Board meetings and following workshops the Strategy was strongly endorsed by the members. Some final recommendations have been included and now, April 2005, Wetlands International is proud to present the Strategic Intent 2005–2014.



# The unique and unheralded **freshwater fish diversity** of the **Pacific Islands region**

Freshwater natural resources are under serious threat around the globe from anthropogenic influences. The developing island nations of the Pacific are particularly vulnerable due to their limited freshwater resources, burgeoning populations, limited local capacity for water management, and the unchecked extractive activities of mining and logging interests. The freshwater fishes of this region are an extremely important resource for many island communities and a vastly under-studied aspect of the Pacific environment. Available data suggest that 20–35% of Pacific freshwater fishes are vulnerable, endangered or extinct, mostly because of habitat alteration. The development aid and scientific enquiry related to fisheries management within the island Pacific have traditionally focused on coastal systems, and perhaps rightly so. However, there is consequently a gap in knowledge on the biodiversity and management of freshwater fishes in the region, particularly within Melanesia (Solomon Islands, Vanuatu, Fiji, Papua New Guinea and New Caledonia) with many island freshwater systems still un-studied. There is a glaring need for the developing island nations and their aid donors to consider the management and integrated conservation and development of these often unique and fragile freshwater resources.

The results of recent field surveys and taxonomic work by Wetlands International (Fiji Office, Oceania region) and the University of the South Pacific (USP) have helped to demonstrate how little we actually know about the freshwater fishes of the region. They highlight the uniqueness and diversity of a fauna often overlooked due to pursuit of the more charismatic and ubiquitous coral reef fishes and terrestrial faunas. Over the past few years Wetlands International and USP scientists and students working on freshwater fishes in the Fiji Islands have discovered a new genus, seven new species and many new country records. Only now are they beginning to piece together an understanding of the diversity of these unique freshwater systems. Only a few years ago, 75 species of freshwater and brackish-water fishes were listed from Fiji, which has a land area of 18,272 km<sup>2</sup>. With some focused effort, more species have been found (about a 38% increase) with 122 species now known from Fiji, many being new to science and highly localised or regional endemics. Additional work by the Paris Museum and New Caledonian scientists has also shown New Caledonia (19,100 km<sup>2</sup>) to have a unique freshwater fish fauna with ancient Gondwanaland origins (e.g. *Galaxias neocaledonicus*). Papua New Guinea (462,000 km<sup>2</sup>) has the largest known and most diverse freshwater fish fauna of the island Pacific with high levels of endemism and an ever-increasing species tally (at least 350 species). While these Pacific island freshwater faunas may still be relatively small in comparison to say the single Kapus River system of Borneo (300 species) or the Amazon (at least 2,000 species) they nevertheless are of special interest and deserve conservation action.

One group of freshwater fishes from the region, which is of special interest, is the bottom-dwelling and climbing



Upper Navua River, Fiji, part of a proposed Ramsar Site, supporting fishes endemic to Fiji. Photo: R. Thaman.

*Sicyopterus* sp., an un-named freshwater fish that is endemic to Fiji. (Background: *Redigobius leverii*, a bottom-dwelling freshwater fish that is endemic to Fiji). Photos: A. Jenkins.

gobies of the sub-order Sycidiinae. These are beautiful gobies of the genera *Lentipes*, *Stiphodon*, *Sicyopus* and *Sicyopterus*, which are generally well represented in most Pacific freshwater streams of medium–high water quality. They have high island-level and even stream-level endemism and have an amphidromous life cycle. The process of amphidromy comprises the following stages: reproductive adults spawn high in a river basin (stream catchment); fertilised eggs are washed out to sea; swimming larvae migrate back to river mouths, honing in on the freshwater pulses during heavy rain periods; occurrence in brackish and lower freshwater reaches during advancing stages of development; then progression to mid reach and finally headwater streams where a new phase of spawning occurs. These species of gobies are often the first to disappear when the water quality has been significantly altered as they obligatorily use the entire catchment, from the headwaters to the open ocean, during their life cycle. The life cycle of this group of gobies is an appropriate Pacific-flavoured vignette illustrating the increased need for holistic, integrated management of catchments in conjunction with coastal area management as a logical way forward for conservation of wetland ecosystems.

Freshwater fishes can be highly useful flagships for conservation of Pacific Island freshwater biodiversity because they are relatively conspicuous, easily identified (to Family level), economically valuable, nutritionally important, and can act as sentinel indicators of water quality and ecosystem well-being. Approximately 25,000 fish species are currently recognised worldwide of which about 10,000 are found in fresh waters. This means that about 40% of the world's fish species exist in only 0.008% of the world's water. Specialists estimate that at very least 5,000 more species await discovery, most of these within freshwater systems. Our recent work in the developing island nations of the Pacific certainly has helped corroborate this and has revealed a plethora of livelihood and biodiversity conservation values.

Aaron P. Jenkins, Senior Programme Officer,  
Wetlands International, Fiji. E-mail: akjenkins@is.com.fj

Wetlands International's Fiji-based team is the Oceania focal point for the Freshwater Fish Specialist Group (see page 14) and is working on a field guide to the freshwater fishes of Fiji. The MacArthur Foundation, Wildlife Conservation Society, WWF South Pacific Programme, Fiji Department of Environment, and the University of the South Pacific have supported its work on freshwater fishes in Fiji.

# The Asian tsunami – the people and their wetlands

When natural phenomena, far beyond our experience, play havoc with both nature and humanity our first response is obviously to address the immediate needs of survivors. The devastation of the natural world takes second place. Only once the initial intensity of emergency relief eases can we consider the implications of rebuilding lives in a degraded environment. The Asian tsunami also reminded us that coastal wetlands are among the most productive areas of the world – they are vital ecosystems on which both the local and the global community depend. These wetlands are therefore densely populated, and the human tragedy of the tsunami that much more severe.

The Convention on Biodiversity puts people at the centre of biodiversity conservation, and the post-tsunami coastal restoration must take a people-centred approach too. The challenge is to demonstrate to those leading the reconstruction – from local community initiatives to national governments, development agencies and the financial institutions – that food security, health, water, sanitation and, to a large degree, coastal protection depend on viable wetland ecosystems.

Above all, people must recover their livelihoods and become independent of external aid.

## Livelihoods

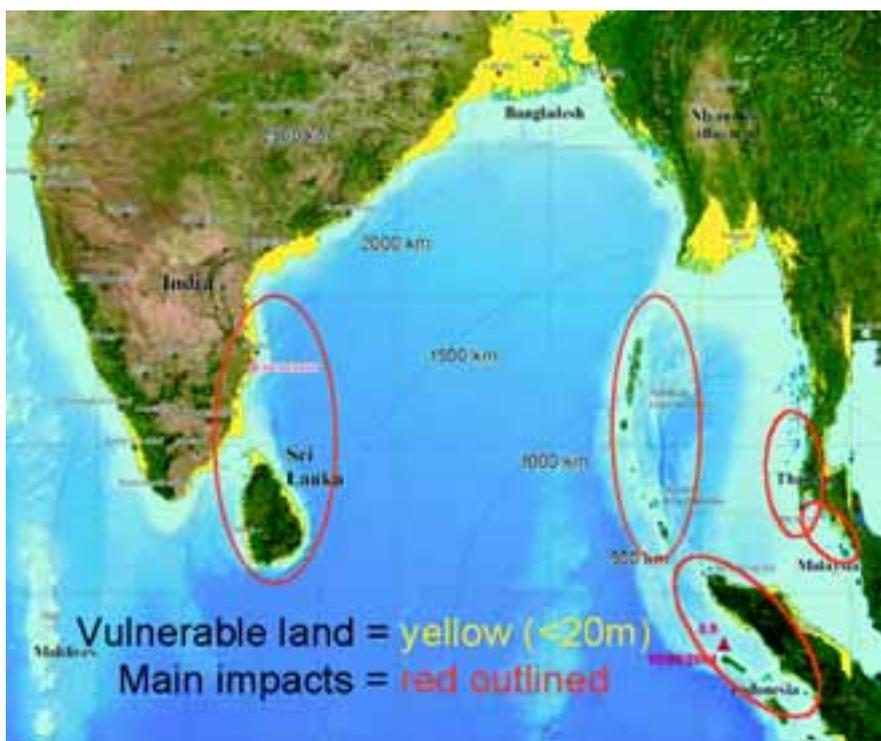
In terms of employment or earned income, the livelihoods of the people who live on the coasts devastated by the tsunami depend on wetland services – coastal as well as deep sea fisheries, farming and aquaculture on alluvial coastal plains. The related economies of tourism, trade and transport increase the livelihood value of coastal ecosystems exponentially.

Given the massive scale of the tsunami tragedy, it seems almost callous for the Asian Development Bank to report that “the overall Indonesian economy will be barely affected”. This may be the reality – but macro-thinking can result in a hurried macro-infrastructure response, which is likely to further marginalise poorer people. The most appropriate macro-response is to enable development of location-sensitive participatory policies for coastal zone development and management, taking account of the interests and livelihood needs of all stakeholders.

Although the human tragedy resulting from the tsunami is shared by rich and poor alike, it is the economically and socially excluded who may gain least from macro-reconstruction plans. Yet they are the people least able to recover their basic rights of access to and use of natural resources. Well-intentioned government plans may be slow to respond to the needs of small-scale farmers. Traditional farmland may now be saline and infertile; farmers may even lose tenure of their land under revised land-use allocations. Fishers may be resettled too far from the sea. And the support workers – the fish driers, packers and transporters, the ice makers and net repairers – may receive no compensation to help restore their livelihoods. Thousands of small family enterprises, often with many dependants, relied on a single source of income.

Access to fresh water – both for personal use and irrigation – has been disrupted, and the ecosystems of the inland freshwater coastal lagoons that characterise the west coast of Sri Lanka, for example, have become unbalanced. Sluice gates, drains and dykes that enabled even subsistence fishers and farmers to control coastal plain ricefields and shrimp and fish ponds have been damaged or swept away.

However, coastal wetlands, especially the inter-tidal zones, provide so much more than fish and shrimps for Asian people. Seaweed, sponges, sea-anemones, sea-squirrels, sea-cucumbers, sea-slugs, jellyfish, crabs and a huge range of molluscs and other organisms are traditional and essential foods and medicines. Freshwater wetlands behind the coast often provided the only source of water for washing, cooking and bathing. Whilst wetland ecologists and land-management planners have an important role to play in guiding the larger reconstruction effort, they should also help communities with their smaller-scale recovery plans. Local knowledge should be taken as the starting point for resuscitating livelihoods – it is even possible that formerly degraded or depleted resources could be restored. The



*Fishermen on the Sri Lankan south coast attempting to repair fishing boats damaged by the impact of the tsunami.*

*Damaged coastal fishing vessel, south coast of Sri Lanka.*

*View of bay along which Hambantota town is located, southern Sri Lanka.*

*Photos: Rebecca Tharme.*

tsunami has left gender and age imbalances in the population, and redevelopment plans need to ensure that the needs of women and girls are properly considered and met; these should include developing livelihoods options for widows of fishermen and other breadwinners.

### **Looking for silver linings**

What can we learn from such a disaster? People who depend on coastal wetlands for subsistence and economic survival have to live close to the sea. In an event of the magnitude of the Asian tsunami there is little escape. Where wetland scientists can contribute is to ensure that pre-tsunami data are made available and reviewed when post-tsunami assessments are being made. The results of wetland assessments need to be interpreted in terms of food availability, resource utilisation and the potential impact of unsustainable post-tsunami construction.

The immediate response to an emergency often necessitates the non-sustainable provision of food and water. In the longer term, however, the loss of and recovery of livelihoods requires a much more detailed and in-depth analysis, informed by a wide range of expertise but driven by the real needs of the local people. The tsunami provides an opportunity for rethinking the approaches to these issues.

*Mike Ounsted, Chair of the Wetlands and Livelihoods Working Group.*

See page 14 for further information about the Working Group.

*At the request of the Ramsar Secretariat, Wetlands International is leading a Tsunami and Wetlands Group, including WWF, BirdLife International, IUCN, the International Water Management Institute, Global Environment Centre and others, to bring together wetland assessment information and provide sound advice to governments, aid organisations and other decision-makers. Discussion fora have been set up concerning the wetland impacts and responses, including one on the impacts of the tsunami on livelihoods. Readers can join at <http://www.wetlands.org/tsunami/>*





Asian Wetland Symposium 2005  
Report on the  
**Special Session on Tsunami and  
Coastal Wetlands**  
**9 February 2005**  
Bhubaneswar, India

Co-organisers:



MOEF  
Government of India



Chilika Development Authority



# The Tsunami and Coastal Wetlands – **Recommendations for Action**

A Special Session on the Tsunami and Coastal Wetlands was organised on 9 February 2005 as part of the Asian Wetland Symposium 2005 (AWS 2005) in Bhubaneswar, Orissa. It was co-organised by the Ministry of Environment and Forests of the Government of India, Ramsar Centre Japan, Chilika Development Authority, Wetlands International, Global Environment Centre and the Ramsar Convention Secretariat. It was chaired by Ms Meena Gupta, Additional Secretary of the Ministry of Environment and Forests and attended by over 250 experts on wetlands, natural resource management and tsunami issues from many countries in the region as well as international organisations. Presentations were made by 15 experts on different aspects of impacts and response

options. Key findings from the session were as follows:

## **Impacts of the tsunami**

Major human impacts include massive loss of life, destruction of coastal settlements and infrastructure, loss of fishing boats and facilities, loss and degradation of agricultural lands and forests and salinisation and contamination of water sources.

According to rapid assessments, the main impacts of the tsunami on coastal wetlands varied according to the location and distance from the epicenter or fault line. Impacts include:

- loss or degradation of mangroves and seagrass beds
- silting and degrading of coral reefs
- sedimentation or turbidity of



coastal waters leading to algal blooms, and

- major changes in intertidal flats and coastal lagoons.

Certain wetland types played a role in reducing the tsunami impact, especially in locations further from the epicenter, including coral reefs and mangroves which broke the impact of the waves and absorbed some of the energy and protected areas further inland. Mangroves also stopped people being washed out to sea and trapped debris, reducing further damage.

The main response to the tsunami by the affected countries in relation to coastal wetlands has been focused initially on rescue and survival of local communities, followed by rapid assessment of impacts which are leading to the development of action plans.



## Recommendations for Actions

Recognising the role of coastal wetlands (including coral reef, seagrass, mangroves, intertidal flats and lagoons, etc.) in protecting coastal communities and assisting in the recovery of people's livelihoods.

Noting that the tsunami is an extreme natural event of relatively low frequency, but that as a result of climate change it is predicted that there will be an increasing frequency and intensity of storms and other extreme weather events;

Further recognising that the tsunami creates an opportunity to demonstrate best practices in integrated coastal management and to make a paradigm shift from earlier unsustainable practices.

### **The AWS 2005 Special Session on the Tsunami and Coastal Wetlands, RECOMMENDS:**

1. There is an urgent need for coordinated and harmonised assessments in priority stretches of affected coastline in order to identify areas where ecological restoration would be most effective.
2. Develop predictive guidelines on the value and appropriate positioning, structure and composition of natural greenbelts to provide protection to coastal communities from severe storms/tsunamis.
3. Integrate wetland restoration and management options with the immediate response to humanitarian needs and the short and medium term action and recovery plans in tsunami-affected countries.
4. Develop community-led approaches for protection and restoration of affected and other wetlands, drawing on traditional knowledge and practices and with provision of incentives for sustainable livelihood development.
5. Prioritise the enhancement of natural coastal defences through greenbelt/ coastal "bioshield" development and only consider hard engineering solutions in combination with natural measures and in areas where there are no alternatives to safeguard human life.
6. Establish and enforce "no construction zones" in vulnerable areas and manage them to enable sustainable use by local communities as well as ecosystem recovery.
7. Build on and strengthen the regional/international co-operation mechanisms to connect governments, agencies, institutions, communities and individuals. Combine their competencies in assessment and in developing and implementing action plans, related to the tsunami response and coastal wetlands.

The organisers of the Special session will circulate and promote the results of this meeting to appropriate fora and mechanisms.

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*A powerful Odissi dance performance on the tsunami brought home the pain and suffering of people affected by such natural disasters.  
Photo: Taej Mundkur.*

# Wetlands and sustainable livelihoods

The potential of the wise use of wetlands to contribute to poverty alleviation was explored in projects conducted under the Partners for Wise Use of Wetlands 2002–2003 Programme. These projects not only demonstrated the successful conservation of wetlands but also contributed to the reduction of poverty in selected wetland communities. The promotion of sustainable wetland related livelihood strategies were an integral aspect of some projects and this was achieved through participatory approaches with the local communities involved. Although of duration of just roughly a year each, the projects also successfully identified the direct needs of these communities through full stakeholder engagement and by establishing avenues for dialogue. Through this community involvement, various local groups were established or supported, thus enhancing local levels of co-operation required for sustainable livelihood projects.

*Partners for Wise Use of Wetlands* also supported the second phase of the Global Peatland Initiative (GPI) which included exploration of the linkage between peatlands and livelihoods. The occurrence of peatlands in developing countries often coincides with rural poverty, with local communities being largely dependent on the productivity of these ecosystems or their active conversion to subsistence agriculture. Projects in the second phase of the GPI worked closely with local communities in peatlands in North and South-east Asia, east and southern Africa, as well

as in the high Andes to explore alternative options for sustainable management and restoration of these valuable ecosystems. Several new poverty reduction oriented initiatives were supported, with some developed on the basis of peatland inventories from the previous phase (e.g. the Maputa land project which followed a peatland inventory of southern Africa). Projects in Kalimantan and Sumatra in Indonesia focused on community based peat-fire prevention. Significant aspects of these projects included capacity building and awareness raising as well as the extinguishing of fires in critical areas. The peat fires in South-east Asia had immense impacts on the local economy, natural resource and biodiversity as well as on transport and public health. The GPI projects there were some of the first to actually set examples on the involvement of local communities and stakeholders in addressing these problems.

## Wetlands and Poverty Reduction

The Wetlands International *Wetlands and Poverty Reduction Programme* was approved on 1 October 2004 by the Directorate-General for International Co-operation (DGIS) of the Netherlands Ministry of Foreign Affairs. Its overall objective is to work through global networks and partnerships to reduce poverty through sustainable wetland management. It will promote innovative approaches such as the Biorights system and encourage partnership building. Initially,



*Drying fish. Photo: Leo Zwarts.*

the programme will focus on African countries but will include components in Asia and the Americas. The *Wetlands and Poverty Reduction Programme* has a budget of 6.2 million Euros and a time period of four years, starting 2005.

Within the programme, funding is available for conducting demonstration projects as well as supporting and encouraging demonstrated collaboration and development by both conservation and development/poverty reduction agencies. Vital components such as capacity building, toolkits for outreach and the measurability of achievements will ensure that integrated, participatory approaches to the wise management of wetlands are adopted and the security of livelihoods of the poor dependent on them are enhanced.

Avenues for co-financing are still being sought within the programme. It is hoped that the leverage of co-financing for projects and the forging of partnerships will contribute to the sustainability of these projects.

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 at Wetlands International,  
 the Netherlands



*Peat fires in Indonesia. Photo: Yus Rusila Noor.*

# Sustainable development and water resources management of **Loktak Lake**

Loktak Lake located in the north-eastern part of India is referred to as the lifeline of the Manipur River. It supports the livelihoods of 0.2 million people and was traditionally managed by communities for fisheries and agriculture. The absence of baseline data, the adoption of sectoral approaches and emphasis on engineering measures led to conflicting interests and impoverishment of the communities dependent on wetland resources for their sustenance.

An initiative for sustainable development and water resources management of the wetland was jointly undertaken by Wetlands International – South Asia (WISA) and the Loktak Development Authority. The project started in February 1998 and was completed in March 2004. During this six year project strategies were developed based on inventory and assessments and through consultations with stakeholders and local communities. Several demonstration projects for catchment conservation, fisheries development and water quality improvement were implemented with the objective of ecosystem conservation and

sustainable use of resources for ecological and economic security of people living in the area. The main outcomes of the project were:

- Treatment of 16 highly degraded microwatersheds to control soil erosion and enhance moisture regimes – through afforestation, aided regeneration and small scale engineering measures.
- Draft water management plan in consultation with stakeholders and local communities. Further consultations with a hydropower agency for barrage operations to allocate water for human use and ecological purposes are in progress.
- Integrated watershed management at selected sites to demonstrate control of shifting cultivation by providing alternate strategies such as integrated farming, agro-forestry models and handlooms.
- Management action plan for habitat improvement of Keibul Lamjao National Park (KNLP).
- Establishment of 16 community based hatcheries for restocking preferred fish species and providing additional income generation through culture fisheries in private farms.

- Demonstrated use of phumdis (floating mats of vegetation) for composting to enhance agriculture productivity involving agricultural farmers, research organisations and local communities.
- Provisioning low-cost sanitation programmes in eight island villages and smokeless hearths in the selected villages to improve their environmental conditions and quality of life.
- The Atlas of Loktak Lake, a well designed spatial and temporal database on Loktak and its catchments.

Thanks to its involvement in the conservation and management of Loktak Lake, WISA was engaged by the Manipur Government to formulate a Management Action Plan for Loktak Lake and the associated wetlands within the Manipur River Basin. Support commitments have been received for the implementation of the Management Action Plan, in which WISA will take part.

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View of Loktak Lake.



# Wetlands and the **global water agenda**

Water resources are required for food production and for supporting ecosystems and livelihoods. Recognition of the growing demand for food, with an estimated two billion more people to feed by 2025, has led to intensifying use of water resources for agriculture. In tandem, however, there is increasing pressure to divert water to other users, as well as to ensure some measure of resource and environmental protection. In this context, increasingly, the water needs of agriculture and the environment are being placed on a more even footing within the global water agenda – an encouraging sign and imperative for the future of integrated water resources management, which is underpinned by economic efficiency, equity and environmental sustainability.

However, in the majority of river, lake and aquifer basins across the world, upward trends in water use across multiple sectors are exerting ever greater demands on a physically and economically scarce resource. Cities are predicted to require 150% more water in 2025. Water withdrawals for irrigation are set to rise in that period as well, though there is no resolution as yet on the range of projected figures. Worldwide, countries are already making serious environmental tradeoffs to grow food. The state of accelerating decline observed in many wetland ecosystems, including in the capacity of systems to generate the many ecological services of direct benefit for human well-being, such as high quality water, fish and timber, is testament to such tradeoffs. Until recently though, and still in many countries, the environment has not been considered as either the resource base or a water user in its own right. At present, more than 1.4 billion people are known to inhabit river basins that are now under environmental water stress, where high water-use threatens wetlands, and many more will face the same dilemma in the near future if human water withdrawals continue to intensify. The implications are serious, particularly for the rural poor who are most vulnerable to water scarcity and environmental degradation, and often directly depend on wetlands for their basic needs.

Trade-offs are inevitable in meeting the challenge of developing and managing water resources to grow more food with less water and improve rural livelihoods, while safeguarding wetland ecosystems, but they need to be minimised. There are a number of emerging options in the effort to redress the balance being sought between food and environmental security. Of these, options such as influencing diets towards less water-consuming foods, increasing food trade from water-abundant countries to water-short ones ('virtual water'), the use of alternative water sources including wastewater and saline water, and improvements in irrigation efficiency, though part of the solution, are less likely to fully resolve the crisis that previously thought. There are two further options that have received less attention in the past but, arguably, possess the most potential. The first looks at growing more food on rain-fed lands by introducing, among others, small-scale, low-cost supplemental irrigation technologies, water harvesting, controlled groundwater development, drought-tolerant crops, and improving land and water management practices. Although upgrading rain-fed systems would reduce the need for irrigation diversion, decrease resource degradation and potentially reduce poverty (75% of the poor in South Asia and 60% in sub-Saharan Africa depend on rain-fed agriculture), there is a pressing need to assess the possible negative impacts on wetlands of large-scale implementation of small-scale solutions – cumulatively, these may be similar to effects observed with irrigation. A complementary approach is increasing water productivity in both irrigated and rain-fed systems, generating more unit value of water per drop. At basin level, water productivity broadly encompasses crop, livestock, forestry and fishery yields, the wider ecosystem services and social impacts, as well as the systems of resource governance that ensure equitable distribution of benefits. Increasing water productivity requires assessment of the positive outcomes of agriculture and managed wetland ecological services in terms of income and health, provision of wetland functions such as groundwater



Water distribution point for local rural communities in the Walawe Catchment, within the dry zone of southern Sri Lanka.

Local woman fetching water for her household from small traditional irrigation tank (small human-made wetland system), Walawe Catchment, southern Sri Lanka.

Farmer collecting domestic water from a well in the Walawe Catchment, southern Sri Lanka.

Vietnamese locals transporting bamboo, rattan and other products collected from forests of the upper catchment of the Bo River, near the proposed Co Bi Dam site, Huong (Perfume) River Catchment, Central Viet Nam. Photos: Rebecca Tharme.

recharge and fisheries habitat, and biodiversity enhancement in artificially created wetlands. Importantly, it also requires mitigation of the adverse impacts on wetlands of agricultural systems and practices, principally associated with drainage and conversion of habitats, alteration of surface and groundwater regimes, diffuse inputs of chemical pollutants, and enhanced conditions for the spread of invasive species.

Whichever combination of such options is employed in future, considerable effort needs to be directed at building a stronger case for wetlands, in order to get the balance right. The value and vital role in livelihoods of fisheries and other wetland services needs further demonstration, and values translated into information that can be used to assess economic impacts of water decisions, to better reach managers and decision-makers. The water quantity and quality regimes needed to sustain wetland ecosystems, their services, and the communities who directly depend on them for their livelihoods, need to be recognised and assessed. Such environmental water requirements must also be factored into the process of water resource allocation in basins, and implemented through adaptive management, to ensure that wetlands are maintained in a healthy, socially acceptable condition. Improved co-management of the agriculture-wetland interface is also required, through improved understanding of basin spatial and temporal interrelationships among water, wetlands and agriculture, ensuring intersectoral and stakeholder engagement, and forums for dialogue that develop appreciation of the water needs of multiple users.

Currently, there remains global uncertainty and indeed, controversy, surrounding which of several proposed alternative routes to take in future to sustainably secure water resources for food, environment and livelihoods. What is absolutely clear, however, is that business as usual is not an option. Failure to act soon in adopting new approaches to the water challenge will ensure only further conflict in the face of persisting food insecurity, poverty and environmental degradation.

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## Mechanical cockle fisheries banned from the Dutch Wadden Sea at last

A long struggle by nature conservation groups in the Netherlands to stop mechanical cockle dredging in the Dutch Wadden Sea came to an end. In late 2004, the Dutch government decided that mechanical cockle fisheries will be banned from the Dutch Wadden Sea from 1 January 2005. Although the intertidal flats in the Dutch Wadden Sea have multiple nature conservation status under Dutch and European law, are designated under the Ramsar Convention and listed by UNESCO as a Man and Biosphere reserve, mechanical dredging for edible cockles *Cerastoderma edule* was allowed in 74% of the 1,200 km<sup>2</sup> of intertidal flats. From 1998 to 2000 every year about a tenth of the intertidal flats were dredged. Cumulatively, between 1990 and 2001, almost a third of the intertidal area was dredged for cockle at least once, the affected areas being the more biodiverse and biomass-rich. Mechanical removal of considerable portions of the cockle stocks lead to starvation and lack of reproduction in oystercatchers *Haematopus ostralegus* and eiders *Somateria mollissima*, whose wintering populations showed steep declines. Probably the most dramatic and long-term effect of suction-dredging comprise the changes in sediment characteristics that go together with strong reductions in recruitment of cockles and other bivalves, including the traditional 'bird-staple' Baltic tellins *Macoma balthica*. This has considerable negative downstream effects on the long-distance migrant red knot *Calidris canutus*. The European Court recently made clear that according to the European Habitat Directive, mechanical cockle dredging should be seen as a 'plan' or 'project' and that therefore a 'suitable judgement' is needed. This verdict and the general consensus that industrial shellfishery is more harmful than the exploitation of gas (the latter being much more economically profitable), finally turned round the attitude of the Ministry of Agriculture, Nature Conservation and Food Quality. Despite this change, the same Ministry did grant permission for a last season of dredging in 2004. In December 2004 this last permit was also overturned by ruling of the State Court, following the clarifications by the European Court. At last, the much-harmed intertidal flats of the Dutch Wadden Sea and the populations of migratory waterbirds depending on them may have a chance to recover.

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*Flock of red knots/red knot. Photos: Jeroen Reneerkens.*

*Intertidal flats of the Dutch Wadden Sea after cockle dredging. Photo: Martijn de Jonge.*



## Freshwater Fish Specialist Group

The global Freshwater Fish Specialist Group is the newest group in the family of 20 Specialist Groups (SGs). Specialist Groups are networks of expert scientists who provide information and advice in support of Wetlands International's programmes and projects. The network of Specialist Groups is a vital part of the organisation, essential for the delivery of wetland and wetland species expertise in support of wetland conservation globally. The need for the Freshwater Fish SG was identified as a priority by both Wetlands International and the IUCN Species Survival Commission (IUCN-SSC). It was agreed to make the SG a collaborative venture towards the conservation and sustainable use of freshwater dependent fishes globally.

In August 2004 Wetlands International and IUCN-SSC had the pleasure of appointing a dynamic and enthusiastic Co-ordinator for the group, Prof. Gordon Reid, Executive Director



*Freshwater Fish SG  
Co-ordinator Gordon*

of Chester Zoo, UK. The inaugural meeting of the Specialist Group was held from 7–9 March 2005 in Chester, UK. First the group members participated in a two-day workshop on 7 and 8 March on key biodiversity areas for freshwater fish. It was a very resourceful workshop with clear outputs as a guide in the

further development of methodologies for identifying important freshwater biodiversity sites at local regional and global scales. The Freshwater Fish SG meeting itself was held on 9 March. Amongst the participants were experts from various organisations and regions including South America, North America, Central America, Africa, South Asia, Oceania, Europe, and South-east Asia.

Gordon Reid and his group reached a large number of significant outputs during this first meeting. A clear and concise vision and mission were developed through brainstorming sessions. Furthermore, drafts were produced for a two-year and five-year strategy for the group. Participants also came to an agreement on the group's structure, with the aim of covering as much geographic areas as possible in its membership and activities. In the next few months IUCN-SSC, Wetlands International and Gordon Reid will have a follow-up meeting to fine tune the draft strategy and to adopt an operational plan for the agreed immediate actions of the Freshwater Fish SG.

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## Wetlands and Livelihoods Working Group

The first meeting of the Wetlands and Livelihoods Working Group (WLWG) on 27 August 2004 at the Wetlands International Wageningen Office in the Netherlands was well attended by representatives from the development assistance and the environmental sector. During this first meeting the Chair, Mike Ounsted, expressed the hopes that the Working Group would be able to provide guidance on matters relating to poverty reduction, sustainable livelihoods and wetland management and the development of relevant partnerships to Wetlands International. Amongst the aims and objectives of the Group identified at that meeting, it was decided that the Group should produce a publication on Wetlands, Water and Livelihoods. The publication will be launched at the Ninth Ramsar Conference of Parties (CoP) in Uganda 2005.

*First meeting of the Wetlands and Livelihoods Working Group.*



The second meeting of the WLWG was held with the kind co-operation of Novib at their offices in The Hague, the Netherlands on 7 February 2005. Presentations during the meeting raised issues and stimulated discussion ranging from micro-credit, gender empowerment, chains of communication, needs- versus rights-based approaches, to scaling up and co-operation with national governments.

The Wetlands and Poverty Reduction Programme managed by Wetlands International was presented to the Working Group by Wise Use Programme Leader Marcel Silvius. Emphasis was placed on key elements such as capacity-building, toolkits for outreach, the proposed demonstration projects and the measurability of achievements within the programme. Also highlighted was the opportunity for the Working Group to coordinate and participate in an International Inception Workshop to formally launch the Wetlands International Poverty Reduction Programme. The proposed Inception Workshop was identified as a suitable forum within which to present case studies and lessons learned that could contribute to the *Wetlands, Water and Livelihoods* publication. Moreover, the conclusions and recommendations could also be presented at the upcoming Ramsar CoP.

See also page 10 for information on the Wetlands and Poverty Reduction Programme.

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# Wetland spotlight

## The Mekong giant catfish



Giant catfish profiles underwater.

A Mekong giant catfish at Bagnets, Tonle Sap river.

The Mekong giant catfish, *Pangasianodon gigas*, is one of the world's largest freshwater fish, measuring up to three metres in length and weighing in excess of 300 kg. It is a migratory species. From October to December each year, the species moves out of the Tonle Sap Lake (Cambodia) into the mainstream of the Mekong River. From there, it is believed to migrate upstream into north-eastern Cambodia and possibly Lao PDR, or Thailand, to spawn.

The Mekong giant catfish is also one of the most endangered fish in Southeast Asia. A rate of population decline of over 80% can be estimated from combining annual catch data over the last two decades in the Mekong River Basin area. For example, the catch in northern Thailand has declined from a peak of 69 fish in 1990 to just seven fish in 1997. In 1999, 20 fish were captured in Chiang Khong, however no fish were caught in the area in 2001 (Hogan *et al.* 2001) or in 2002. In Nong Khai Province (Northeast Thailand) 40–50 fish were caught per year in the early 1900s. However, since that time the number of fish caught has declined. In 1967, fishermen captured 11 fish in the area, and by 1970, *P. gigas* occurred only rarely as by-catch of beach seine fisheries. Today, very few *P. gigas* are reported from Nong Khai Province.

Overall annual catch data for the Mekong River area indicate that around ten years ago 40–50 fish were caught

each year. The figure has now dropped to approximately five to eight catches per year (Z. Hogan, pers. comm.). The Tonle Sap River is one of the last places where the fish is caught in appreciable numbers. Although the species has been disappearing from Lao, Thailand, and Viet Nam, there is little information on population trends in Cambodia. In 2001 and 2002, no *P. gigas* were caught in northern Thailand. Annual catch figures for the Tonle Sap River in Cambodia over recent years were four in 2000, 11 in 2001 and five in 2002.

Alongside overfishing, main threats to the species include habitat loss and degradation (for example, as a result of damming of the Mun River and clearance of flooded forest in the Tonle Sap Great Lake), and genetic introgression with cultured stocks.

The fish was bred in captivity for the first time in 2001. Individuals artificially spawned from wild-caught parents have been released into the Mekong since 1985. The fish almost certainly spawns upstream of Chiang Khong, Thailand. Possible spawning sites include the Kok River near Chiang Saen, Thailand.

This species has been listed on CITES Appendix I since 1975. The species occurs in a Biosphere Reserve in the Tonle Sap Lake, and a RAMSAR site in north-eastern Cambodia, although neither of these sites offers real protection for the species. In Cambodia, it is illegal to capture, sell, or transport *P. gigas*, although bagnet fisheries in the area still catch and sell the species. It is also illegal to catch the species in Thailand, however the species is still caught there and tourists and the media are attracted to fishing sites there every year. *P. gigas* is also protected in Laos although this does not prevent the species being fished there. The plight of the giant catfish highlights the need for precautionary actions to aid in species conservation, including increased effort to understand the ecology and status of imperiled fish BEFORE they disappear.

### The search is on for the world's largest freshwater fish

The World Wildlife Fund Conservation Science Program, the National Geographic Society Emerging Explorers Program, and the National Geographic Conservation Trust recently launched a new project to raise awareness about the ecological status of the world's rivers and slow the extinction of some of earth's largest freshwater fish. The project has two main objectives: 1) to identify the world's largest freshwater fish, and 2) to study the pattern of population trends of the world's largest fish. Giant fish, for the purposes of the study, are defined as species larger than 200 lbs (100 kgs) or longer than six feet (two metres). A diverse assemblage of poorly understood fish species meets these criteria, including catfish, stingrays, gars, carps, sturgeon and salmon. The project aims to compile IUCN Red List assessments for all species of giant fish and also conduct field visits to collect additional information. The project findings will be incorporated into WWF and National Geographic-sponsored web sites, radio, television and magazines. Scientists are encouraged to contribute their expertise to this global assessment of the world's largest fish. As the project moves forward, the participation of the interested scientists will be critical to its success.

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## Mission:

To sustain and  
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their resources and  
biodiversity for  
future generations

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