



## RECOMMENDATIONS FOR THE POST 2015 HYOGO FRAMEWORK FOR ACTION (HFAII)

Calling for increased attention to the need for integrated water and wetland management to reduce disaster risk.



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## INTRODUCTION

The Hyogo Framework for Action (HFA): Building Resilient Nations and Communities, agreed by Member States in 2005, is coming up for revision in 2015. The HFA recognises the role of ecosystems in Disaster Risk Reduction (DRR) under Priority 4: Reduce the underlying risk factors. The Mid-term Review of HFA<sup>1</sup>, however, highlighted that Priority 4 was the area where the least implementation progress was made. In its *Proposed Elements for Consideration in the Post-2015 Framework for Disaster Risk Reduction*<sup>2</sup>, the UNISDR recognises the need to address environmental degradation as one of the underlying factors for increasing risks and for sound risk management as an important precondition for sustainable development.

Emerging trends in disaster risks underline the need to consider the role of water and wetland management as important elements of disaster risk reduction and risk management strategy. Located at the interface of land and water, wetlands are crucial in regulating the water cycle, for instance by reducing peak flood flows, storing excessive precipitation or recharging groundwater. It is important that these linkages are adequately recognized and appropriately addressed in the HFA post 2015 framework. As an organisation with experience in wetland conservation, restoration and sustainable use for the benefit of communities worldwide, Wetlands International puts forward a set of recommendations for inclusion in the post 2015 Framework, summarised in this briefing.

<sup>1</sup> <http://www.preventionweb.net/english/hyogo/hfa-mtr/>

<sup>2</sup> [http://www.preventionweb.net/files/35888\\_srsgelements.pdf](http://www.preventionweb.net/files/35888_srsgelements.pdf)

## Wetlands International recommends that the post-2015 framework on DRR (HFAII):

- a. *Acknowledges* ecosystem degradation as one of the root causes of disaster risk and *notes* that the rapid and accelerating rate of wetland loss (including mangroves, lakes, rivers, peatlands and floodplains) compounds the risks and impacts of increasingly frequent water-related disasters.
- b. *Recognises* that fully-functioning ecosystems such as wetlands are the basis of local resilience against disasters by sustaining livelihoods and providing water and important products to local populations.
- c. *Acknowledges* that ambit of investments to reduce impact of disasters should include restoration of ecosystems as a risk reduction strategy.
- d. *Recognises* that vulnerability can be exacerbated at different geographical scales and thereby *calls* upon Member States to include landscape considerations at multiple scales ( for example, river basin and coastal zone) within risk assessment protocols which help define risk reduction strategies and actions.
- e. *Urges* Member States to take substantive actions to integrate ecosystem approaches (ecosystem conservation, rehabilitation and sound use of ecosystems), and in particular wetland and water management considerations in disaster risk reduction policies and efforts. In particular, *encourages* Member States to mainstream such considerations in their national disaster risk reduction and climate change adaptation strategies, in local, regional and national water management and land-use plans, and national development strategies.
- f. *Accords* 'environment' the status of a cross-cutting theme, considering the multiple feedbacks between environment and disasters and the fact that healthy ecosystems can reduce disasters by influencing hazards, exposure and vulnerability.
- g. *Includes* a set of indicators to the HFAII monitoring system which enable the measuring of environmental aspects in disaster risk management. For a proposed set of indicators we refer to UNEP's Proposal to the Indicator Family (Annex I).

## WATER RELATED DISASTERS ARE ON THE INCREASE

Water related hazards account for 90% of all hazards, and their frequency and intensity is generally rising<sup>3</sup>. Most importantly, water related risks are increasingly coupled with climate change related risks. The most recent assessment by IPCC (Assessment Report 5) concludes that freshwater-related risks of climate change increase significantly with growing greenhouse gas concentrations (robust evidence, high agreement).

More and more people will experience water scarcity and suffer the impacts of major river floods as global mean temperatures continue to rise in the 21st century. With growing water insecurity, economies are rendered more vulnerable and exposed to hazards. The way in which we use and manage water resources is central to sustainable risk management.

## HEALTHY WETLANDS REDUCE HAZARD EXPOSURE AND INCREASE RESILIENCE

Located at the interface of land and water, wetlands are crucial in maintaining the water cycle which underpins sustainable development. Through their wide ranging ecosystem services, healthy wetlands can reduce disaster risk in a number of ways:

**Providing water and food security, the building blocks of society resilience:** The principal supply of renewable freshwater comes from an array of wetlands. Fish, an important product of wetlands is the main source of protein for nearly one billion people and accounts for at least 15% of animal protein in the diets of a further two billion people<sup>4</sup>. Wetlands have been and remain a critical agricultural resource for people in many parts of the world<sup>5</sup>. Wetlands are important systems for

water supply for irrigation of both domestic and commercial crops around the globe.

**Reducing disaster risk by acting as protective barriers, mitigating storm surges and accommodating flood flows:** The hydrological functions of wetlands like (mountain) lakes, swamps and floodplains enable the delay, capture and regulation of water flows (including peak flood flows), reducing the impacts of floods and droughts. In high mountain areas such as the Himalayas this benefits 1.5 billion people living downstream in the lowland regions and in densely populated areas in India, China and Bangladesh<sup>6</sup>.

Mangrove forests can reduce the height of storm surges by 5 to 50 centimetres per kilometre of mangroves and the height of surface waves by more than 75%, protecting the coast against flooding and serving as buffers against saltwater intrusion. Mangroves also play an important role in climate change adaptation as they are able to adapt to sea level rise (in some circumstances) of up to 9 millimetres per year through sediment trapping and accumulation of organic matter<sup>7</sup>.

**Helping communities recover after disaster strikes:** wetlands provide food, fodder, fibre and construction materials which are crucial for the post-disaster recovery.

## SOCIETIES ACCUMULATE RISK AS A RESULT OF RAPID WETLAND DEGRADATION

In spite of the important contributions made by wetlands, they are being lost and degraded at a rapid rate. Globally, the world has lost nearly 50% of its wetlands<sup>8</sup>. Evidences of wetland loss span throughout the globe, from developing to developed world alike (for a comprehensive review of current state of knowledge on wetland loss, refer TEEB: Water and Wetlands<sup>9</sup>).

<sup>3</sup> World Water Assessment Report, 2012, page 27.

<sup>4</sup> Ramsar – Wetland Ecosystem Services, factsheet 7 Wetland Products, available at: [http://www.ramsar.org/pdf/info/services\\_07\\_e.pdf](http://www.ramsar.org/pdf/info/services_07_e.pdf)

<sup>5</sup> FAO Water Report 33 - Scoping agriculture-wetland interactions : Towards a sustainable multiple response strategy available at:

<ftp://ftp.fao.org/docrep/fao/011/i0314e/i0314e.pdf>

<sup>6</sup> Climate Change in the Hindu Kush Himalayas – The State of Current Knowledge published by ICIMOD (2011), available at [http://unfccc.saveoursky.org.tw/2011cop17/images/cadiis/document\\_download%20/Climate\\_Change.pdf](http://unfccc.saveoursky.org.tw/2011cop17/images/cadiis/document_download%20/Climate_Change.pdf)

<sup>7</sup> McIvor et al., 2012, 2013

<sup>8</sup> UNWWAP, 2003

<sup>9</sup> Russi D., ten Brink P., Farmer A., Badura T., Coates D., Förster J., Kumar R. and Davidson N.2013. The Economics of Ecosystems

**Recommendation A:** *Acknowledges ecosystem degradation as one of the root causes of disaster risk and notes that the rapid and accelerating rate of wetland loss (including mangroves, lakes, rivers, peatlands and floodplains) compounds the risks and impacts of increasingly frequent water-related disasters.*

Such continuing decline exposes societies to increasing disaster risk, as the ability of wetlands to moderate floods and droughts, purify water, and support water and food security is impeded. As wetlands degrade, societies accumulate disaster risk:

- Reduction in mangrove cover in the Mahanadi Delta coastline in India exposed communities to impacts of super cyclone Kalinga which struck the coast in 1999. Villages that did not have a mangrove buffer suffered significantly more human casualties compared to those with an intact wide mangrove buffer<sup>10</sup>.
- Urban flooding in Indian cities of Chennai and Bangalore has been found to be linked with loss of wetlands in the cities which used to accommodate floodwaters<sup>11</sup>.
- Urban flooding in the Juan Díaz district of Panamá City has increased in frequency and intensity since 2008 when the Bay of Panamá wetlands, especially mangroves, started to be land filled for conversion into high-end urban developments and industrial areas. This mangrove loss also means the loss of their capacity to store river peak flows and heavy rains, thereby increasing vulnerability to urban flooding<sup>12</sup>.

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and Biodiversity for Water and Wetlands. IEEP, London and Brussels; Ramsar Secretariat, Gland.

<sup>10</sup> Das, S. and Vincent, R.V. 2009. Mangroves protected villages and reduced death toll during Indian super cyclone. Proceedings of National Academy of Sciences. Vol 106.No.18:7357-7360

<sup>11</sup> Gupta, A.K. and Nair, S. S. 2011. Urban floods in Bangalore and Chennai: risk management challenges and lessons for sustainable urban ecology. Current Science.Vol.100, No.11:1638-1645

<sup>12</sup> Conclusions from the workshop 'Mangroves, Climate Change and Community', Juan Díaz, Panamá City, 24 October 2013, organised by the Panamanglar network of civil society organisations. [www.panamanglar.org](http://www.panamanglar.org)

- Tropical countries in Southeast Asia face serious flooding risks within decades due to subsidence of their low lying peat soils as a result of peatland drainage. Natural peatlands store huge amounts of water, protecting downstream areas against floods and regulating water supply throughout the year. The conversion of peatland for drainage based land uses conversely leads to very high greenhouse gas emissions, as well as to subsidence to near or below sea or river level, resulting in the loss of habitable and productive land. The solution is to urgently transform towards sustainable peatland management<sup>13</sup>.
- Inland marshes, pools and lakes store water in areas where there are no permanent rivers or streams. The Inner Niger Delta and its seasonal floodplains in Mali provide water, fisheries, livestock grazing and agriculture for one million people. With annual rainfall in the arid regions of the Sahel expected to decline by 20% in the next 100 years (Zwarts et al, 2005) and the decline of the river discharge by -80 and - 50 % respectively for the Bani and Niger Rivers, since 1950, the water stress is further increasing in a region already experiencing extensive droughts. Population growth, irrigation, industrial activities, dams and other large-scale water management systems increasingly cause the diversion of water from rivers, floodplains and lakes. The result is growing water stress, increased levels of wetland drainage and pollution, deforestation, lowering of water tables and vegetated lands drying out and becoming desert. Many rivers no longer reach the sea due to upstream water diversions and once-permanent lakes have dried up completely.
- The Tana Delta in Kenya is the largest wetland ecosystem in Kenya and one of the six deltaic areas of Eastern Africa. This unique estuarine and deltaic ecosystem supports over 100,000 people who practice pastoralism, agriculture and fishing, and depend on the delta's ecosystem services to support their livelihoods. It is also home to many endangered and vulnerable species such as marine turtles, Tana River Red Colobus and the Crested Mangabey

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<http://www.wetlands.org/Whatwedo/Savingpeatlands/Subsidenceofpeatsoil/tabid/3216/Default.aspx>

monkeys, dugongs and elephants among others. Uncoordinated development and conservation activities as well as large scale economic development activities (sugarcane, jatropha, oil-seed production), gas and oil exploration and infrastructural development, threaten the livelihoods of the communities living in the Tana river basin that are closely linked to the dynamics and functioning of the river – wetlands ecosystem. There is an increased threat of water scarcity as a result of an additional planned irrigation project and more dams, which are expected to further disrupt the natural flooding regimes, affecting downstream ecosystems, livelihoods and increased competition over natural resources, which has already led to violent conflicts between communities.

## FOCUS ON THE ROLE OF WETLANDS AND WATER MANAGEMENT IN DRR

Wetland management and disaster risk reduction are coupled in several dimensions. For one, wetland degradation enhances disaster risk. At the same time, wetland ecosystems are impacted by hazards and global warming (such as the bleaching of coral reef, siltation of lakes, dying of mangrove forest because lack of freshwater). Disaster management efforts have thus far made most progress in disaster preparedness and early warning<sup>14</sup>. While these elements remain essential in any disaster risk reduction strategy, they are more effective and efficient when designed on the basis of landscape level hazard and risk mapping (e.g. on the river basin scale and/or sub-basin scale), which address underlying drivers of risk, in particular environmental degradation and inadequate management of natural resources.

Sectoral, local, regional and national land-use and development plans and processes that do not take into account ecosystem approaches tend to accumulate disaster risk by intensifying the impacts of natural hazards. It is vital that such plans and processes are aligned with DRR-specific efforts such as wetland restoration.

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<sup>14</sup> Ref: mid-term review of the HFA:  
<http://www.preventionweb.net/english/hyogo/hfa-mtr/>

**Recommendation B:** *Recognises* that fully-functioning ecosystems such as wetlands are the basis of local resilience against disasters by sustaining livelihoods and providing water and important products to local populations.

## Ecosystem based approaches from improved livelihoods in Kenya

In the arid north of Kenya, water means life. Downstream pastoralist communities in the Ewaso Nyiro River of north eastern Kenya are extremely vulnerable to droughts and floods, which are happening with an alarming and ever increasing frequency. Many communities face common problems, such as the changing course and reduced water availability from the river which is their lifeline, while the number of stakeholders competing for the same resource is increasing. Together with Cordaid, Red Cross and local partners, Wetlands International works to help communities reduce their vulnerability and improve their livelihoods through an innovative approach combining sustainable ecosystem management, disaster risk reduction and climate change adaptation. To break the vicious cycle of disaster and emergency response we are working in 13 communities with local partners to identify hazard risks and develop community action plans for resilience building. At the same time, communities are supported to create ecosystem smart livelihoods that come with less threats to the river, restoration of degraded ecosystems – for instance planting indigenous tree species, finding sustainable solutions for water retention and establishing early warning systems to better prepare for hazards.

**Recommendation C:** *Acknowledges* that ambit of investments to reduce impact of disasters should include restoration of ecosystems as a risk reduction strategy.

### **Mangrove restoration in Java**

In the North Coast of Java the coastline is retreating rapidly with tens of meters, and in extreme cases, more than a hundred meters per year, resulting in the loss of land and houses to the sea. The erosion is caused by mangrove deforestation for the construction of fish ponds in combination with sea level rise and soil subsidence. This has major implications for Indonesia's coastal safety, economy, ecosystems and fisheries. With the support of Wetlands International, the government is now restoring its mangrove belt to rebuild coastal resilience by breaking the waves and trapping sediment thus reclaiming land. Once the land is back, mangroves can recolonise the area and help protect the coastline against erosion after which Indonesia can work on sustainable coastal management. The results are promising, waves are clearly much lower inside the grids, the mud is building up steadily and mangrove seedlings are already re-appearing.

### **Increasing resilience to droughts in the Inner Niger Delta in Mali**

In Mali, the Inner Niger Delta, a vast floodplain at the edge of the Sahara desert was the foster mother of all populations of Northern regions and their livestock, thanks to the ecosystem services it provided through key habitats wetlands. The mismanagement of existing dams, added to the scarcity of rainfall upstream of the area have increased the frequency of years of drought hazards, disrupting the integrity of key ecosystems and in turn making the rural populations vulnerable. Wetlands International and CARE developed action plans to reduce disaster risk in 20 villages in the Delta by combining local and scientific knowledge. Various activities have already been implemented, such as fixing sand dunes, and the restoration of key habitats (bourgou pastures) which has significantly improved the ecological health of these areas as well as the resilience of communities to drought. Further activities to reduce rural poverty and promote the restoration and conservation of wetlands and their biodiversity have already been integrated in local development plans, and will be implemented in next phases of the collaboration.

**Recommendation D:** *Recognises* that vulnerability can be exacerbated at different geographical scales and thereby *calls* upon Member States to include landscape considerations at multiple scales (for example, river basin and coastal zone) within risk assessment protocols which help define risk reduction strategies and actions.

### **Reducing flood risk in India**

In the Mahanadi Delta in India, changes in water management through structures built to control the flow of irrigation water and as a short term solution for flood defense, has disrupted the natural linkages between wetlands and water. In this densely populated area (6.2 million people) these wetlands function as buffers for excess flood waters, act as water reservoirs during dry periods and are vital for fisheries and agriculture. An ecosystem-based approach to flood risk reduction recognizes the value of natural flows and floods and ensures that ecosystem management and restoration measures are employed alongside human-engineered risk reduction interventions. Wetlands International, acting on the basis of community risk assessments works with the government to improve flow regimes and restore wetland ecosystems. The government has also decided to extend the scope of wetland management to the entire river basin.

**Recommendation E:** *Urges* Member States to take substantive actions to integrate ecosystem approaches (ecosystem conservation, rehabilitation and sound use of ecosystems), and in particular wetland and water management considerations in disaster risk reduction policies and efforts. In particular, *encourages* Member States to mainstream such considerations in their national disaster risk reduction and climate change adaptation strategies, in local, regional and national water management and land-use plans, and national development strategies.

## Environment at the centre of an Inter-institutional Agenda in Guatemala

Guatemala government faces the challenge to integrate different state institutions and policies for a more effective implementation of Disaster Risk Reduction policies. From 2012, Wetlands International, in coordination with humanitarian and development partners CARE, Cordaid, Red Cross and the Red Cross/Red Crescent Climate Centre started a dialogue with the institutions responsible for climate change, natural resource management and biodiversity conservation\* to coordinate and integrate policies related to DRR, ecosystem management, and climate change adaptation. This led to the development of a Strategic Inter-Institutional Agenda (AEI) and Action Plan, where shared objectives and a more "common language" were made explicit. This will allow the state agencies, both at national and local level to coordinate their work and build on identified synergies. It is also foreseen that other institutions related to topics such as agriculture, land use planning, finance and commerce can join this initiative in the near future and further strengthen implementation of more integral DRR policies.

\*The national authority SECONRED (the Executive Secretariat for Coordination of Disaster Reduction), the Ministry of Environment and Natural Resources (MARN) and the National Council on Protected Areas (CONAP).

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Wetlands International is allied with CARE Netherlands, Cordaid, the Netherlands Red Cross, the Red Cross/Red Crescent Climate Centre and 30 civil society partners under the Partners for Resilience Program. This five year programme aims for the integration of climate change adaptation and ecosystem-based approaches into disaster risk reduction (DRR) programs. The programme strengthens the resilience of more than 400,000 people in nine countries where the most vulnerable communities struggle to cope with different types of hazards and whose livelihoods are affected by droughts, floods and other hazards which are partly resulting from degraded ecosystems and a changing climate.



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