

# The Source

2018 annual review of Wetlands International

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For  
peat's  
sake!

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Mangroves  
are sooooo  
sexy...

Restoring the *bofedales* page 14

Infernal floods wash over Kerala page 22

Vjosa river: A wild and untouched queen page 62



# Introduction to Annual Review 2018

Welcome to "The Source": so named because wetlands are the source of water that supports all life.

We are proud of our achievements and hope that this magazine-style review of our work in 2018 connects with you and provides insight into some of our most exciting and challenging work around the world.

2018 has been a very productive year for the organisation, with several major programmes commencing, the joining of significant global partnerships and our offices gaining strength and influence in all regions – most notably Eastern Africa, South America and South Asia. In 2018, we were able to intensify our work to assess the significance of particular wetlands for waterbird migration, to extend our work in peatland re-wetting, scale up our efforts to secure and revive mangroves and to engage on issues concerning wetlands in cities. Our ability to upscale our reach and impact has been boosted significantly by the possibility to make strategic investments, thanks to the Dutch National Postcode Lottery grant received early in the year.

Numerous national and regional events, plus the occasions of the 13th Ramsar Conference of Parties and 24th Conference of Parties of UNFCCC, provided good opportunity to share our experiences, promote our key messages, to engage with our stakeholders

and to forge new alliances. In these fora, the topics of ecosystem approaches to building resilience, climate mitigation and adaptation, Building with Nature and nature-based solutions, blue carbon, water security and environmental peace building have been prevalent. New collaborations were initiated with architects and water engineering companies, as well as with NGOs specialised in forecasting climate shifts and preventing violent conflicts. This illustrates the breadth of our work as well as the need for us to work in many multi-sector partnerships. In this magazine, our dedicated staff, partners and Supervisory Council members talk directly about their work and what it means to them. We highlight some interesting and special achievements of the year and chart progress towards our long-term strategic goals. The details of the administrative and financial accounts and references are accessible by clicking through to annexes.

I hope that you find The Source informative and inspiring! We welcome your feedback. Finally, I would like to thank all of our members, our donors and partners, associate experts and specialist groups for your continued support and collaboration, which we value dearly and rely on going forward.

**Jane Madgwick**  
Chief Executive Officer

# For peat's sake!

Joint initiative Paludifor to save peatlands in Indonesia

# Restoring the bofedales

Wetland conservation in the Peruvian higher Andes

# Infernal floods wash over Kerala

Wetlands in southern India lose their absorbing capacity

# The muddy river brings life

Inter-county dialogue in Kenya's Ewaso Ng'iro River basin

# Our woman in Brazil

Rafaela Nicola sees wetlands as the solution, not as the problem

# Gulnaaz Khatun will get her tap

Transforming women's lives through WASH management in India

# High heels in the wetlands

# Mangroves are sexy!

New restoration policy in Africa pays off

# Forecasting changes in 2050

Critical Site Network Tool 2.0

# A wild and untouched queen

Albanian Vjosa river at the heart of wild river campaign

# Wetlands for a Safer World

With 1 million Euro from the Dutch Postcode Lottery...

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## In short



© Jan van de Kam

### A passage for bird migration in the Yellow Sea

In December 2018, Wetlands International launched the initiative 'Flyway Bottleneck Yellow Sea' to assist governments in safeguarding the intertidal wetlands of the Yellow Sea, which are critical feeding and resting places for migratory waterbirds in the East Asian-Australasian flyway. Due to industrial and urban development, this habitat along the coast of the Yellow Sea in China is under pressure. The wetlands of the Yellow Sea are also important resource for the local communities who depend on the area for fisheries.

The initiative was made possible by a grant from [Arcadia](#) - a charitable fund of Lisbet Rausing and Peter Baldwin. Wetlands International will provide technical assistance to local authorities and other stakeholders to help safeguard and restore this important wetland system.

[Find out more here](#)



Saunders's Gull on ground

© Taej Mundkur

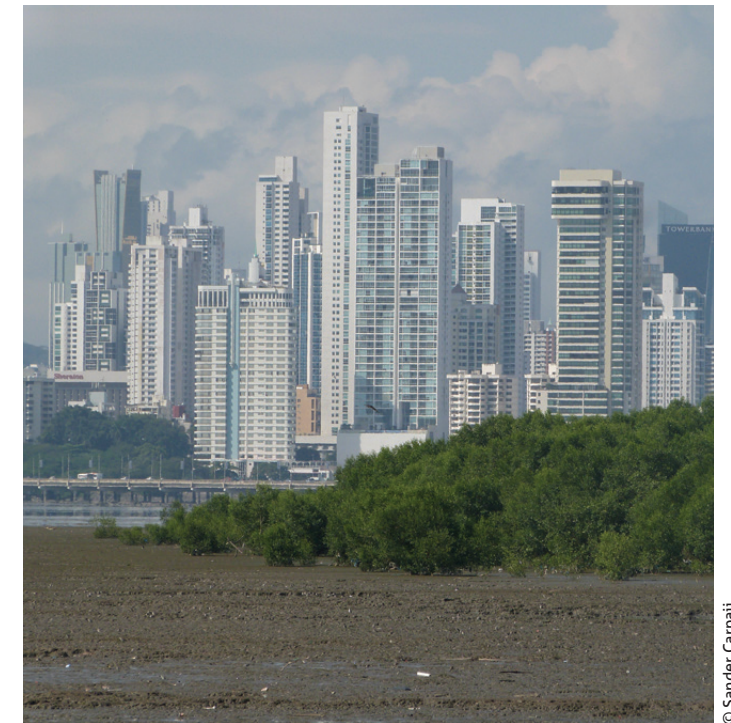
### Farmers and cities pay for ecosystem services in Mindanao, Philippines

In 2018 Wetlands International, with its partner the Cagayan de Oro River Basin Management Council, initiated the adoption of Payment for Ecosystem Services (PES), in the Cagayan de Oro and Agusan river basins



© Frank Hoffman

in Mindanao. With this system private citizens, the private sector and agricultural farmers will pay for the use of water resources. These payments are then recycled into the restoration of the river basin ecosystems to reduce the effect of floods and secure water provisioning during droughts. The project brings together stakeholders from upper reaches of the rivers down to Cagayan de Oro City, at the river mouth. In the Agusan river basin, upstream pilot projects initiated by Wetlands International, are showcasing the potential of the investment of PES-funds in native species agroforestry managed by the local communities.



© Sander Carpaiz

### Water dialogues pave way for nature-based solutions to avert flood risks

Criss-crossed by rivers and streams, Panama City counts several 'flood prone' neighbourhoods separated from the sea by mangroves forest. Urban encroachment of floodplains and swamps has caused more intense and frequent flooding of these low-lying neighbourhoods. Under the coordination of Wetlands International, 'Water Dialogues' were held with local stakeholders and Dutch water experts, resulting (in 2016) in an Action Plan which embraces nature based solutions like wetland reservoirs, river floodplains and mangrove conservation combined with 'grey measures' to reduce flood risk. For the implementation of this action plan, the Inter-American Development Bank approved (in December 2018) a USD \$100 million loan. The Water Dialogues have also led to Panama city becoming part of the '[100 resilient cities initiative](#)'.

[Further reading](#)

- Peatlands globally hold twice as much carbon as all of the world's forests combined
- Farmers in Indonesia live in fear that their livelihoods will be destroyed
- Paludiculture, a method to grow crops on rewetted peatlands, is showing promise
- Almost 100 hectares of demonstration site has helped to secure the livelihoods of over 2,500 households
- Wetlands International initiated the Paludiculture Forum (PaludiFor) to promote paludiculture and get business stakeholders on board
- Global palm oil companies are showing interest in working with the Forum

### Joint initiative PaludiFor to save peatlands in Indonesia

# For peat's sake!



**S**arpani, a 59-year-old Indonesian farmer, knows about the risks. He knows that the drained peatlands on the Meranti Islands in the Riau Province of Sumatra, where he grows sago and rubber, no longer function as a sponge to absorb any surplus water.

He knows that the draining of the land has caused the soil to subside, making his village and fields prone to devastating flooding. He also knows that dry peatlands are very combustible, and that once a fire is started – by accident or on purpose to clear the land – it can smoulder underground for months. Sarpani and his fellow farmers on the degraded peatlands of Indonesia and Malaysia are living in continuous fear of having their livelihoods destroyed.

### Peatlands

Peatlands, composed of layers of decayed and compressed vegetation and sometimes over ten metres thick, hold huge amounts of carbon, store enormous amounts of fresh water and are host to unique biodiversity. In their pristine form they are efficient climate regulators and a buffer against drought and floods. Malaysia and Indonesia combined have more than 24 million hectares of peatland, but 90% of it has been deforested and a large portion drained. Extensive areas of the islands of Sumatra and Kalimantan, for example, have been converted into plantations for oil palm and fast-growing acacia trees for wood pulp for the paper industry. Big companies produce palm

oil for the global market. But many smallholders have also entered the scene and started growing oil palm on drained peatlands. Most of the oil is used for the global production of food and cosmetics, but a sizeable and still increasing portion is also used as biofuel.

### Carbon storage

According to the UN, the world's remaining peatlands hold twice as much carbon as all of the world's forests combined. When peatlands are drained this ancient carbon comes into contact with oxygen, releasing massive amounts of CO<sub>2</sub>. And when the dried up peatlands are set on fire to clear the land, the situation is exacerbated. Rampant fires in Sumatra or Kalimantan have caused – and still do! – smog in urban areas hundreds of kilometres away.

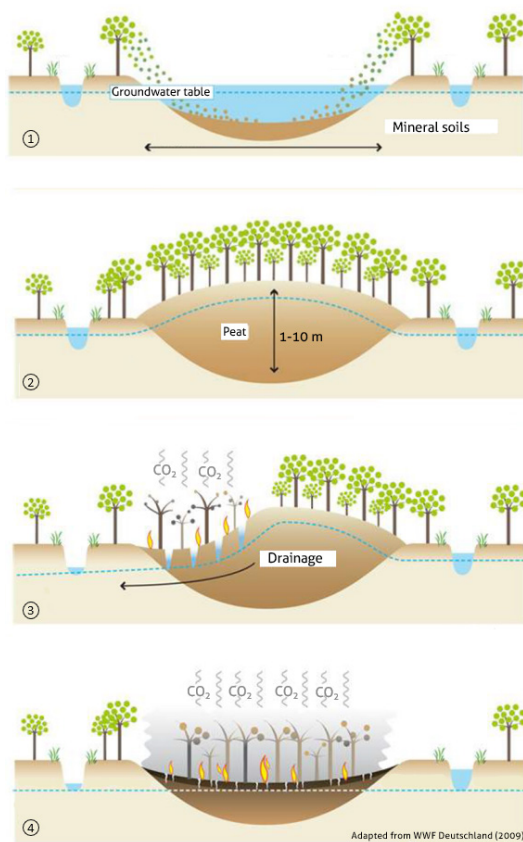
In recent years – and certainly after 2015 – the dangers and negative side effects of draining peatlands have become clear to decision makers in government and industry. In many countries the rules regarding the exploitation and protection of peatlands have become stricter. Indonesia imposed a moratorium on the exploitation of new peatlands and has set sustainability standards. But acceptable alternatives to growing crops on peatlands are still hard to come by. Draining the soil, clearing the forest and planting oil palm or acacia trees are still an attractive prospect as they generate a nice profit. At least for a while. Any alternative must not only ensure the health

# Saving the peatlands is a race against time

of the peatlands, but must also secure a stable livelihood for those involved.

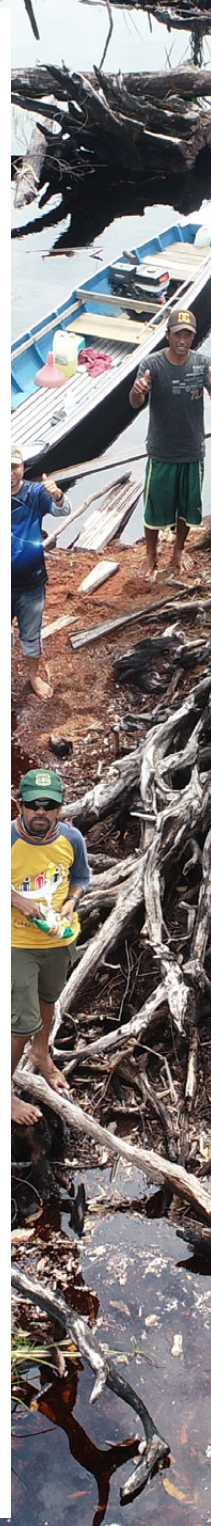
## 3R strategy

In Bagan Melibur, the village where Sarpani lives, the local community and Wetlands International



have launched a pilot initiative to experiment with paludiculture: a method to grow crops on rewetted peatlands. Wetlands International follows what it calls a 3R strategy: rewetting, revegetating and revitalising. Guided by experts from Wetlands International, farmer Sarpani and his neighbours have blocked eight of the canals that have been used to drain the area. Blocking the canals will allow groundwater levels to rise, gradually rewetting the soil.

In the rewetted area, the project developed four hectares of demonstration plots for agroforestry-based paludiculture: planting tree species adapted to wet conditions, such as meranti and geronggang, and other plants like pandan and sago palm (revegetating). With help from Wetlands International the farmers have set up cooperatives to manage the processing and marketing of the products. The goal is to secure local livelihoods for the long term (revitalising). "I hope that blocking our canals will help to rewet the peat area and make our plants grow better. This will positively affect our livelihood," says Sarpani. Wetlands International has initiated and supported similar trials in ten communities on Sumatra and Kalimantan. The results of these pilots are quite encouraging. Between May 2017 and March 2019 over 16,000 hectares of peatland were restored. Almost 100 hectares of demonstration



## A thick layer of smoke, soot and smog

In 2015 it was breaking news: the thousands of peatland fires – some counted as much as 100,000 individual seats of fire – that turned the previously pristine swamp forests in Sumatra and Kalimantan into hellish landscapes. Thousands of square kilometres were covered under a thick layer of smoke, soot and smog. The World Bank calculated that the fires cost Indonesia over 15 billion dollars. About half a million people were hospitalised for respiratory problems. The amounts of smoke and chemicals that were released catapulted Indonesia from the sixth to the fourth-largest emitter of greenhouse gases worldwide, according to an article in Scientific American.



© Petra Meijer

plots were set up. This has helped to secure the livelihoods of over 2,500 households. The experiments with paludiculture are of vital importance to the millions of peatland hectares in Southeast Asia. Paludiculture is relatively untested in these parts of the world. So far, research has been limited to temperate peatlands in Europe. The ideal approach in tropical climate zones may be very different. Certainly the selec-

tion of suitable species will be a challenge. Wetlands International knows that restoring the soil in ten communities is merely making a small dent in a huge challenge. Scaling up is essential. Not only must local communities embrace sustainable agriculture, but the big palm oil companies have to jump on the bandwagon as well. They control millions of hectares of degraded peatlands. To promote the idea of paludiculture, share the results of the pilots and get all stakeholders on board, Wetlands International initiated the Paludiculture Forum (PaludiFor) in 2018. "PaludiFor brings together the private sector, the government, NGOs, financial and research institutes," says Nyoman Suryadiputra, director of the Indonesian office of Wetlands International. PaludiFor's official goal is to facilitate the shift from drained agriculture to paludiculture. Wetlands International hopes that the results of the pilots will inspire participants in PaludiFor. The initiative was launched in the fall of 2018, and by late 2018 some major stakeholders were already showing interest: among them one of the major global palm oil companies. The interest shown by big business is no surprise, Nyoman Suryadiputra says. "The companies know that the business model they are currently following is not sustainable. Even if the government were not to regulate and ban the further development



of peatlands, the peatlands themselves would reduce the return on investment." Over time, drained peatlands will degenerate and lose their productivity, Yoyok Wibisono, programme coordinator of PaludiFor, adds. "The industry needs sustainable alternatives. Paludiculture is the way to go."

**Up to date**

By joining the platform, the private sector will stay up to date with new developments and best practices regarding the sustainable and profitable use of the peatlands. In this respect, the participation of universities is a key priority. "Contact with the academic community is extremely valuable for the private sector," Yoyok Wibisono comments. "The first big company that we expect to join is IOI, a major palm oil producer operating huge plantations in Malaysia and Indonesia. IOI knows it is vital for them to find alternative, sustainable ways to exploit the peatlands they are working on."

The Paludiculture Forum's work is in line with governmental efforts to save and restore the peatlands. Alarmed by the devastating peatland fires of 2015, the Indonesian government has set up the Peatland Restoration Agency (BRG), which aims to restore 2.5 million hectares of dry peat-



Community group demonstration plots, Siak, Riau, Sumatra

© Yayasan Elang

land by 2020. To accomplish this ambitious task, the government needs to access the expertise gathered in PaludiFor. No wonder that several government officials have announced their interest in joining the initiative.

Without sustainable and profitable alternatives, millions of hectares of peatland will continue to degenerate. Land is still subsiding, tons of CO<sub>2</sub> is still being emitted and fires are still raging. Saving the peatlands is a race against time.

Donor Good Energies Foundation



**Andrew Kerr**  
Sustainable Eel Group  
a partner of Wetlands International



**Who is Andrew Kerr?**

"I am the chairman of the Sustainable Eel Group (SEG). SEG is based in Brussels. We campaign for the recovery of the European eel. Born in the Sargasso Sea, off the coast of the US, eels need European wetlands for their transition from a marine to a freshwater species. The gradual loss of access to this habitat has been devastating for the eel. Seven years ago we started collaborating with Wetlands International, and our relationship has been growing ever since."

**What was the biggest success of 2018?**

"Our work with Wetlands International is mainly on the level of lobbying and advocacy in Europe. The main success of last year was the #protectwater campaign. #protectwater aims to maintain the EU Water Framework Directive. This framework – currently under review by the European Commission – protects European freshwater ecosystems. After just one month over 100,000 people signed the petition. By March 2019 this number rose to almost 400,000!"

**What is the goal for 2019?**

"We want to make conservation NGOs aware of the perilous state of freshwater fish. Most experts agree that freshwater fish have suffered more than marine species, yet few organisations or governments acknowledge this or take action. By the way: we focus on the European eel, but we want to expand our attention to all 16 species globally that enjoy both a marine and freshwater life and that are threatened by habitat loss."

- Over-grazing, peat extraction and mining pollution are degrading the Bofedales and undermining their ability to sustain communities
- Wetlands International has been working with local NGOs and communities to promote sustainable pasturage, peatland restoration and management in two Ramsar sites
- The project offers pastoralists an alternative to sow high-yielding seeds while retiring their herds in the short-term
- Wetlands International is upscaling the pilot to implement it across Lima's entire watershed between 2019 and 2024, as well as regions of Argentina

Wetland conservation in the Peruvian High Andes

# Restoring and managing the *bofedales*

Bofedales near Lake Junín

**T**he fact that my land was fenced.' That is Alfonso Condor's quick answer to the question of what helped him most in 2018. Alfonso Condor is a dark-haired Peruvian pastoralist, living near the village of Carhuamayo in the higher Andes, 4,080 metres above sea level. Like many others in this remote region, Alfonso herds a flock of sheep. Llamas, alpacas and cows are the other inhabi-

tants of this harsh and empty landscape, which is dominated by shades of brown, grey and green and consists mainly of rocks and meagre pasture.

#### **Communities livelihood**

But the pasture is running out. Livestock ranching is no longer sufficient for his family's subsistence. Alfonso, therefore, has to work part-time in a gas station to increase his income. The shortage of



## The meaning of *bofedales*

An unprepared visitor walking through the higher parts of Peru may encounter a highly distinct landscape element. What is it exactly and how is it called?

*Bofedales* are a kind of wetland in the dry, treeless plains of the upper Andes: high-altitude peat bogs that absorb and retain a limited volume of water from rain, snow and glacier melt and store it in rich black soil. They are biodiversity hotspots and key resources for traditional land management. *Bofedales* are also important carbon stores, key for climate change mitigation.



Fencing the pastures

© A. Chamorro

pasture is partly due to climate change, which is melting the glaciers and drying out the *bofedales*, high-altitude peat bogs that act like giant natural sponges (see box). Other threats contributing to the degradation of these wetlands are mining, unmanaged grazing, agricultural land use, forestry and the construction of dams and reservoirs for mining and energy.

Wetlands International is very concerned about the ever-expanding mining activities in the region. The Andes are an exploration area for lithium, gold, silver, copper, iron and uranium, among other things. Although the communities own the land, they only have a say over the land surface; what happens underground, is regulated by the state.

Not only do all these activities threaten endemic biodiversity and the livelihoods of local communities, they also impact the livelihood of people living downstream. Because the Rimac River, which flows through Lima, has been severely contaminated and carries less water as a result of agriculture and mining, pipelines from upland wetlands have to secure the supply of drinking water for the bone-dry Peruvian capital.

The pastoralists play a vital role when it comes to the *bofedales*. In the past, they contributed to their maintenance. In pre-colonial times they kept alpacas and llamas. The arrival of the Spaniards brought sheep and cows which have harder hooves



© Roberto Elias

Lake Junín Frog

and contribute to erosion. They also tend to graze down to the soil. These activities have caused the *bofedales* to degrade and lose their ability to act as a sponge, which is vital for water management. Another threat is the extraction of peat, which inhabitants use for heating and cooking.

### Lake Junín frog

In 2017, Wetlands International started the project 'Saving High Andes Wetlands for People and Nature'. It focuses on wetland conservation and sustainable development in two Ramsar wetland sites in the Andean highlands, Pozuelos Lagoon in Argentina and Lake Junín in Peru. The ecological value and ability to sustain traditional community-based livelihoods is in decline in both these sites. "The best way to save the wetlands here is promoting better sustainable pasturage practices

and peat bog restoration and management," says Jorge Gonnet, wetlands management expert of the project in Argentina. His Peruvian colleague Alan Chamorro adds: "Working with the local communities is key to this. It serves wetland restoration and the wellbeing of the people at the same time." Chamorro forms part of the Peruvian NGO Asociación de Ecosistemas Andinos (ECOAN), which cooperates with Wetlands International in the Peruvian part of the project.

One of the ways to help the wetlands restore is fencing the land of pastoralists such as Alfonso Condor, to prevent the sheep from entering the *bofedales*. In highly degraded parts, native plants are sown to speed up the process. Land with recovered pasture, which has a high nutritive value, is reserved for pregnant cows and cows with young calves.

In 2018, this resulted in improved management and restoration of 32 hectares of *bofedales* and high-altitude pasture in the Peruvian part of the project, near Lake Junín. This was achieved with the help of about 210 families. It was not easy, because there was a conflict of the pastoralists' long-term and short-term interests. In the long term, rewetted *bofedales* and pastures keep the grazing areas intact, but in the short term it means the pastoralists have to remove their herds or even reduce them. "That's why it's extremely important

# Bone-dry Lima depends on the water of the *bofedales*

to offer them alternatives,” says Constantino Auca Chutas, president of ECOAN.

One alternative is to offer the communities high-yielding pasture seeds. Alfonso Condor was one of the recipients. “The NGO gave us three types of seeds, which we are about to sow. We will act as the workforce,” he says. The seeds are especially apt for high altitudes. They are sown outside the *bofedales*, together with native species. This results in a rich diet for the animals, meaning there is less need to use the bofedal or reduce the herd.

Restoring the *bofedales* not only serves man, but also nature. For example, it has helped the Lake Junín frog, which was thought to be extinct, to make one of the greatest comebacks since Lazarus.

## Upscaling and replicating

In two years’ time, the project yielded hopeful results. Many pastoralists have joined, more are wanting to. Therefore, Wetlands International decided to upscale and replicate the project and to start a new programme. From 2019 to 2024 it will be implemented in larger areas in Peru, between Lake Junín and Lima, encompassing Lima’s entire watershed, as well as regions of Argentina. The pri-

## Droughts and floods threaten Lima

Sometimes the taps in Lima simply go on strike. In March of 2017, only some days before World Water Day, the drought lasted for five days. People had to rely on water tankers. The problem was not a lack of rain, however. On the contrary, Peru was hit by heavy rainfall. It caused giant mudslides, which washed away bridges, houses, cars, people and animals. The water treatment plants had to close their locks to avoid overflow. Floods and water shortages all at once, that is Lima’s problem in a nutshell. The Peruvian capital is the second-largest desert city in the world (Cairo is the largest) and keeps on growing: soon the city will have 10 million inhabitants. It is completely dependent on water from elsewhere: there is scarcely any rainfall in the city itself. But the water supply is lagging behind urban growth. The root causes are shrinking glaciers in the Andes, the declining ability of the *bofedales* to act as sponges, a shortage of water reservoirs, poorly maintained waterworks and polluted rivers.



Lake Junín

mary goal is to expand the experiences in wetland conservation and to mitigate the growing threat of mining in the long term.

Alan Chamorro, the Junín coordinator of ECOAN, is encouraging others to upscale their activities as well. “Apart from sustainable pasturage practices and peat bog restoration you need to reforest areas with native species and capture and store rainwater, for example, all on a big scale. Water companies are showing an interest in solving the water problem by restoring *bofedales*. But so far implementation is low.”

Alfonso Condor, in the meantime, enthusiastically backs the project. “We can’t go on as we did in the past. We have to embrace solutions from abroad. The pasture needs rest. If it doesn’t get it, there will be no future for our children.” ●

## Building with nature

In traditional engineering, nature is an obstacle that has to be overcome by building structures such as bridges, dams and tunnels. With the changing climate and shrinking resources, there is an imminent need to build with nature rather than against it. The building with nature philosophy sees natural elements as building blocks instead of obstacles. Green roofs that help to lower the temperature in cities are an example, as is the practice of creating reservoirs for storm water. Building with nature aims to create a more resilient landscape. It uses so called blue-green infrastructure. A group of experts, among them Sander Carpij of Wetlands International and Constantino Auca Chutas of ECOAN, defined this kind of infrastructure in a joint article as ‘a planned interconnected network of natural and semi-natural areas, which include water bodies and green open spaces, that provides different ecosystem services’. Building with nature would be, in the future, an interesting opportunity to preserve the high Andean Wetlands.

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Video [Saving high andes wetlands for people & nature](#)



# From the CEO



**Our world is changing fast and becoming more volatile. Scientists are becoming more vocal about the imminent dangers we face due to the combination of ecosystem degradation and climate change. Credible commentators are warning of near-term disruptions to water availability and global food systems, with all the consequences for peace and security that those could have. Citizens are on the streets demanding action, but governments and companies are responding too cautiously and falling short of leading the transformational shifts in landscapes and across sectors that are urgently needed. The world is unprepared for the consequences of global warming.**

**W**etlands are in the frontline of this triple crisis of ecosystem loss, climate change and social conflict. Transboundary water conflicts rise in drought periods and some wetlands that used to be safe havens are becoming centres of out-migration. This is playing out in an extreme way, for example in Lake Chad where the livelihoods of around nine million fishers, farmers and pastoralists have been taken away through disruption of the lake's water flows for upstream developments. People have had no option but to flee and the misery has created space for jihadists to recruit desperate young men. In neighbouring Mali, the estimated one million people dependent on the Inner Niger Delta (an inland delta wetland as big as Belgium) could face similar bleak prospects. Here, Hamsala Bokoum, leader of the regional organisation that brings Fulani pastoralists together, advised us recently that the delta is a "ticking bomb", saying that planned water diversions that will further reduce freshwater flow to these wetlands, will likely trigger big conflicts as natural resources drop



Hamsala Bokoum

below a critical point. Conversely, herders, farmers and fisher representatives here agree that restoring flows to the delta and enlarging the bourgou (water grass) fields, would help to ease the pressure and restore the peace between local communities. They mention how they are used to co-exist in these wetlands, to trade products and share the space. Wetlands International has worked closely with delta communities and with the Mali government for more than 20 years, to build and share knowledge on the delta, to conserve the biodiversity and enhance livelihoods and adaptation to climate change. We are convinced that through improving water governance and by seeing and nurturing the delta as a natural asset, there are promising options for equitable, sustainable development and for restoring peace. This is a story repeated across the Sahel – and so we are working to raise awareness and to re-orientate investments in Sahelian wetlands, as "blue lifelines".

### **In a crisis you look to your leaders.**

Some governments, companies and communities are joining forces and taking a leading role in working with nature to bring back wetlands to improve the natural resource base and human security. For example, the government of Indonesia is working with us to reverse the fortunes of more than 70,000 people in Central Java. Their homes and land are being washed away as the coastline is eroding at a dramatic rate. The Ministry of Marine Affairs and Fisheries and the villagers of Timbulloko joined us in the first hybrid engineering trial there, four years ago, to see if this would trap sediment so that mangroves seedlings can colonise. The vision is to restore a thick mangrove belt to act as a buffer from high tides and storms in conjunction with reviving smallholder aquaculture production in the hinterland. Thanks to the commitment of local, national and international partners, including engineering companies and knowledge institutes, four years on this is taking



Village heads at signing ceremony to take over project ownership

shape, visibly transforming a 20km stretch of coast. Specialised species, such as the Milky Stork is also coming back in the mangrove areas. Local communities are determined to succeed and they take an active role in driving innovation. Village leaders are signing up to take over responsibility for most elements of the programme: they organise and collaborate amongst neighbouring villages to carry out the needed constructions and management, guided by engineers. I was present in a signing ceremony of four village leaders earlier this year - and I found their message of commitment, solidarity and hope very humbling. Through sharing knowledge, trainings and providing access to micro-finance, fishery production and living standards have improved. Mangroves are incorporated into fish ponds to help stabilise the banks and diversify the aquaculture products. Locally made natural fertilisers have boosted productivity. Despite the fact that this is still in a large experimental management and learning phase, the Ministry has adopted the philosophy behind this work of "Building with Nature" more generally and is applying it with different designs to protect other coastal stretches and types of coastlines in Indonesia. The dream that we share is to mobilise others to do the same across Asia and globally.

- Two-thirds of Kerala's wetlands have been diked and drained to make way for industry, urban areas, tourism and agriculture over the last century
- Lake Vembanad has halved in size
- A fatal monsoon resulted in 500 dead and thousands evacuated from their homes
- At the 140-meter-high Cheruthoni Dam on Kerala's biggest river operators, had to open all five gates for the first time in its 40 years of operation
- The loss of wetlands means the entire backwaters system has lost its ability to absorb major floods

Kerala wetlands in southern India lose their capacity to absorb floodwaters

# Infernal floods wash over God's own country

The picturesque Kerala backwaters in southern India, increasingly popular with tourists, are a network of engineered canals, lagoons, lakes and rice paddies. But a fatal monsoon deluge has highlighted the global problem of how developed wetlands often lose their capacity to absorb major floods.

By Fred Pearce for Wetlands International



In India, they call the state of Kerala in the country's far south 'God's own country'. That wasn't how it felt in August 2018, when monsoon floods devastated its densely populated low-lying coastal plain. Around 500 people drowned, in an area best known to outsiders for its placid backwaters, a network of brackish lakes, lagoons and canals

where growing numbers of Western tourists cruise the picturesque waterways aboard luxury houseboats. Now that the floodwaters have abated, questions are being raised about whether the disaster was made worse by water engineering projects in the backwaters designed to feed the state's population and attract tourists. Increasingly, Kerala residents are wondering if

## A quarter million people took refuge in 1,500 relief camps

“God’s own country” is damned as well as dammed.

The floods came out of the Western Ghats. This chain of mountains down the west side of India is one of the country’s wettest places, drenched from June to September in monsoon. In early August, the rains there were exceptionally intense and unremitting. The rivers flowing from the mountains west toward the Arabian Sea dumped their water into the backwaters on a coastal plain that is largely below sea level.

Sixty-mile-long Lake Vembanad, at the heart of the backwaters, rose up and flooded surrounding wetlands and rice paddies, cities and farming villages. A quarter-million people took refuge in 1,500 relief camps; 10,000 kilometres of roads and 300 square kilometres of farmland were damaged. Cochin International Airport was awash.

### Tin shacks

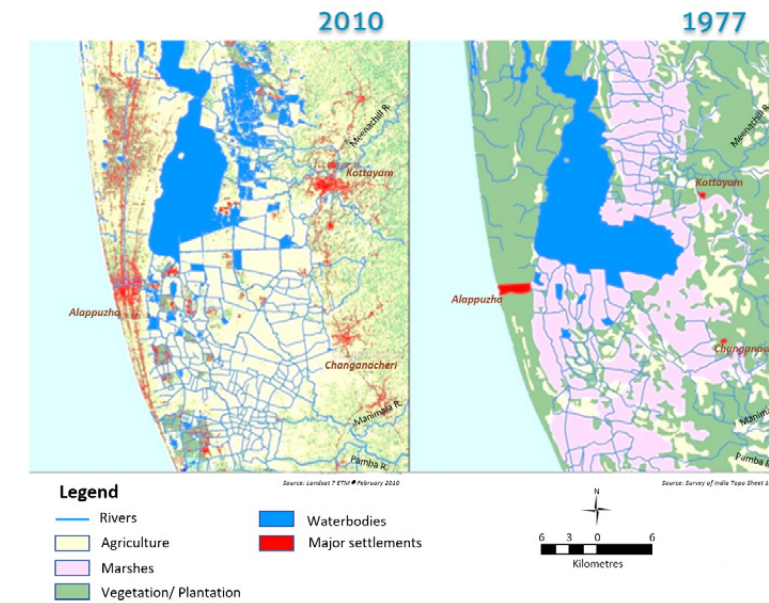
Four months on, when I visited, the cleanup had been largely completed in many places. Often all that was left was the high-water mark on buildings. But in many of the hardest-hit poor rural communities, recovery had barely begun.

At Kannady, a small village in the Kuttanad wetland south of Lake Vembanad, I found people still living in broken tin shacks. Close by, villagers were laboriously digging a drain across their rice fields to cleanse it of polluted water so they could plant a new crop. Some villagers blamed the floods on the backwaters. After all, as village councillor Ambila Gose pointed out, the water had come up from the lake and across the Kuttanad wetland, before swamping their community. Maybe more drains would empty the wetland and keep the water away, they suggested. But the truth is the opposite, said

B. Sreekumar of the Kottayam Nature Society, which is based on the wetland. Two-thirds of the wetland had been drained by farmers in the past century. Those wet areas that survived had minimised the flood damage by absorbing floodwaters. What the villagers needed was more wetland, not less. “The flood is man-made. To reduce the flood risks, we should remove all the encroachments,” he said.

### Tourists’ delight

The backwaters that dominate the narrow coastal plain of Kerala are a tourists’ delight. Millions come each year, some now to see locations featured in Arundhati Roy’s Booker Prize-winning novel *The God of Small Things*. (Our boatman on Lake Vembanad claimed to have been brought up in the same village as Roy. It might even be true.) But the backwaters are not what they once were. Many of the



mangroves that once lined Lake Vembanad have been removed to make way for tourist lodges and to improve their views of the water. Half a century ago,

### Integrated Management Plan for Ramsar-sites

Wetlands International has been working with the State Wetlands Authority Kerala to put in place integrated management plans for the restoration of the three Ramsar sites, Vembanad-Kol, Asthamudi and Sasthamkotta. Regaining the hydrological moderation capability of the wetlands is the cornerstone of these management plans. The plans were approved for implementation early 2019.

newly independent India rushed to drain the rich wetland soils of the plain for growing rice, as part of a national drive to achieve local food self-sufficiency. Dutch engineers brought their techniques of land reclamation to convert parts of Lake Vembanad itself into more than 1,000 drained *polders* for rice cultivation, each with stone walls surrounding drained land a metre or more below the level of the lake outside.

Urbanisation grabbed the wetlands too. In Kochi, Kerala’s fastest-growing city and main port, a few scraps of mangrove on riverbanks remind visitors of its wetland past. On the edge of Thrissur, another fast-growing metropolis, real estate develop-

< Estuary and marsh area due to polder construction

ers have just completed Sobha City, a large estate of apartment blocks, on land annexed from the Kole wetland (part a the bigger Vembanad-Kol area). It is surrounded by reed beds swaying in the breeze.

What remains of the Kole wetland is still rich in wildlife. A recent bird survey found 250 species. At a patch of former paddy near Palakkad, we saw a greater spotted eagle within seconds of arrival. A pair of hoopoes crossed the path. Marsh harriers and pelicans were feeding on fish. Even so, much has gone. By the end of the 20th century, the size of Vembanad Lake had been halved to less than 180 square kilometres. With siltation reducing its depth in many places, the lake’s water-holding capacity has diminished by three-quarters. The Kuttanad wetland has declined by two-thirds. Whatever the ecological losses, engineers believed they had

## 'The dams were never meant to be opened like that; it caused massive flooding downstream'

the complex hydrology of the backwaters under control, with a network of dams and barriers. But that complacency was blown away by the August floods, said Ritesh Kumar, director of Wetlands International, South Asia. The system may be able to handle regular monsoon flows, but the engineering has resulted in the entire backwaters system losing its ability to absorb major floods.

### Incessant rain

One target of concern are the dams that barricade many of the rivers flowing from the Western Ghats into the backwaters. In August, even as the floods continued, hydrologists were pointing out that virtually all the dam reservoirs were full at the start of the flood. That left no room to absorb heavy rains coming downstream. "Steps could have been taken to avoid the calamities downstream," hydrologist E.J. James of Karunya University in Coimbatore, a former member

of the Kerala Dam Safety Authority, told the *Deccan Chronicle* at the height of the flooding. "There were predictions about incessant rain and [the] water level was bound to increase." As soon as the heavy rains were forecast, managers should have begun gradually emptying the reservoirs to create space. Instead, under instructions to keep their reservoirs as full as possible to maximise electricity generation, managers ended up making rushed releases at the height of the floods, just to save their structures from being broken by the force of water behind them. At the 140-meter-high Cheruthoni Dam on Kerala's biggest river, the Periyar, operators opened all five gates for the first time in its 40 years of operation. "The dams were never meant to be opened like that," said Ritesh Kumar. "It caused massive flooding downstream." The swollen river gushed downstream and across the Kole wetland, inundating

Cochin airport for several days. Thousands of people had to be evacuated. The debate about the dams diverted attention from the more fundamental issue: managing the floodwaters themselves. The lakes and wetlands that previously would have absorbed the flood had been diked and drained to make rice fields, industrial estates, tourist resorts, and cities. "The areas where wetlands reclamation had been most significant were also the ones to bear the severest of the impacts," Kumar said. I saw this myself in the village of Pullu, southwest of Thrissur on the Manakkody River. The village is an island surrounded by rice fields created by reclaiming the Kole wetland. Villagers told their story of the floods. How the water came from rivers into their fields and then surged into the village. Some residents had to be rescued by helicopter. "We released the cattle when the flood

came, and not many returned," said villager Siva Dason.

### Obfuscation

By the end of 2018, they were still recovering. They have pumped the polluted floodwaters from their wells. The government provided grants for those rebuilding their homes. But first they had to eat. A man named Badirruddin, whose house had been destroyed, was out fishing in the river. And rice fields where farmers had lost one rice crop to the flood were already planted with the next. But the truth is they were in a place that in past times would have been a natural wetland. The Kole wetland is recognised by the Ramsar Convention as an internationally important wetland. I asked villagers if they thought that converting all the surrounding wetland into rice fields surrounded by dikes might have left them vulnerable when the water came. The village



© Seeds

leader K. Parameswaran thought for a while. Perhaps other communities were guilty, he said. It sounded like obfuscation, but it was a fair point. No village can save itself alone. It was a collective failure – a tragedy of the hydrological commons. The problem lay in attempting to turn large areas of natural wetland and river floodplain into dry land, said Kumar: "This whole coastal area is a floodplain. It is where the water goes; it is natural. We should not try to prevent it."

*Fred Pearce is a freelance author and journalist based in the UK. He serves as environmental consultant for New Scientist magazine and is the author of numerous books, including The Land Grabbers. He visited Kerala for Wetlands International, for a new book "Water Lands" to be published in 2020 to raise wetlands higher on the global agenda. His trip was made possible by the Dutch National Postcode Lottery*



- Abstraction by agriculture, sandmining and tourism upstream have reduced the capacity of the Ewaso Ngi'ro river ecosystem in Kenya to absorb and store water
- Wetlands International brought together officials for the first time to discuss and agree to joint management of the river basin
- Large infrastructure plans for 2030 look set to compound water management issues
- Recent mobilization of local communities has helped hold back large infrastructure threats
- Lake Ol' Bolossat formally became a Wetland Protected Area in 2018
- This provide a legal framework and opportunity to enlist the lake as a Ramsar Site



## Ewaso Ngi'ro River, Kenya

# The 'muddy river' brings life downstream

Every year the muddy Ewaso Ngi'ro River in Kenya brings less water to the pastoralist communities and wetlands downstream. Supported by Wetlands International, local communities are trying to raise awareness regarding the plight of the river. And successfully so. Crocodile Jaw Dam has been put on ice and Lake Ol' Bolossat has been declared a protected area.

**T**his river used to flow for ten months a year, but these days it only flows for two months and then it dries up. And the springs also disappear.' As he describes the sad condition of the Ewaso Ngi'ro River, Salesa Forole emphasises every word with slow hand gestures. Salesa Forole, a traditional red tartan shawl draped over his head and shoulders, is a pastoralist from the county of Isiolo in Kenya. He is featured in a [short documentary film](#) made by the local organisation [Isiolo Peace Link](#). For Forole the Ewaso Ngi'ro – literally 'Muddy River' – means life. Halfway between the origins of the Ewaso Ngi'ro, at the foot of Mount Kenya, and the border with Somalia where the river joins the Jubba River, pastoralists such as Forole can only maintain their herds of cows, goats and camels thanks to the water provided by this river. But the availability of water can no longer be taken for granted. In recent decades the amount of water reaching the middle and lower regions of the Ewaso Ngi'ro, including the notorious Lorian Swamp, has been diminishing. On the upper reaches of the river, around Lake Ol' Bolossat, economic activities are in full swing. Farmers, large and small, pump water

from the river, tourism takes a fair share of water and sand mining reduces the capacity of the riverbed to absorb and store water. As a result – and aggravated by climate change – Lake Ol' Bolossat has been drastically reduced in size and volume. In the last decade, the lake's surface area has shrunk from 10,000 to a mere 3,000 hectares.



Titus Wamae

### Camel Caravan

Every year since 2013, communities of pastoralists and farmers from upstream, midstream and downstream organise the so-called [Camel Caravan Peace Walk](#): a 5-day, 250-kilometre trek from Isiolo County up to Archers Post, in the upper river basin. The walk is supported by Wetlands International. Stopping at several communities along the river, the participants try to raise awareness of the issues threatening the river basin and the people who depend on it. In the documentary mentioned above, Rashid Dida, an older man sporting a short beard coloured orange with henna and dressed in a faded

## Water dialogue

In December 2018, Wetlands International initiated an 'Inter-County Dialogue on Sustainable Governance and Management of Ewaso Ng'iro River Ecosystem'. It was the first time that (deputy) governors of the counties bordering the Ewaso Ng'iro River came together to discuss the future of the river. Representatives from the national government, NGOs and the private sector were also present to share knowledge and talk about joint solutions based on sharing the water and improving the ecological condition of the river system.

The Deputy Governor of Isiolo County, Abdi Hussein, emphasised the need for dialogue between water users upstream, such as Narumoru Water Resources Users Association, and those further downstream, such as Koru-Bisan to ensure that the resources in the Ewaso Ng'iro River Basin are used sustainably to improve community livelihoods. Issues identified as the main threats to the basin ecosystem include sand harvesting, deforestation, water pollution and unsustainable investments.

At the end of the two-day dialogue, the counties agreed to set up a system of joint management of the river basin.

brown jacket with a tartan shirt, explains why he participated in the 2018 edition of the Camel Caravan. "Our objective is to address the plight of the river. During the time of our fathers, the river used to flow without drying up. But nowadays it often dries up, because the water is being obstructed by the irrigation activities of upstream communities." The use of the river by agri-businesses upstream has been an increasing threat to the flow of the

water for some decades now, but in recent years this threat has become more immediate. About ten years ago, the Kenyan government introduced Vision 2030, an ambitious plan to transform Kenya into an industrialised middle-income country by the year 2030. Part of *Vision 2030* is the Lamu Port-South Sudan-Ethiopia Transport (LAPSSET) corridor project, running from 2008 to 2030. LAPSSET features some large infrastructure projects, including railway lines, airstrips, oil pipelines, an airport and three 'resort cities'. One of the projected resort cities is intended for Isiolo County. A dam on Ewaso Ng'iro River – the so-called Crocodile Jaw Dam – is meant to supply water to the proposed city.

### Lack of public participation

Together with local communities, Wetlands International has raised many issues about the proposed construction of the Crocodile Jaw Dam, including the lack of public participation by communities and accessibility to information about the dam. "The Environmental Impact Assessment was weak and did not involve some key stakeholders," says Titus Wamae of Wetlands International in Kenya. In particular, the voice of the Water Resource Users Associations (WRUAs) has not been heard in the plan-making process. WRUAs are community-based associations of water users at the sub-basin level. They are established by law for

the collaborative management of water resources. The WRUAs are also charged with resolving conflicts that may arise over the use and distribution of water from the river, Wamae explains. "We have argued that these WRUAs must be allowed to voice their concern regarding the function of the river as a lifeline for communities living on its banks." In particular, the river's downstream communities stand to suffer the consequences of the dam and other obstacles built in the river as part of Vision 2030.

### On ice

The awareness raising, the pressure and the lobbying activities have paid off, at least for now. "The recent protests have helped to put the construction of the Crocodile Jaw Dam on ice," Titus Wamae says. "But we remain wary, because the Deputy President of Kenya has said that he believes the dam will be constructed. So it is still not clear what will happen."

More good news came in early 2018 when Lake Ol' Bolossat, an important biodiversity area, formally became a Wetland Protected Area following its gazettelement by the National Environment Authority. "The gazettelement will provide the crucial legal framework," Wamae says, "including the ongoing development of a management plan to guide the conservation of the lake." This will then provide a lobbying opportunity to enlist the Lake as a Ramsar



© Joy Kivata

## Partners for resilience

Wetlands International works together with the Netherlands Red Cross, CARE Netherlands, Cordaid and the Red Cross/Red Crescent Climate Centre in the 'Partners for Resilience' (PfR) alliance. PfR is funded by the Dutch Ministry of Foreign Affairs. Working together with local stakeholders, the partners follow an Integrated Risk Management Approach, creating awareness of the importance of ecosystems and landscapes as buffers against hazards such as droughts and floods, and as a source of livelihoods. PfR operates in eleven countries in Africa, Asia and Latin America.

Site. But first, the current status of the area must be assessed. Based on that assessment, a plan will be made to bring the lake up to Ramsar standards. The government has already started cleaning up the plastic pollution in the lake and its surroundings. ●

**Donors** [Ministry of Foreign Affairs, Netherlands](#)

**Partners** [Watershed Partners for Resilience \(PfR\)](#)  
[Critical Ecosystem Partnership Fund \(CEPF\)](#)



## In short Ramsar News

### African nations call for action on Wetlands for Peace at Ramsar COP13

Over 1,300 delegates, observers and other visitors attended the '13th Conference of the Contracting Parties to the Ramsar Convention on Wetlands (COP13)' held in Dubai from 21-29 October, 2018. Wetlands International, an International Organisation Partner of the Convention, worked with Parties to shape up a range of Resolutions and supported the regional dialogues leading up to the conference. Wetlands International assisted Senegal and the Central African Republic to submit a draft Resolution on wetlands, peace and security. In her opening speech, representing the International Organisation Partners, Jane Madgwick, CEO of Wetlands International, highlighted "how continuing degradation of wetlands is fuelling societal tensions and conflicts – and conversely, that where action is taken to safeguard wetlands and secure wetland livelihoods, those communities are more able to remain peaceful." The draft Resolution was widely supported by African delegations and, during a dedicated side event, experiences and evidence on this topic were shared by delegates from Mali, Central African Republic, Senegal, Iraq and Brazil.

[Find out more here:](#)  
[Connecting Wetlands & Human security in Mali](#)

### Indian Sundarbans: declared a Ramsar site

In 2018, India declared its part of the Sundarbans, the world's largest mangrove forest spanning India and Bangladesh, a 'Wetland of International Importance'. Wetlands International was key to the process, providing technical support to Indian Ministry of Environment Forest and Climate Change.



© Purnanshi

The site constitutes over 60% of India's total mangrove forest and includes 90% of Indian mangrove species. The mangroves are vital to how India can deal with climate change, absorbing CO<sub>2</sub> and protecting the hinterland from storms and saltwater intrusion. Mangrove forests also sustain fisheries by local communities along the northern and central eastern coast. In addition, the Sundarbans are home to a number of endangered species including the Bengal tiger, the northern river terrapin turtle and the Irrawaddy dolphin.

[Find out more here](#)



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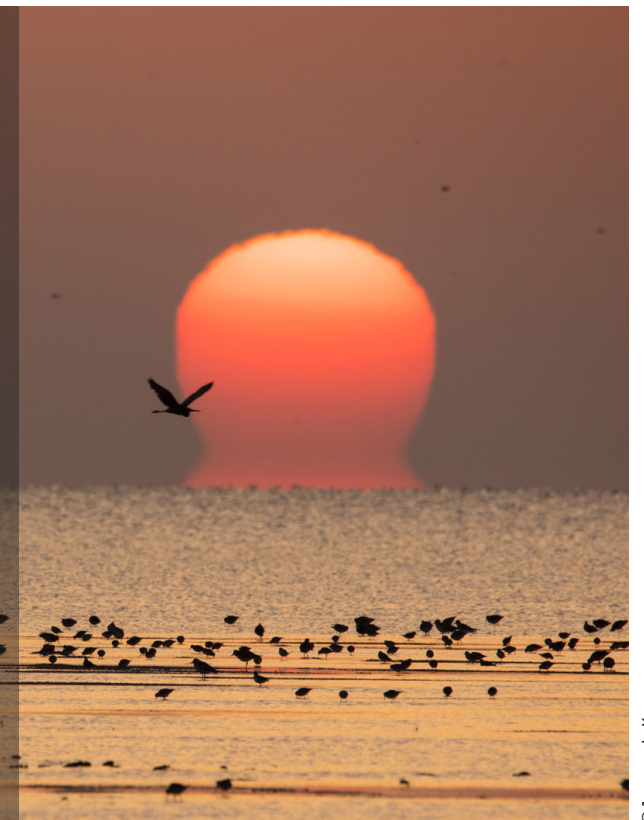
### Saving wetland treasures in the heart of Dubai

The Ras Al Khor wetland is situated right in the middle of the city of Dubai and as an urban wetland is of great value to nature, residents and tourists of the metropolis. It is home to 47 species of flora and 270 species of fauna, among them some 500 greater flamingoes (*Phoenicopterus roseus*). In the aftermath of the 13th Conference of the Contracting Parties to the Ramsar Convention on Wetlands, held in Dubai, Wetlands International was invited to visit the Ras Al Khor Wildlife Sanctuary. This visit coincided with a request to help shape a new management plan for this exceptional wetland in the heart of Dubai.

### Spotlight on wetland jewel in Oman

The book 'Barr Al Hikman: shorebird paradise in Oman', published in 2018 by Wetlands International, puts a spotlight on this natural jewel in the West Asian – East African flyway. The 900 square kilometres, coastal wetland consisting of reefs, mud-flats and salt flats ('sabkhas') hosts over half a million migratory birds during the northern winter. Wetlands International works together with Oman's Ministry of the Environment and Climate Affairs to support the designation of Barr Al Hikman as a Ramsar site and to advise on conservation management.

[Find out more here](#)



© Jan van de Kam

- The Corredor Azul extends over 3,400 kilometres and is one of the world's last free-flowing river systems
- The 10-year Corredor Azul Programme by Wetlands International aims to safeguard nature and enhance people's livelihoods along the Paraná-Paraguay wetland system
- Wetlands International has been working with the Kadiweu indigenous communities to help them sustainably manage their lands through mapping and co-design
- The project aims to show how communities can base their livelihoods on the sustainable management of wetlands



© R. Silva

Rafaela Nicola, our woman in Brazil:

# 'The wetland is the solution, not the problem'

**Rafaela Nicola heads the newly established Wetlands International office in Mato Grosso do Sul in Brazil to develop the Corredor Azul Programme in the Pantanal. Corredor Azul is a Wetlands International programme connecting people, nature and economies along the Paraná-Paraguay Wetlands System. This system includes impressive wetland landscapes such as the Paraná Delta, the Iberá Marshes in Argentina and the Pantanal in Brazil. More than twenty years after her first visit to the Pantanal to study the reproductive biology of the caiman, Rafaela is still in love with 'her' wetland.**

**T**he Pantanal wetland in Brazil is a marvel. It is the most resilient landscape I know. The Pantanal is governed by cycles of flood and drought, completely changing the landscape. In the dry season, wildlife clusters around shrinking water holes and small streams. Leaves fall and the landscape becomes arid. But this is also the time when trees blossom, painting the landscape red, purple and yellow. In November, when the rains come, everything turns green again. The lower lands turn into lakes, mirroring the vegetation and the blue skies above. Someone who knows the Pantanal in the one season will be completely lost when coming to the same place half a year later. And then there is its size: the Pantanal is the biggest fresh water wetland in the world, measuring some 180,000 square kilometres. That is bigger than many countries!

“To be honest, I am not from this area. I was raised in Sao Paulo. My first visit to the Pantanal was as a master student, more than twenty years ago. I studied reproduction in the caiman, or Jacaré as we call it in Brazil. That study allowed me to visit the Pantanal many times. I spent countless days in that magnificent landscape, sailing the rivers and lakes, admiring the vegetation and animals. But my interest was still mainly that of a researcher. One day, I met someone and we started talking about my research and why that was important to me, and that person asked me what I thought of the Hidrovía project (the Hidrovía is a plan, originating from the mid-1990s, to convert the Paraguay and Paraná rivers into an industrial shipping channel). I had to confess that I had never really thought about it. It got me thinking: what would the development of the Hidrovía do to the area I had grown to love so much? It was an eye-opener for me! At exactly that moment my attitude changed from an academic to an activist for the defence of ‘my’ wetlands.

“I started working for the Rios Vivos (‘Living Rivers’) coalition and for IUCN NL through a Brazilian organisation ECOA. I was managing projects on wetlands conservation and facilitating debates about the Parana/Paraguay Wetland System, so I often came across the work of Wetlands International. Their work was very important to us. Their research provided solid evidence that we gladly used for our activism, to change policies. In this setting I got to meet Daniel Blanco, head of Wetlands International in Argentina and Jane Madgwick, CEO of the



### Corredor Azul

The Corredor Azul extends over 3,400 kilometres from its source in the Brazilian Pantanal, through Bolivia and Paraguay to its end point in Delta del Paraná in Argentina. It is one of the world’s last remaining examples of a large, free-flowing river system. The 10-year Corredor Azul Programme, from 2017 to 2027, coordinated by [Wetlands International LAC](#) in Argentina, is designed to safeguard nature and enhance the livelihoods of people along the Paraná-Paraguay wetland system.

global organisation Wetlands International back in the early 2000s.

“Whenever Daniel and I met in those days we talked about when Wetlands International would ‘move upstream the Paraguay River’. That was our way of saying that the organisation should start working in Brazil. We talked about the need for



© Francisco Firpo Lacoste



The Terena People, whose territory, like that of the Kadiweu people, is deteriorating.

an integrated approach to the Paraná-Paraguay wetlands system covering Bolivia, Brazil, Paraguay and Argentina. This whole wetland complex should be considered one interconnected area, we agreed. And some three years ago, the *Corredor Azul* idea was conceived. And Daniel asked me to join Wetlands International and to head a new Brazil office of the organisation.

Wetlands International is well known in Brazil: it has a track record for being a serious, fact-based organisation. It can play a vital role in keeping the protection of the Pantanal on the agenda.

"We are in the start-up phase of the new office. Here in Campo Grande, the capital of Mato Grosso do Sul and gateway to the Pantanal area, we join forces with the local women's organisation MUPAN (Women in Action for the Pantanal). The five people now employed by Wetlands International work together in solid partnerships with NGOs, research institutes and the private sector to raise awareness about the importance of the Pantanal, and to involve Brazilian stakeholders in the Corredor Azul Programme.

"One of the things I am enthusiastic about is a project we do together with the Kadiweu indigenous communities. The leaders of the Kadiweu came to

us not so long ago, complaining that their territories are deteriorating. The Kadiweu territories encompass some 530,000 hectares of the Pantanal wetland area. They asked if we could help them to sustainably manage their lands. We recently finalised a process of participatory mapping and co-designing with the Kadiweu people for their territory, indicating what waters need to be protected, where agriculture is possible, and where the sacred areas of the Kadiweu are located. We are hoping that this project will be able to showcase how communities can base their livelihoods on the sustainable management of the wetlands.

"There is little awareness about the services wetlands provide for the people living there. A healthy Pantanal is vital for the availability of fresh water, for the storage of greenhouse gases, for food security and for transport. We try to get this message across with stakeholders from governments, academia, NGOs and the private sector. For that, we enable learning spaces where different worlds – from traditional to academic – interact, allowing stakeholders to perceive matters from diverse angles. Unfortunately, many people still think that the best way to 'develop' the wetland is to drain the

water and to start growing soy or raising cattle. The wetland is seen as an obstacle to development. This process, together with the development of dams and other river infrastructure, will cause the destruction of the wetlands. One of the things we are working on is to show how the wetlands can provide healthy livelihoods in a sustainable manner. We say that the wetlands are a solution, not a problem." ●

**Donor** [DOB Ecology](#)

**Partners** [INAU - National Wetlands Institute from Brazil](#)  
[UFMS - Federal University of Mato Grosso do Sul State](#)  
[SESC Pantanal Ramsar Site](#)  
[WWF- Brazil](#)  
[ICCA Consortium](#)  
[MUPAN, Brazil](#)  
[Network office](#)

**Ildiko Nagy**  
**Wetlands International**  
 Office manager at Wetlands  
 International Global Office



#### Who is Ildiko Nagy?

"I started working for Wetlands International in 2006 as a volunteer. In 2008 I was appointed technical assistant, and in 2010 office manager at the Global Office. My main task is to ensure the smooth running of our office and make the lives of my colleagues easier. Do they make my life easy? Not always, especially with last-minute requests, ha ha."

#### What was your biggest personal work achievement of 2018?

"Implementing SharePoint, a digital platform for information exchange. Together with two colleagues I trained people and answered questions about it. All of our offices and partners are connected to SharePoint. You can directly share documents now, which makes collaboration a lot easier."

#### What is the nicest thing about working at Wetlands International?

"In my work, no day is ever the same. There is a good working atmosphere and I have very nice colleagues. I like the variety of cultures: we have ten different nationalities working here. I am Hungarian myself. What I like about the goals of Wetlands International is that it's not only about nature but also about people. It touches subjects like peace and security and migration, which makes it very diverse."

#### What do you want to achieve in 2019?

"The implementation of a new project and finance system. I am part of the selection committee. I will be training people to work with it. Yes, it seems like I'm becoming a training officer. But I used to be a teacher, so it suits me." ●

- The Watershed Partnership aims to improve governance and management of water, sanitation and hygiene services by, among others, empowering women and marginalised communities.
- A survey of 159 dug wells helped communities understand groundwater regimes and links to the local wetland.

Transforming women's lives through inclusive WASH management in India

# Gulnaaz Khatun will finally get her tap

**Gulnaaz Khatun looks at the newly fitted water pipe in front of her hut. Once the overhead tanks and the tap are installed, the 33-year-old Indian lady will have water at her doorstep. Gulnaaz feels satisfied because her efforts have finally paid off. But it has been a long struggle.**



**G**ulnaaz is a resident of Lakhnipur Maheshpatti, a village in the north-eastern Indian state of Bihar. She lives in a hut made of mud and wood, amid the agricultural lands surrounding her village. The lands form part of Debkhal Chaur, a natural wetland situated in the basin of the Burhi Gandak River, spanning 217 hectares. Gulnaaz moved there five years ago. Her husband migrated to Kolkata where he works as a washerman. His earnings are meagre and he

hardly sends any money home. She is largely left to her own devices to make ends meet and take care of her four young children. The fact that she belongs to a religious minority and a backward caste makes Gulnaaz' marginalisation complete. Three times a day, Gulnaaz walks 700 metres to fetch water from a public hand pump. One hand pump serves about 70 people. Sometimes she has to wait in a queue to fill her ten-litre bucket. Her drudgery is compounded on days when she is sick or when the terrain

becomes slippery because of rain. In the past few years, the water level has fallen, so she has to make an extra effort to pump the water. Frequently, the hand pump is out of service. Gulnaaz then has to go to other pumps, further away.

**50 metres deeper**  
Debkhhal Chaur is the primary source of water for about 1,300 farming households. A steadily increasing amount of groundwater is being used to irrigate the land, causing the groundwater level to recede. The bore wells

Debkhhal Chaur wetland

have had to be deepened from 20 to 50 metres. Coupled with less rainfall in the region over the last two decades, large parts of the wetlands remain dry for prolonged periods. Wetlands International participates in *Watershed*, a strategic partnership funded by the Dutch

Ministry of Foreign Affairs. The partnership aims to improve the governance and management of water, sanitation and hygiene services (WASH) and the water resources that they draw upon. This is achieved through an inclusive approach, which pays extra attention to the partici-



pation of marginalised groups. One of the focal areas is the district where Gulnaaz lives. Local partner Nidan leads the implementation of change there. Traditionally, India's highly patriarchal society has restricted women from raising their problems and taking part in decision-making processes. The government has undertaken affirmative action by reserving seats for women in Panchayati Raj bodies, a form of self-government. But the underlying social and cultural inequalities persist.

#### Too expensive

When Watershed in India began in 2017, it was hard to ensure a gender-balanced approach. In Bihar, it is not common for women to speak at public platforms in front of men, particularly village elders. The Watershed partners started working on ways of creating an enabling environment for women and

marginalised communities. Watershed therefore engaged with local women's self-help groups (SHGs) and their village organisations to be the voice for women in WASH.

Gulnaaz is a member of such a self-help group. The SHGs need capacity development to be able to act as agents of change. Watershed informed them about WASH issues, implementation mechanisms, rights, the roles and responsibilities of women, and developmental planning processes. Gulnaaz also benefited from these interactions. In 2016, the Bihar State government started a scheme that aimed to provide every household with piped water. This is being achieved through a decentralized approach: implementation committees at the ward level participate in decision making. In Ward 13, where Gulnaaz lives, the surveys for laying pipes started in early 2018. Gulnaaz' house was left out during the initial surveys. The contractor, the village Panchayati Raj head and the ward committee mem-

bers felt that laying down long pipes for a single household would be too expensive. Gulnaaz raised this issue in a ward-level meeting in March 2018. As she got the backing of female SHG members, who vociferously supported her, the ward members gave in to the demands, albeit somewhat reluctantly. So in the

end, Gulnaaz finally will get her tap.

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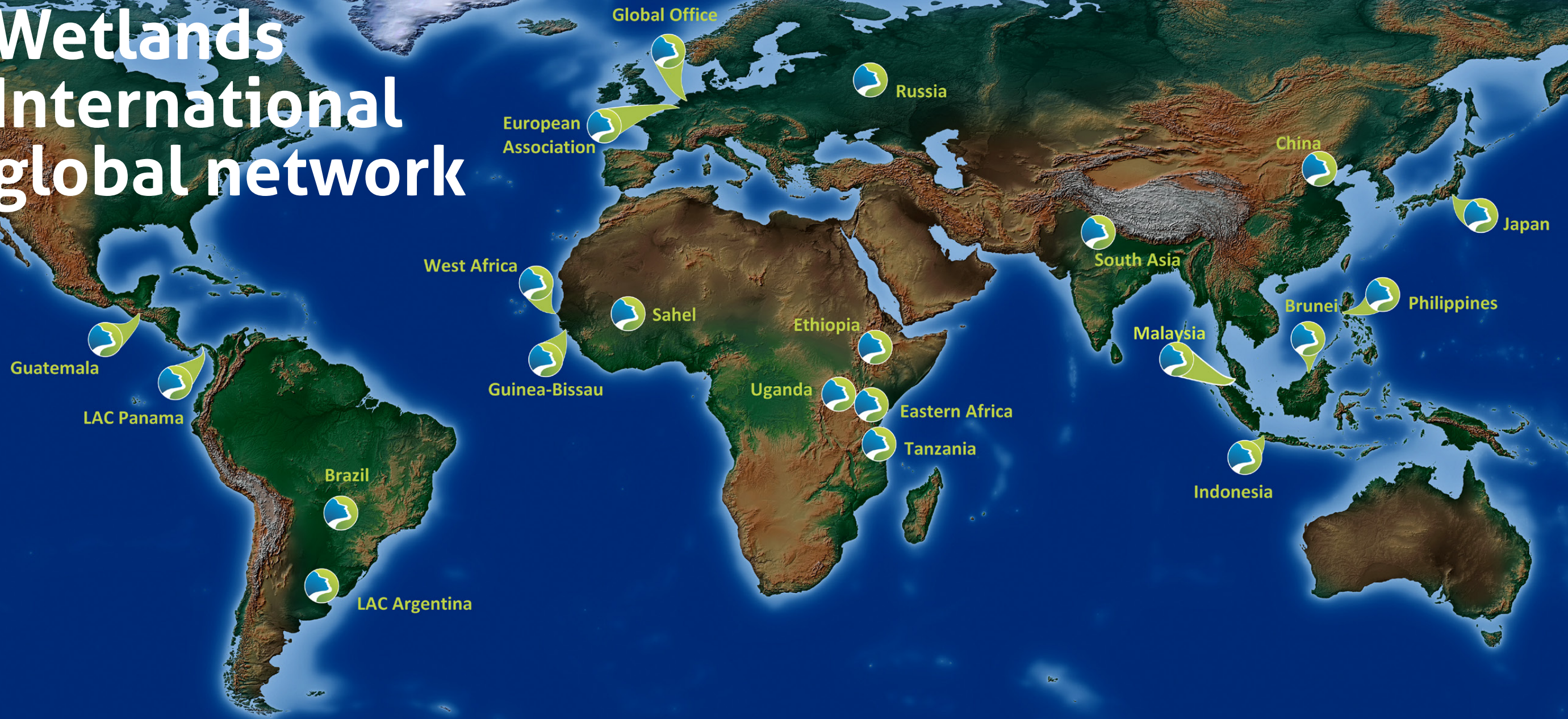
## Helping the sponge recover

The Debkhal Chaur wetland acts as a sponge. It absorbs, stores and releases water and helps to recharge the groundwater. But an analysis carried out by Wetlands International using satellite images showed a drastic reduction of the wetland's capacity to act as a sponge in recent decades. The sponge, in other words, is drying out. This means water security has to be an integral part of water and sanitation programmes. Wetlands International therefore assists local communities in developing water security plans. Key elements in these plans include the optimal use of water and catchment conservation measures, such as rehabilitating ponds and drainage lines that will improve water flows into the wetland. In Debkhal Chaur, 159 dug wells were surveyed to understand groundwater regimes. The data were made available to the communities, making them aware of the characteristics of the basin and the importance of water security. Wetlands International believes that local participation is an important factor in water security planning. Water security plans prepared through participatory processes empower communities and help them to solve the emerging water crisis themselves instead of depending on outside experts.

## Toilets yes, but then...

Until recently, open defecation was a widespread practice in India, causing disease and pollution. In 2014, only 40 per cent of Indians had access to a toilet. One of the Modi government's promises was that each Indian household would have its own toilet by 2019. The Mission Clean India (Swachh Bharat) aimed to construct about 100 million toilets by this date. As a result, it launched toilet construction programmes and provided subsidies. But having a toilet does not automatically mean that faecal matter will be safely managed. Many toilets are not connected to sewerage and are situated close to wells, which can contaminate drinking water. A household survey conducted under the Watershed programme from August to November 2017 showed that only one fifth of faecal matter in the Debkhal Chaur basin was safely contained. Bacterial contamination was found in half of the hand pumps. Wastewater drainage and treatment facilities are non-existent or poorly planned. Toilet construction under the Swachh Bharat Mission has progressed in this region as well, and it has been declared free of open defecation, but the safe emptying, transport, treatment and disposal of faecal sludge still remains a challenge.

# Wetlands International global network



- Angelique combines straightforwardness with a strong desire to connect people
- She believes you won't get anywhere without passion
- As a financial expert, she thinks Wetlands International should collect more un-earmarked funds



Angelique van de Beeten, member of Wetlands International's Supervisory Council and treasurer of the association

# A high-heeled baker strolling through the wetlands

**Angelique welcomes her visitor in her beautifully renovated farmhouse, situated in an open space in the middle of the woods. Although the city of Ede – and the headquarters of Wetlands International – is quite close, we are in the middle of a nature reserve here. Angelique's farmhouse, painted all in black, can only be reached by dirt roads. When entering the house, the visitor's attention is drawn to a pair of stiletto heels on the stairs.**

**O**riginally, Angelique was a certified public accountant, but two years ago she suddenly became managing director of De Graaf Bakeries. This former client of hers, a family-run and rapidly expanding producer of pies, cookies and snacks, needed some inspiration from the outside. And Angelique is inspirational, combining straightforwardness with a strong desire to connect people.

#### **Binoculars**

A word she often uses is 'passion'. She even made it part of De Graaf's mission. "Without passion you



**'Without passion you won't get anywhere'**

won't get anywhere," she explains. "It's contagious. If you show passion, clients will feel that you're really serving them - relying on your own strength."

As a member of Wetlands International's Supervisory Council, her role is supportive, not leading. But passion is a priority for her in this role as well. "If Wetlands International wouldn't have been a passionate organisation, with passionate people, I would never have joined it."

She still remembers her job interview with André van der Zande, the chair of the Supervisory Council. "He asked me whether I had any affinity with wetlands. I said: 'Apart from having a pool in my pasture, no.' That made him smile. When I added that I love to encourage people to live their passion, I got the job. Apparently, that was good enough."

In the beginning, the world of wetlands was all new to her. She remembers her first trip with the Supervisory Council, to Buenos Aires. There were many terms she did not understand and she was the only one who had not brought binoculars to watch birds. But on her third trip, to the Saloum Delta in Senegal, last November, she was one of the energisers. She prepares well for these trips, never forgetting her stiletto heels. "I always carry more luggage than the others," she admits with a smile. "My motto is: better safe than sorry. But I didn't need to buy a new outfit for these trips, because at home I drive my own tractor."



### Practical questions

What is her added value for Wetlands International? "I'm an auditor, so my primary focus is financial. But I'm more of a consultant who translates strategy into management than an administrator. One of the things I advocated was a financial early warning system and the establishment of a minimum reserve. I'm part of the audit committee and check the annual accounts together with the controller. I also attend job interviews. On my initiative, candidates have to examine a case. My strength in job interviews is to ask practical questions such as: 'How would you do that?'"

She speaks enthusiastically about the 2018 visit to the Saloum Delta, where the main goal is to manage and restore the mangrove, and simultaneously enhance local livelihoods, under the Mangrove Capital Africa programme. "I was really impressed by their systematic act-know-learn-plan approach and their use of key performance indicators. 'Wow,' I said, 'this is really good!' They also showed us some very creative solutions, like

oyster racks made of strings which they invented themselves. Here, let me show them to you." She takes her smartphone and shows pictures of the oyster racks and of the joint meal, consisting of raw and fried oysters, among other things. Then she scrolls to pictures of another visit, to Kenya. "Look, one of the local consultants there taught me how to jump. As you can see, I was wearing flat shoes at the time..."

### Volvo Ocean Race

She has a clear perspective on the future of Wetlands International. "As a financial expert, I think that we should collect more unearmarked funds. Almost all of the funds we get now are tied to projects. This means that there's little left for the organisation. And I do think the organisation should be lifted to a higher level. I see several ways of solving this problem. One is to increase the value of being a member of the association. We're exploring that issue now. Another possibility is to attract more corporate sponsors to Wetlands International. This could easily be done in the context of the United Nation's sustainable development goals. We should specify what we contribute to the planet, making their contribution transparent as well. You could offer them packages at different levels. So for a certain amount, sponsors could use our name and we could use theirs, for example. I find the Volvo Ocean Race, which attracts millions of euros, an example of best practice when it

comes to sponsorship. Third, we should be in more control of donations by individuals and foundations. At the moment, these donations are too random. I realise that wetlands don't make people go all soft inside. Peat isn't exactly the sexiest subject. But you could make the jump from mangroves to Temptation Island..."

### School trip

Wetlands and a bakery seem to have few things in common. Still, Angelique believes that the two complement and strengthen each other. Just as her managerial and financial expertise benefits Wetlands International, her being part of the Supervisory Council also benefits De Graaf Bakeries. She learned how to conduct meetings from André van der Zande, for example, and was inspired by Wetlands International's work streams and by the project barometers the organisation uses.

What does she consider the best results from last year? "That we got two new competent management team members, Richard Holland and Ron van Leeuwen. And that we are in better financial shape to scale-up our impact, thanks to money from the Dutch National Postcode Lottery, for example." And what was the funniest event? "Josje Reinartz's farewell as chief operations officer. The Supervisory Council celebrated that in Senegal and it was hilarious. We all sang for her, very much out of tune. It was just like a school trip!" ●

- In 2018, Wetlands International began scaling up mangrove projects across wider coastal landscapes under the framework of the Mangrove Capital Africa programme (started in 2017) and the Global Mangrove Alliance
- Inhabitants are offered alternatives for mangrove cutting, like sustainable oyster farming
- Emphasis is placed on working with women as they rely disproportionately on the mangroves.

New restoration policy in Africa pays off

# Mangrove Capital

**J**oãozinho Sá looks up at the sky. It is a sunny day in the Cacheu River Mangroves Natural Park. Hardly any wind and no rain: a good day to sail to the abandoned rice paddies. Once again Sá, the national coordinator of Wetlands International in Guinea-Bissau, checks his timetable: 8hrs - 9hrs: meeting with the park agents to define the strategy of the day  
 9hrs - 10hrs: meeting with the community, selection of 20 associates  
 10hrs: departure by boat from the Port of Cacheu  
 12hrs: arrival at the abandoned rice paddies  
 12hrs -14hrs: breaching the dykes, cleaning the site  
 16hrs: return to the Port of Cacheu, refund of participation fee to associates  
 16hrs -17hrs30: debriefing of



the day and preparation for the next outing. Joãozinho feels like it. Working in the park is so much better than spending a day at the office.

### Promising results

The Cacheu River Mangroves Natural Park is not just any park. It is the greatest dense mangrove setting in West Africa. Two-thirds of its territory of 886 km<sup>2</sup> consists of mangroves. The park, stretching along the Cacheu River in north-western Guinea-Bissau,

was founded in 2000 and designated a Ramsar site of international importance in 2015. Today's activities in Cacheu Park are exemplary of Wetland International's efforts to help mangroves recover worldwide – something which is vitally important (see box). From 2017 onwards, the effort to restore mangroves was given a boost. In that year, Wetlands International started the Mangrove Capital Africa programme (see box) and joined the Global Mangrove Alliance (see box). The first highly promising results of Mangrove Capital in particular emerged in 2018. "In the past, most of our mangrove projects were small scale," explains Pieter van Eijk, Global Programme Head on Deltas and Coasts for Wetlands International. "We typically used to work with a small group

the Saloum Delta © Lammert Hilarides

of local community members in small-scale restoration plots, nothing else. We are now scaling up these projects across wider coastal landscapes, on the basis of the experiences so far. Ultimately, we plan to work with other members of the Global Mangrove Alliance to implement large-scale conservation and restoration initiatives in ten regions around the world. Africa is serving as a testing ground for this."

### Clashes with park guards

An important aspect of Mangrove Capital Africa is the community work. Although the communities need a healthy ecosystem, they have not always treated the mangrove forests in a sustainable way. "The riparian communities often prioritised improving their livelihoods over conservation,"

### Disappearing mangroves

Half of global mangrove coverage has been lost since 1940. Less than 13.8 million hectares remain. The loss is mainly due to aquaculture (such as fish and oyster farming), farming (such as rice and palm oil), construction (such as dams and settlements), oil and gas extraction, and mining. Other threats are climate change, which leads to drought and increased salinity in tidal areas, and the logging of mangroves for fuel or construction. The consequences are immense: although they make up just 2 per cent of the world's tropical forests, mangrove forests store up to ten times more carbon. Their annual destruction results in CO<sub>2</sub> emissions equivalent to those of 475 million cars.

Joãozinho Sá says. Mangroves have been cut, for example, to use as fuel, to construct boats and to cultivate rice. The latter is done by unsustainable rotational cultivation, using slash-and-burn techniques. Increasing drought and excessive drainage have caused rice paddies to dry up. After a few years the rice fields are often abandoned and become wastelands. The traditional practice of letting water in after the growing season then stops. Once the soil dries out, it rapidly acidifies. This results in the formation of cat clay, soil infused with sulphuric acid, which is practically infertile and unsuitable for natural mangrove regeneration. The only way to restore these areas is to

rewet them again. That is what boat trips like the one described above are about. The inhabitants, together with Wetlands International and park guards, go to the abandoned rice paddies and breach the dykes, so the water can flow in again. "This has made it possible to re-establish the hydrological regime of the sites, facilitate the leaching of the soil and the drainage of the acid waters, creating favourable conditions for the mangroves to grow," Joãozinho Sá explains. The mangroves automatically return, because the tide carries their seeds. This has turned out to be a better, easier and much cheaper method than replanting mangrove forests. In Cacheu Park, this approach



© Menno de Boer

Breaching the abandoned rice paddy dams

resulted in the recovery of 200 hectares of degraded soil. Some 2,000 people were involved. Rewetting the abandoned rice paddies is a method that can easily be scaled up, according to Pieter van Eijk. "If it's possible to recover 200 hectares, why not 10,000 hectares?" The communities do not always perceive the conservation of the mangrove forests as being in their best interest. There even have been clashes between park guards and inhabitants wanting to cut mangroves. The communities do see the value of mangroves, however,

and want to take care of their surroundings. The groups of inhabitants involved in the recovery work are given a small compensation. Since the communities are relatively poor and sometimes have little choice but to use the ecosystem unsustainably, the most effective way to ensure sustainability is to offer them alternatives.

### Women's groups

One of the alternatives offered is sustainable oyster farming. For many years communities cut mangrove roots to harvest the oysters that cling on to

### Mangrove Capital Africa

Mangrove Capital Africa is a long-term initiative that started with a ten-year programme in 2017. It aims to save mangroves and biodiversity and improve the livelihoods of millions of people living in or near mangrove forests. Activities first started in the Saloum Delta in Senegal and the Rufiji Delta in Tanzania. The emphasis is on finding alternatives for unsustainable activities such as conversion for agriculture and the overexploitation of natural resources. This initiative involves implementing sustainable income-generating activities and conservation and restoration activities with local communities, and developing policies and plans for improved mangrove management together with governments and the private sector. Stakeholders are encouraged to take better care of the mangroves and jointly bring this work to scale. The strategy of Wetlands International is to move from conflict (between the various stakeholders) to cooperation by bringing parties together, offering them knowledge-based alternatives and exchanging best practices.

them, thereby killing many mangrove trees in the process. With support from Wetlands International, a more sustainable technique was introduced. Oysters are cultivated on wooden racks that are positioned in between the mangroves. Other alternatives are providing efficient ovens for the smoking of fish, reducing fuelwood consumption, and creating small salt pans to prevent people from boiling salty water to extract salt. In the Saloum Delta in Senegal, where another 200 hectares were restored, beekeeping has been successfully introduced in an attempt to fight overfishing. All of these services and the communities' return efforts are officially agreed upon in written contracts. Wetlands International is not the only party offering alternatives: the communities come up with solutions as well. The

## The Global Mangrove Alliance

Wetlands International, IUCN, The Nature Conservancy, Conservation International and WWF started the Global Mangrove Alliance together in 2017. Its aim is to build a global community committed to securing mangroves and protecting the important role mangrove forests play. The alliance aims to expand mangrove coverage by 20 per cent by 2030. To achieve this, 10 regional programmes will be implemented in 30 countries in Africa, Latin America and Asia, with the help of the knowledge of thousands of mangrove experts. By conserving and restoring mangroves the alliance will, among other things, increase biodiversity, decrease CO<sub>2</sub> emissions, and improve fisheries and coastal protection. One of the ways of achieving this aim is to change the image of mangroves. And this is possible, according to Pieter van Eijk of Wetlands International: "Mangroves aren't dirty and muddy, they're sexy!"



oyster racks are an example of this, much like the traditional sustainable rice cultivation techniques used outside the mangrove zone. In Cacheu Park in Guinea-Bissau, the communities were the driving force behind the strict protection of a part of the park's buffer zone. This is a holy place for them, which they wanted to protect from activities such as the cultivation of cashew nuts. Together with Wetlands International they succeeded in having an 8,000 hectare area officially declared a community-protected forest with ancestral rights and limited access for outsiders.

Gender and age play an important role in the communal activities. "Women rely disproportionately on the mangroves," Pieter van Eijk says. "Many men go to sea to fish or have a job outside the park. The women are the ones that collect firewood and harvest oysters. For the conservation and restoration of the mangrove forests it is of vital importance to work with women's groups."

### Satellite images

Youth are also an important target group. Wetlands International initiated mangrove school clubs that perform



© Watertoo

Introducing alternative methods: sustainable oyster farming

theatre pieces and assist in mangrove restoration. Educational talks are held at schools and universities. Over a dozen radio stations in the Saloum Delta in Senegal regularly broadcast a show on mangroves. All of this is meant to create awareness and long-term involvement. "And it works," Pieter van Eijk says. "It spreads throughout the community. Children come home and explain what they heard at school about the importance of mangroves. People see their neighbours start to successfully engage in alternative activities. This is not just restoration; we have started a self-propagating

social change movement." Technology is also being used to protect the mangrove forests. Part of the Mangrove Capital Africa project is the Mangrove Watch monitoring scheme. It analyses satellite data to map mangrove distribution and track changes in their cover and health that occur over time. The images show where mangroves are disappearing, for example due to illegal logging, or growing, as a result of restoration projects. Using state-of-the-art supercomputing techniques, the project is developing a real-time monitoring system, which detects changes as they occur. This will help park

guards during their patrolling activities and conservationists on the ground who want to track the success of their restoration projects. The satellite observations are combined with so-called 'ground truthing': monitoring on the ground that verifies and specifies the satellite images. This is done by people using binoculars and cameras and by drones. In the coming years, this approach will generate new maps every two weeks, showing in detail the gains and losses in the battle to save the mangroves. ●

- Donor** [Cacheu mangrove conservation project](#)  
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- Based on climate science predictions, the Critical Sites Network 2.0 shows water flows and inundation levels in the year 2050
- Data on birds – like the lesser flamingo – are a useful proxy for the status of wetlands
- The tool contains data about more than 3,000 wetland sites
- Knowing the future gives people time to adapt to the changes that are coming

Critical Site Network Tool 2.0

# Seeing wetlands change in 2050

What will wetlands look like in the year 2050? Will lakes shrink for lack of water? Will there be floods? Based on IPCC predictions, the newly designed Critical Site Network Tool 2.0 helps to answer these questions. To show the practical use of the tool, developer Merijn van Leeuwen of Wetlands International takes us to the shrinking saline Lake Abijatta in Ethiopia. And his colleague Lammert Hilarides shows us the mangroves of Saloum Delta in Senegal.

Lake Shala, © Ninara

Climate change is bad news for wetlands. As a general concept this may be true. But is it true for all wetlands? And what areas will be more affected than others? To prepare for changes it is necessary to know what to expect. The Critical Site Network Tool 2.0 (CSN) does just that: it shows the current situation of wetlands and the waterbirds breeding and feeding there, but also what water flows and inundation levels will look like in the year 2050. The Critical Site Network Tool 2.0 is new, also to the wetlands experts. The tool is quickly being expanded. “We recently developed an extra layer of data,” says Merijn van Leeuwen, one of the Wetlands International experts who helped to develop the tool. “Besides indicating the most important wetlands for waterbirds in Europe, Africa and the Middle East, we can now show the predicted changes in water flows for all rivers and lakes in the region. On top of this, we have calculated what the effect of climate change will be on the overall landscape. The online tool consolidates all of this data and shows where changes may cause species to disappear. When I looked at the map of Ethiopia, a country I know well, with these new data projected onto it, I saw two dots appear in the centre of the country. When I zoomed in, I saw that it was the Boyo Wetland. The bird destined to disappear from this wetland? The Wattled Crane (*Bugeranus carunculatus*). If the flow of water decreases by 15% or more, as predicted, Boyo Wetland will no longer be a suitable area for this beautiful bird.” At the office of Wetlands International in Ede, Merijn just opened the [Critical Site Network Tool 2.0](#). It



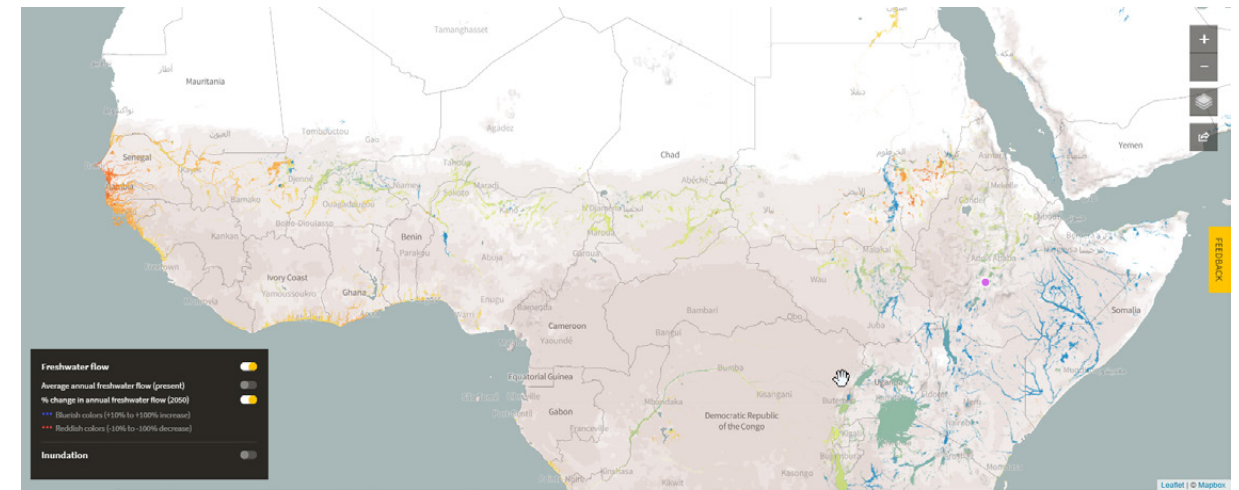
Lammert Hilarides



Merijn van Leeuwen

contains, among other things, a list of 290 migratory waterbirds. All the birds' names are in Latin. “This shows that most of us are real nerds,” Merijn says with a smile. “For the real bird-nerd, the Latin names suffice. In a later version of the tool we will add the English names of the species.” Why this focus on birds in the tool? “Birds have been studied for many years,” he explains. “Data on

[Wetlands International collaborates closely with The Agreement on the Conservation of African-Eurasian Migratory Waterbirds \(AEWA\). In 2018, we continued the partnership on the climate resilient flyways project and the redevelopment of the Critical Site Network Tool. This collaboration also led to the finalisation of the comprehensive Conservation Status Review 7, that outlines the latest status and trends of all waterbird populations in the AEWA region and development of new conservation guidelines for waterbird monitoring. Both were formally adopted at the AEWA MOP7 in Durban in December 2018.](#)



Snapshot of the CSN Tool 2.0 showing the effect of climate change on freshwater flow in the Sahel. Colours indicate relative change in freshwater flow. Reddish tones in Senegal (left) indicate projected reduction. Bluish tones in Ethiopia (right) indicate little to no climate related declines in fresh water flow.

birds are the most suitable and complete dataset to detect change. They're also a useful proxy for the status of the wetlands as a whole.”

### Dark spots

To show how the tool works, Merijn zooms in on Ethiopia. Some thirty red and green dots appear. The dots are all critical wetland sites: green ones mean protected, red ones not. “Let's go to an area I have visited often ... ah, there it is.” Merijn clicks on a green dot just below the centre of the country: the Abijatta–Shalla Lakes National Park. On-screen the park appears as two large lakes on a green background. Wetlands International has been operating here for several years. Scrolling down towards the list of birds living in this protected area, one species stands out: the 151,657 individuals of the *Phoeniconaias minor*, better known as the lesser flamingo. This flamingo ('near threatened', according to the IUCN Red List) is well known thanks to its extraordinary courtship rituals. The

dance of the flamingo has starred in some of [David Attenborough's best documentaries](#). The flamingos love the sodic alkaline water of this – and other – Rift Valley lakes: or rather, they love the algae that proliferate there. But how much longer will flamingos dance at Lake Abijatta? “To see the danger that is threatening Lake Abijatta,” Merijn says, “we should switch to satellite imaging.” With a simple icon on the right side of the screen, the CSN tool makes it easy to switch between map and satellite mode. A few seconds later the computer screen is filled with a satellite image showing two dark spots: Lake Shalla at the bottom and Lake Abijatta at the top of the screen. “At the north side of Lake Abijatta you can observe how the shores are receding. You see? The lake used to be almost twice the size. That was less than twenty years ago! The water is evaporating much quicker than fresh water is flowing in. Now zoom out again and we can see the origin of the problem: Lake Ziway, some 30 kilometres north of Abijatta.”

## Four square kilometres of roses

Lake Ziway is one of the few bodies of fresh water in the Ethiopian part of the Rift Valley, Merijn explains. People have settled around its shores. Food security is a big problem in this part of the world, and the people living on its shores have no alternative but to draw water from the lake. "It is estimated that over 5,000 water pumps are draining the lake!" Merijn says. "But it's not just small farmers. Wait, I can show you: Let's zoom in on the south-western side of the lake. See this light coloured square construction? These are huge greenhouses, owned by a Dutch rose grower: over four square kilometres of roses growing thanks to the water in Lake Ziway."

Just beside the Dutch-owned greenhouse, the Bulbula River starts. This river gets its water from Lake Ziway and delivers it into Abijatta. At least that is what is supposed to happen. But a weir has been built in Bulbula River to keep water levels high at Lake Ziway. "Increasingly, less water is allowed to flow into Lake Abijatta." The lesser flamingo is quickly losing its feeding grounds.

The new tool was developed in collaboration with the universities of Kassel, Wisconsin-Madison and McGill and BirdLife International, and its development was coordinated by the Rubicon Foundation. It contains data about more than 3,000 wetland sites in the African-Eurasian flyway, stretching from the arctic parts of Russia and eastern Canada all the way to the South African Cape. Water flow and temperature data are based on predictions made by the Intergovernmental Panel on Climate Change (IPCC). The universities have

## Water allocation plan

In the case of the Abijatta–Shalla Lakes National Park, Wetlands International engages local farmers to reduce the use of water. To assist local stakeholders to achieve this, Wetlands International cooperates with the local basin authority, farmers' organisations, ministries and local industries. This has resulted in a project where the key parties have agreed to jointly develop a water allocation plan, while improving farmers' livelihoods.

'downscaled' the IPCC's data to the level of individual watersheds. This was necessary because predictions of rainfall in the wetland area do not exactly predict future freshwater flows. Water flows in wetlands often depend on precipitation or melting ice in mountainous areas far away. With a simple mouse click, the CSN tool shows water flows and inundation levels in the year 2050 for any specific wetland.

To show how this works, Merijn van Leeuwen goes back to the Ethiopia map. "See this black dialogue box on the left side of the screen? When we turn on the 'freshwater flow' switch, we see the average annual flow of fresh water. Now let's go to the year 2050. See what happens: nothing! This shows that the problems in Lake Abijatta are not a result of climatic changes. So there is no need to take measures for climate adaptation to protect the national park. Instead something must be done about the unlimited agricultural use of fresh water."

So Lake Abijatta in Ethiopia will not be affected by climate change in the medium term at least. Let us

go to an area where climate change is expected to cause serious effects. Lammert Hilarides, another developer of the CSN tool, shows what the Saloum Delta in Senegal will look like in 2050. Looking at this site, just north of Gambia, on the CSN tool, the future problems become clear as we engage the switch to show the change in freshwater flows in 2050. On-screen, the whole area turns reddish, indicating a 10% to 100% decrease in fresh water flows. "Looking at this map, you know that the vast mangrove areas along the Senegalese coast will be facing trouble in the coming decades. And this will have dire consequences for the people living there. They depend mostly on fishing. But as soon as the mangroves cease to function as breeding grounds, the fish population will suffer. The CSN tool allows us to take a look into a possible future. This gives people time to adapt to the changes that are coming." ●

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## Mori Diallo

Team lead and ecologist

(Wetlands International Sahel)



### Who is Mori Diallo?

"My name is Mori Diallo. I am team leader in Wetlands International Sahel office, based in Inner Niger Delta. The Inner Niger delta is the biggest wetland system at the border of the Sahara desert. We work with local communities and other stakeholders to improve their livelihoods within the wetland ecosystem."

### What is your biggest personal work achievement in 2018?

"Bourgou vegetation (*Echinochloa stagnina*, also known as Hippo Grass) is crucial for the livelihoods of pastoralists and fishermen in the Inner Niger Delta. Wetlands International managed to restore 110 ha of bourgou and monitored both biodiversity and fish production, despite the growing insecurity in the region. Loss of livelihoods has caused clashes between local communities. For security reasons, most of the NGOs have left the area. I am proud that Wetlands International is still active here, promoting peace by restoring the bourgou."

### What do you like about working at Wetlands International?

"Wetlands International contributes to reach my personal motto: 'All natural resources must serve several generations.' To reach this goal, Wetlands International develops tools, builds knowledge, takes advocacy measures and initiates new approaches for a sustainable use and conservation of natural resources."

### What do you hope to achieve in 2019?

"One of our most ambitious projects is the 'Critical Sites and Climate Resilient Flyway' project, aiming to restore 1,500 hectares of bourgou and 75 hectares of flooded forest. We hope to get the commitment of seven key stakeholders to carry out these activities." ●

- The Vjosa is one of the last wild rivers in Europe, hardly interrupted by human interventions
- 2,800 hydro power plants are projected in the Balkan, forty of them in the Vjosa river basin
- One of the goals of Save the Blue Heart of Europe is to create awareness among civil society
- A specific goal for the Vjosa river basin is to establish Europe's First Transboundary Wild River Park here

Albanian Vjosa river is at the heart of wild river campaign

# A wild and untouched queen

Crystal clear and remarkably light blue water, gorges and canyons, shores scattered with wild flowers, stoneflies, eels, greater flamingos... Overlooking the Vjosa river it is hard to believe that this is 2019 and even harder that this is Europe. But it is: the Vjosa runs through Albania, and springs in Greece, where it is called Aóos.



Theresa Schiller

**T**he queen of European rivers' and 'Europe's unknown wild jewel' are two of the Vjosa's nicknames. "That is because it is one of the last wild rivers in Europe", Theresa Schiller of German NGO Euro-Natur explains. "It is not interrupted by human interventions like channels or dams, with the exception of one near the

Greek springs." For a river of this size - almost 300 kilometres long, together with its tributaries covering about 7,000 km<sup>2</sup> - this is unique in Europe. It is not a coincidence that the Vjosa flows on the Balkan, as this peninsula is home to most of the wildest rivers of Europe. 80 percent of the Balkan rivers is still in a relatively untamed or even pristine state, building

the so called Blue Heart of Europe. In Germany, for example, this is less than 10 percent.

### Flotilla

But all this beauty is severely threatened. No less than 2,800 hydro power plants are projected in the region. A map to be found [here](#) is literally littered with black, yellow and red dots, representing all



## No less than 2,800 hydro power plants are projected in the Balkan

sorts of plants. Even national parks and stretches known to host the endangered Danube Salmon are included. The plans would mean a serious attack on biodiversity and the loss of thousands of square kilometers of valuable and beautiful landscape.

That's why, in 2013, EuroNatur – a member of Wetlands International's European Association – and Riverwatch, started the international campaign 'Save the Blue Heart of Europe'. It aims to stop the dam projects. The Vjosa/Aóos, which – together with its tributaries – is threatened by about forty power plants, is the proud flagship of the campaign.

"Unfortunately, I haven't been able to sail the river yet", Theresa Schiller of EuroNatur laughs. "In June, I hope I will

for the first time." Other team members had this experience already several times, for example during the flotilla that sailed the river in 2016. Organised by the campaign and led by former Slovenian Olympic athlete Rok Rozman, kayakers from all over Europe paddled 23 rivers in six Balkan countries, starting with the Sava in Slovenia and ending at the Vjosa in Albania. The overall goal of the tour was to draw the attention to the attack on Europe's blue heart, and the Vjosa in particular. A kayak with a print of a petition asking for the protection of the Vjosa, signed by people that joined the tour, was handed over to Albania's prime minister Edi Rama. Ulrike Lunacek, vice-president of the European Parliament at that time, supported the action.

### Powerful tool

The flotilla was part of one of the strategies of the Save the Blue Heart of Europe campaign: creating awareness. This strategy operates on the international and national level as well as on the local level, since people living in the river basin were poorly informed in the past. Among the campaign activities was the making of a movie in 2018, Blue Heart, financed by Patagonia, the outdoor gear company. The movie, emphasizing the opposition of local communities to the 'selling' of their rivers for hydropower generation, was shown in Europe, the United States and Japan. Also Wetlands International – European Association was a co-organizer of the first European River Summit, held in Sarajevo. together with a public



© Roland Dorozhani

concert. Broad media coverage was among the results. 'The environmental battle to save the Blue Heart of Europe', The Telegraph headlined for example on 20 April 2018. Another strategy followed is the legal one. Local NGOs like EcoAlbania file complaints against the hydro power plants with the help of EuroNatur and Riverwatch. On the international level, the Bern Convention on the Conservation of European Wildlife and Natural Habitats is used to stop the development plans. This led to an on-the-spot appraisal in June 2018 by representatives and experts

of the convention. "As a result the Standing Committee of the Bern Convention emphasised the need for suspending the planned hydropower projects at the Vjosa until the necessary strategic planning and additional assessments are carried out. In total, the Bern Convention sent twelve recommendations to the Albanian government," Theresa Schiller says. EcoAlbania, EuroNatur, Riverwatch and Wetlands International – European Association are partners trying to protect the Vjosa as Europe's first Wild Rivers National Park. Wetlands International is using its pres-

ence in Brussels and experience with EU Directives and international conventions to help ensure that environmental laws are adhered to and the Vjosa remains free flowing. Albania is on track to entering the European Union, but still has to meet many requirements, among them ecological ones. "This can be a reason for refusal, so this is a powerful tool on the long run", Theresa Schiller comments.

### Vivid debate

Empowering local stakeholders is the third strategy. "Civil society in Albania – and more



© Gernot Kunz

or less the entire Balkans – is much less experienced than in countries like Germany”, according to Theresa Schiller. “People were not used to raising their voice for decades and were afraid of being arrested. Therefore, we organise capacity building, provide and fund places to meet and money for travelling for the Friends of Vjosa. This is crucial for the work there. As a result, they grow every time more confident and less frightened.” A fourth strategy is closing the knowledge gaps. This is mainly done by involving scientists. “None of the plans for the hydro power plants we know is accompanied by appropriate, comprehensive and reliable impact studies”, analyses Schiller.

“Hence, the responsible Albanian authority for issuing the environmental permit to the projects claims that there is no evidence of specific ecological values, and issues the permits. So we decided to start gathering those data ourselves. We have sent several scientific missions to the region for that purpose. We also intend to collect more socioeconomic data on the economic wins and losses of the plants; what you would miss out on tourism if the plans proceed, for example.” The fifth and final strategy is to establish Europe’s First Wild River Transboundary National Park. In Europe, this kind of parks does not exist yet, so the first step is to develop a vision accompanied by various

assessments in order to come up with a management plan, followed by a financial model at a later stage. After having had some vivid debate about the most desirable form, EuroNatur, Riverwatch and partners are pushing for the first assessments now. The suggestion to also attract private money, for example from companies like Patagonia, is welcomed enthusiastically by Theresa Schiller: “Good idea! We will consider it when we will reach the phase of designing a financial model for the park!” ●

- Further reading**
- [Eco-masterplan for the Balkan rivers](#)
  - [Recommendations of the Bern Convention](#)
  - [Scientific publication on Vjosa](#)



## Dushyant Mohil

Programme Manager & Country Lead PFR  
(Wetlands International South Asia)



### Who is Dushyant Mohil?

“I am a programme manager at Wetlands International South Asia, based in New Delhi. One of the programmes I deal with is Partners for Resilience (PFR). PFR contributes to the resilience of communities by promoting ‘integrated risk management’, blending climate change adaptation with ecosystem management and reduction of disaster risks.”

### What is your biggest personal work achievement in 2018

“My proudest moment in 2018 was when one of our case studies on sustainable community-based disaster risk management – , A PFR perspective – was selected among the best practices in Asia by the Asian Disaster Preparedness Centre. We helped creating ‘disaster risk reduction committees’ in Odisha, a state in eastern India that is increasingly exposed to extreme weather events such cyclones, flooding and coastal inundation. The committees play an important role in early warning, in smooth evacuation and rehabilitation.”

### What do you like about working at Wetlands International?

“As the last century was built by engineers and scientists of all kinds, the 21st century will need specialists with a global vision and consciousness for the environment. Wetlands International is a place where such specialists come together. That is exciting. We work with communities to sustain and revitalise the most vital ecosystems in the world.”

### What do you hope to achieve in 2019?

“I hope to build more evidence to strengthen the role of wetlands for disaster risk reduction, to promote wetland conservation and management with national and state governments. In 2019 I also hope to engage more with private sector networks.” ●

# Wetlands for a Safer World

With 1 million from the Dutch Postcode Lottery...

## Update on investments and outcomes in 2018

Wetlands International was awarded a 1 million euro grant in 2018 to invest over a three year period, ending in 2020. In the introductory meeting with the [Dutch National Postcode Lottery](#), the following proposition was shared:

We will leverage investments and actions to realise our ambition - in turn benefiting people and nature. We will use the grant mainly as "seed finance": i.e. to enable several of our Big Ideas (big scale, long-term impactful programmes) to be developed and implemented. In addition, we will also invest in measures which help Wetlands International to raise wetlands higher on the agenda and also take steps to improve our institutional capacity and financial resilience.

In 2018 we invested € 457,011 of the grant. The breakdown is included in the financial annex of this report. Here we summarise how we targeted these investments.

**Wetlands, Peace and Security:** The grant enabled Wetlands International to bring our message on the links between wetlands, peace and human



security to a wider audience. We stimulated a global policy dialogue on potential "environmental peace-building" solutions, plus developed new partnerships and programmes which will demonstrate solutions in the Sahel, Africa.

**Building with Nature:** The investment enabled a coordinated engagement in the Dutch government programme Water as Leverage for Resilient Cities in Asia. This has resulted in collaboration with the cities of Chennai (India), Khulna (Bangladesh) and Semarang (Indonesia) to tackle urban water-related challenges in an innovative and inclusive way, as well as to identify opportunities for collaboration on Building with Nature in Kerala, India, Peru and Buenos Aires, Argentina.

**Peatland Treasures:** We developed an upscaling plan for Indonesian Peatland Partnership Fund including scalable business models for communities for sustainable use of peatlands.

**Mangrove Capital:** The investment has enabled Wetlands International to co-found and launch the Global Mangrove Alliance together with WWF, IUCN, Conservation International and TNC: a large-scale partnership effort that aims to increase global mangrove cover by 20% by 2030.

**Wetlands 2020:** We invested in working with an environmental journalist to bring together stories connecting wetlands and their peoples, ready for publishing a landmark book, that will help raise attention for wetlands in the post-2020 biodiversity agenda.

**Institutional development:** We researched and selected a new financial system for the Global Office and supported offices in Africa, South Asia and Indonesia to improve governance, personnel development and operational systems. ●

[A detailed account of our investments is available here.](#)

**Lea Appulo**  
policy and advocacy  
officer

(Wetlands International  
European Association)



## Who is Lea Appulo?

"I joined the Brussels office, right at the start: June 2016. My main task, together with my colleagues, is to promote the recognition of the role of wetlands for people and nature in EU policies. Right now the EU is in the process of deciding on the 2020-2027 budget. If we manage to make wetlands a priority, there will be more funds available for our projects worldwide."

## What's your biggest personal work result of 2018?

"For me it was a huge success that we were invited to a brainstorm session on wetlands organized by the international development directorate (DEVCO) of the EU. That was when I realized that our work in the last 2,5 years has paid off: our organisation is seen as a major player and wetlands are a growing priority for the EU."

## What's the nicest thing about working at Wetlands International?

"You know, I am not a wetland specialist: I studied diplomatic relations. But working here, I have grown to love wetlands. To know that my work here may help preserving them is my main driving force."

## What do you want to achieve in 2019?

"In 2019 the EU will be negotiating a renewal of the so-called Cotonou Agreement; that is the most comprehensive partnership agreement between developing countries and the EU. Much of the focus is on infrastructure, job creation, youth. What I want in 2019 is to include the importance of wetlands and biodiversity in the new legal framework of this agreement." ●

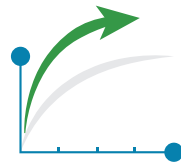
# Achievements

## Summary

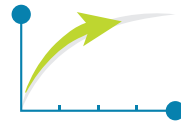
Below we assess our achievements in 2018, placing this in the context of 5-year targets set within the five Streams of work identified in our [Strategic Intent 2015-2020](#). These achievements are the result of our entire office network and most involve the actions of several offices acting together and in collaboration with many other partners. We focus on those achievements in which Wetlands International's contribution was instrumental.

Overall, we can report that there is significant progress made in all Streams towards the targets. We are on track to achieve our ambitions or even to exceed those results in eight out of the twelve targets by 2020. The greatest steps forward have been made in developing and implementing integrated programmes to safeguard and revive some of the world's most significant wetlands for the dual purpose of biodiversity conservation and human well-being. We also made big strides towards upscaling successful pilot innovations, such as in rehabilitating peatlands as well as in gaining recognition and take up of the Building with Nature approach in deltas and large-scale urban flood and coastal defence schemes. For four of our targets, we predict that a longer time-scale will be needed to achieve our ambitions, due to a variety of reasons. The resourcing and development of programmes for restoring major floodplains and for our work in high altitude wetlands has taken longer than anticipated, while it is now developing quickly and strongly. In the Sahel, the rising social conflicts have held back our ability to act. The results also cause us to reflect that we have, so far, been more successful in working to change the approach to production in particular landscapes than in influencing different sectors (e.g. palm oil and pulp, rice, aquaculture) overall.

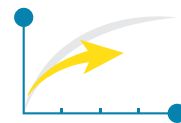
## Our scoring system



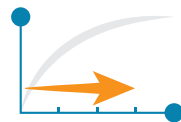
On track to exceed target (we will achieve the target before 2020)



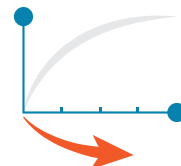
We expect to achieve the target by 2020



Substantial progress, more time required to reach our target



So far, there is no significant overall progress



The situation is deteriorating and we can't manage to make improvements

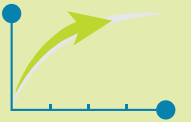
## HEALTHY WETLAND NATURE

Habitat improvements were gained in four iconic wetland eco-regions (Paraguay-Paraná fluvial corridor, Andean lakes, West and East African mangrove ecoregions), while work has commenced in a further two (Yellow Sea coast in China and Central Rift Valley, Ethiopia). The conservation of flagship species of waterbirds is anticipated in future years through our work in these wetlands and in "flyway bottlenecks".

To assist waterbird species conservation, important new insights on effects from climate change on populations and wetlands in the African-Eurasian Flyway were published, guiding priorities for work in the flyway and existing initiatives in Ethiopia, Mali, Oman and Northwest Africa.

## Target

**Halt and reverse the loss of wetland habitat and species**  
The extent and quality of habitat has been improved in 5 iconic wetland ecoregions worldwide and the conservation status of 10 flagship species has been improved.

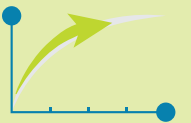


Our work with governments and private sector companies in Indonesia, Uganda, Malaysia and Russia helped influence investments in developments with an impact on wetlands. Companies are now engaged or investing in wetland initiatives in Ethiopia, Kenya, and the Philippines.

We consolidated our engagement with the dredging and hydraulic engineering sector around the sustainability of their approaches, including their carbon footprint. Acceptance of Building with Nature approaches increased in several large-scale urban planning processes, including Panama city, Semarang and Manila (see also Vibrant Coasts & Deltas)

A Paludiculture platform was set-up in Indonesia which will engage and inform companies to accelerate transition to commercial production on undrained peatlands, as an alternative to conventional palm oil and pulp production (see also Peatland Treasures).

**Investment in wetlands as Natural Capital**  
Showcase public and private investments in wetlands as Natural Capital deliver sustainable development.



## VIBRANT COASTS & DELTAS

We on track to achieve or even exceed this target in the implementation of coastal wetland conservation strategies including in Cacheu (Guinea-Bissau), Saloum- Niumi (Senegal and Gambia) and the Rufiji- Mafia-Kilwa seascape (Tanzania). The number of hectares that we seek to influence greatly exceeds the target, while some implementation measures are recently introduced. New projects have been designed for upscaling in the coming years under the Global Mangrove Alliance and Mangrove Capital Africa.

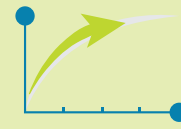
This target has been partially addressed as part of broader landscape programmes rather than through sector specific initiatives. In Demak, Indonesia and Cacheu, Guinea-Bissau we introduced organic agriculture and rice farming practices which reduced the pressure on mangroves and substantially enhanced productivity, improving the resilience of local communities.

We took several steps towards mainstreaming Building with Nature in several large-scale urban planning processes, including Panama City, Semarang, Chennai and Manila. We also started work to expand this work through a regional initiative in Asia on Building with Nature and globally through sectoral dialogues. This offers a prospect to reach beyond the target.

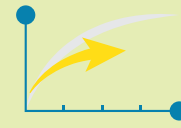
We continued to influence coastal zone and delta management trajectories, including along the Java North coast, Indonesia and Manila Bay, The Philippines, Parana delta (Argentina), Rufiji delta (Tanzania), Saloum delta (Senegal and Gambia), Mahanadi delta (India) and Panama Bay. We commenced a programme for the Yellow Sea coast of China.

Target

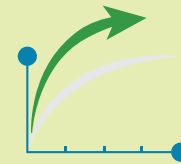
**Maintain intact coastal wetland environments**  
3 High value coastal wetlands totalling at least 150,000 hectares are conserved and restored.



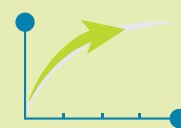
**Sustainable coastal production systems**  
A model for integrated wetland landscape management involving conservation and production systems (rice, oil-palm and aquaculture) is implemented in 2 areas, contributing to environmental and food security.



**Degraded coastlines and heavily modified environments, including urban areas**  
Building with Nature is mainstreamed in 3 landmark urban planning and hydraulic infrastructure developments, enhancing community resilience.



**Integrated management of deltas**  
Healthy ecosystems sustain human populations and biodiversity in 10 key deltas across the world



## BLUE LIFELINES IN THE DESERT

The development of civil society and government capacity in the Inner Upper Niger / Inner Niger Delta, Ewaso Ng'iro, Upper Sourou sub-basins and Central Rift Valley Lakes in Ethiopia continued and helped to develop dialogues around water management, fisheries and infrastructure development. This is helping to safeguard wetland systems and empowering civil society and communities to enhance the resilience of their livelihoods. Despite positive engagement with government, instability in the region and some of our sites makes reaching the goal of achieving improved status by 2020 challenging.

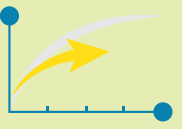
## REPLENISHED WATER STORES FROM MOUNTAINS TO SEA

There is substantial progress in our high-altitude wetlands programme, while we are at early stages so the target will be reached in the coming years. Community based sustainable development plans, wetland restoration and dialogue with mining companies are being implemented in Pozuelos Lagoon and Lake Junín, internationally important sites in the Andes. A second phase programme proposal to include a further 3 sites and develop the basis for a regional programme submitted. In the Himalayan region a programme is under development and anticipated to commence in 2019.

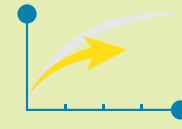
We are on track to meet and are likely to exceed our target. Major programmes in Africa, Latin America and South-East Asia helped strengthen capacities of civil society for dialogue and engagement with government and private sector. Action leveraged commitments and investments in Laguna de Guanacache, Argentina, in Agusan River basin in southern Philippines and in India in Odisha delta wetlands systems, floodplains in Bihar, mountain wetlands in Uttarakhand and urban wetlands in Chennai, Tamil Nadu. In addition, engagement in another 5 watersheds were able to influence policy dialogue.

Target

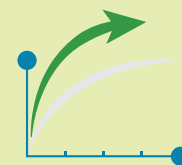
**Blue Lifelines in the Desert**  
Improved status of at least 3 major wetland systems in the Sahel, as part of efforts to achieve sustainable and climate resilient development.



**Save and restore mountain water towers**  
Investments in restoration and sustainable management of high altitude wetlands in 2 ecoregions committed to by governments and International Finance Institutions.



**Water and food secure wetland communities**  
Public and private investment commitments in 6 watersheds to safeguard and restore freshwater wetlands as measures for water and food security.

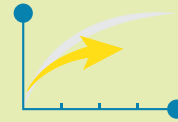


## REPLENISHED WATER STORES FROM MOUNTAINS TO SEA

Our portfolio grew healthily, though it is unlikely we will reach the level of investments we envisage for landscape-scale floodplain restoration by 2020. Positive steps were taken in river floodplain programmes that aim to change and increase the investment in wetlands: in the Kosi floodplains in Bihar, India where 500k Euro from government programs has been leveraged for floodplain restoration; and the Parana – Paraguay river corridor in Argentina and Brazil with the start of a major new programme and through a new programme in the Cagayan D’Oro basin in the Philippines.

Target

**Floodplains for safety and security**  
Public and private investment commitments for 3 flagship landscape scale floodplain restoration programmes

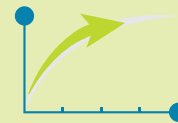


## PEATLAND TREASURES

Our policy influencing focused in 4 key peatland regions in Indonesia, Mongolia, Russia and Europe will enable this target to be reached. Peatlands were included as relevant to climate change mitigation and adaptation in the National Determined Contributions (NDCs) of Indonesia and Mongolia, as well as in a roadmap towards national reporting on peatlands by the Russian Federation. Less positively follow-up in Mongolia has been weak and in Indonesia there was increased uncertified pulpwood production in part on intact peatland areas. Indonesia enforced more strongly the moratorium on the expansion of oil palm on peatlands. Plus the RSPO accepted the Drainability Assessment Guidelines which we developed and these are now an integral part of the Principles & Criteria. Work on peatland restoration in Russia was expanded to include values of eco-system services of peatlands in Russia, building on previous work on haze and fire mitigation plans.

Target

**Protect and conserve the remaining intact peatlands**  
Governments and key private sector actors (drivers of conversion) in at least 4 key peatland regions have active policies to avoid the development, conversion and degradation of intact peatlands.

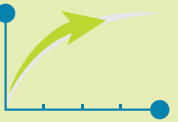


This target will be reached through influencing others and by upscaling existing pilots. We established the Indonesian Peatland Partnership Fund to support actively the Indonesian Peatland Restoration Agency (BRG) on the 3-R (Rewetting, Revegetation, Revitalization) of 2.4 million hectares of degraded peatlands. The first phase selected 10 communities and restored over 16 000 ha of degraded peatlands with scope for accelerated upscaling in 2019. The private sector took an increased interest to participate in peatland restoration. We started the first steps to collaborate with a major oil palm company to assist them in restoration of drained and degraded peatlands. In Russia we enabled effective rewetting over 60,000 ha of degraded peatlands and decreasing fire vulnerability within more than 80 000 ha, with an estimated total of 333,590 t CO<sub>2</sub>eq per annum emission reductions.

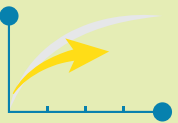
This target will be reached over a longer timescale since while there are many community-based pilots, the active participation of governments and private sector in paludiculture is lagging behind. We initiated a Paludiculture Platform to stimulate research and implementation of wet agricultural land use as an effective alternative to retain productivity on degraded peatlands while combatting subsidence and peat fires. The platform is linked to the newly established International Tropical Peatland Centre in Bogor. Under the Indonesian Peatland Partnership Fund, we supported community-based sustainable land-use on re-wetted peatlands. In the Netherlands we joined a cross-sectoral dialogue on restoring degraded Dutch peatlands as part of international efforts to reduce GHG emissions, while addressing increasing economic costs of land subsidence.

Target

**Rehabilitate and restore degraded peatlands**  
Governments and key (peatland based) private sector invest in at least 5 peatland regions have reversed the degradation of over 3 million hectares of degraded peatlands (7% of the global area of degrading peatlands) achieving substantial GHG emission reductions.



**Develop and promote sustainable land-use on re-wetted peatlands**  
Governments and key (peatland based) private sector (e.g. palm oil, pulp for paper, biofuels) as well as local communities are actively piloting or upscaling paludiculture as an innovative means for sustainable and peatland landscape management and climate change mitigation. populations and biodiversity in 10 key deltas across the world



Mori Diallo talking to local communities in the Inner Niger Delta (Mali) about the management of bourgou, a native grass species



# Summary of Functioning and organisation

Wetlands International is an independent global network organisation of 21 offices which implement a joint Strategic Intent and adhere to a common set of organisational policies.

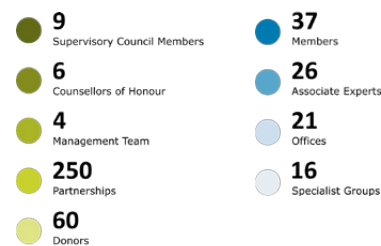
Wetlands International has two complementary forms of governance: an **Association of 37 Members**, and a **Supervisory Council**<sup>1</sup> that also constitutes the **Board of the Association**.

The 10-year **Strategic Intent (2015-25)** provides direction for the Wetlands International network and is reviewed every 5 years and adjusted in consultation with members and stakeholders.

The strength of the Wetlands International network is more than the sum-total of its Offices. Through working with influential partners, donors and members and by connecting with network of expertise, we achieve more results towards our Strategic intent.

Despite our best endeavours we also make mistakes. As well as recognizing and learning from these, Wetlands International has an official complaints procedure which is available on the [website](#).

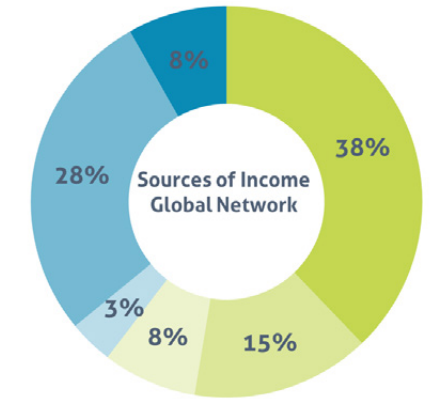
Wetlands International strives to act in her daily operations in a sustainable and socially responsible way. In our Global Office based in the Netherlands, we stimulate our employees to use public transport and all flights booked are compensated for CO<sub>2</sub> emissions (387 tonnes in 2018).



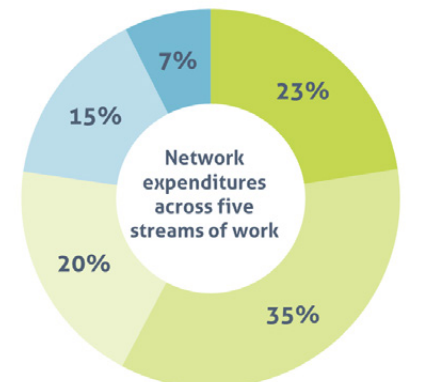
<sup>1</sup> The tasks the Supervisory Council are defined in the Articles of Association of the Foundation Wetlands International

# Summary of Finance and resourcing

Wetlands International focusses its work where wetlands matter most to both people and nature. Our programmes and initiatives are developed to meet our strategic goals which are set out in our Strategic Intent and are organised into five streams. Our programs are increasingly large scale and long-term, involving trans-boundary and trans-continental work with involvement of several offices. The Global Office and the Network Offices work together for resource development with Network Offices increasingly being financed directly by donors. Our funding model revolves around leveraging greater investment using very little initial flexible funds to bring together actors and develop small pilot projects.

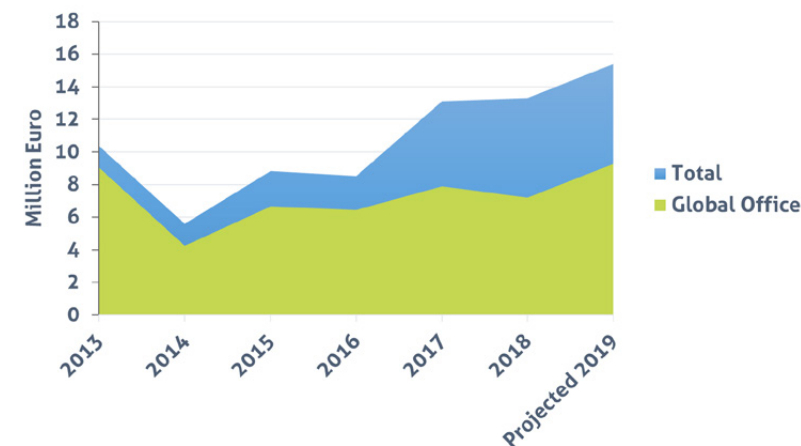


- Dutch government
- German government
- Other government
- Association Wetlands International



- Healthy Wetland Nature
- Blue Lifelines
- Water Stores
- Coasts and Deltas
- Peatland Treasures

Total Project Income Network and Global Office (Foundation)



**Our funding model to leverage investment**  
Using very little flexible funds, we are able to bring actors together and develop small pilot projects, which in turn leverage larger programmes supported by finances of partners and additional donors. Our program results allow us to leverage larger scale public and private sector investment in wetlands.

[See the detailed report of the organisation and finances here](#)



# From the Supervisory Council

2018 was a very interesting year for the Supervisory Council and Board of Association. While we sadly had to cancel a General Members Meeting in India since many members found it inconvenient to travel and participate, we were able to use the opportunity of the Ramsar Convention COP13 in Dubai to organize an event for our members and partners, expecting that many would be present there. This worked out very well and we had a fantastic meeting under the stars, in I think the best venue in Dubai. We also were able to award the prestigious Wetlands International Luc Hoffmann medal to Prof. Guangchun Lei and to surprise our Eastern Africa team with the first "best Wetlands International team" award. Many influential people from the global wetlands community took part in the event and engaged with the Wetlands International team, who shared some of their experiences and passion with short interventions during the evening. During the COP itself we were able to interest the Dubai City Authority to give us an assignment to generate a Management Plan for the amazing Ras al Khor wetland. This display of trust in our capacities to accomplish something in this extremely difficult site is heartwarming. In October the Supervisory Council visited the Saloum delta in Senegal to hold our regular Council and Board of Association meetings - and also to see and be inspired by our Mangrove Capital Africa programme through a field visit. We could give something back to the regional team in dialogue following the visit, sharing ideas and expertise.



The Supervisory Council & Management Team with local leaders, Saloum Delta, Senegal

Of course, we paid our respects to the local and regional authorities and appreciated their political support for our work.

With thankfulness we said goodbye to Prof. Dr. Noelle Aarts who has been a dedicated SC/BoA member since 2011 and who has helped and challenged Wetlands International to strive for communications excellence at all scales. The Council also decided to refresh the SC/BoA with some additional members who we anticipate will join in 2019.

Points of consideration in our meetings were also the developments in some offices, the extension and renewal of the Management Team of the Global Office and the new IT systems that are needed. We are very content with the impact of

the targeted investments in 2018, including the first investments from the €1 million Euro grant received from the Dutch National Postcode Lottery. This has resulted in some significant steps being taken in terms of leveraging bigger and more impactful programmes, new partnerships, greater emphasis on strategic communications and institutional strengthening, which is helping the overall functionality and impact of our global network organisation.



**André van der Zande**  
Chair

## Colophon

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