

Towards the sustainable management of Sahelian floodplains

Guidelines prepared by the Sahelian Wetlands Expert Group

IUCN-The World Conservation Union
Regional Office for West Africa



Why floodplains are important

The floodplains of the major rivers of Sahelian West Africa including the Senegal, Niger, and Logone have supported wetland ecosystems of exceptional productivity, particularly in comparison with the surrounding arid and semi-arid rangelands. Over the centuries the indigenous peoples have developed a complex wetland use system, involving crop cultivation, fisheries and grazing for migratory herds of cattle, which is in concert with the annual inundation of the floodplain. The flood waters provide a breeding ground for large numbers of fish and bring essential moisture and nutrients to the soil. Water which soaks through the floodplain recharges the underground reservoirs which supply water to wells beyond the floodplain. As the flood waters recede arable crops are grown, but some soil moisture persists to the dry season and essential provide grazing for migrant herds. The floodplains also yields valuable supplies of timber, medicines and other products and provide essential habitats for wildlife, especially migratory birds.

If carefully managed the floodplains can continue to provide indefinitely these valuable goods and services free of charge.

A. Planning

Planning provides a structured way of solving problems and achieving objectives. It involves viewing the floodplain and its catchment as a single system which has economic, social and environmental components that interact. Planning requires a multi-disciplinary team including experts. The steps involved in planning are described below.

1. Bring together key stakeholders

Develop a process of stakeholder participation; have each stakeholder define his/her core interest rather than rigid viewpoint; develop a process of information sharing among stakeholders

2. Collate available information

Develop a data collection strategy, collect data and set up databases; identify traditional floodplain uses eg. recession agriculture, grazing and involve local communities in data collection; establish a records centre and publicise its existence; make information available; establish monitoring programme.

3. Analyse information

Determine health status of people and animals, hot spots and trends; review existing legislation, local and customary laws; identify thresholds for change; predict impacts of future change, such as climate; indicate uncertainty associated with results.

4. Define a range of development options

Develop a master plan and involve all stakeholders; plan at the catchment scale; define a range of development options; promote restoration of sites whose value has been degraded; always have a do nothing option.

Examples of water related catchment objectives

Overall objective	possible specific targets
Fisheries	self-sustaining edible fish population
Wetland grazing	palatable grasses for resident and migrant herds
Recession agriculture	seasonal flooding of riparian land
Irrigated agriculture	controlled water available all year
Water transport	adequate depth in water courses
Hydropower generation	water stored in reservoir throughout the year
Water supply	reliability, quality of supply
Wildlife conservation	protection of habitats for rare species

Examples of development options

Intensive irrigation	Hydropower generation
Aquaculture	Desertification control
Sustainable fisheries	Small embankment construction to control floodwater
Restoration of natural floodplain functions	Establishment of nature reserves and national parks

5. Assess the impacts of options

Undertake environmental impact assessments on all options; consider all impacts at the river basin, regional and international scale; impact assessment should be an integral part of the process; assess health and social implications; ensure that traditional rights are maintained; promote options that are environmentally sustainable; develop alternatives or redesign options that have negative impact on the ecosystem; adopt the precautionary principle.

6. Make decisions

Take a long term view; consider who benefits and who loses from an option; mitigate conflicts; use multi-criteria analysis including economic valuation; favour multiple use against single sector projects.

B. Implementation

Preferred development options should be implemented through the following three guidelines.

1. Principles for implementation

Incorporate the various elements of the river basin's ecosystems into the implementation; underpinned decisions with best science and technical advice; allow for cross-sectoral considerations in the design of investments and policies; empower stakeholders to contribute to decision making; never do at a higher level what can be done effectively at a lower level.

2. Guidelines for implementation

Define and maintain a step by step implementation strategy; establish an effective monitoring and evaluation framework; develop system analysis and indicators of progress and of environmental change in project / programme area; establish effective co-ordination mechanisms; define the responsibilities of involved institutions; enhance existing or develop new effective self regulation systems; develop effective mechanisms for conflict resolution, negotiation and participatory planning and implementation; develop clear sets of management instruments.

C. Awareness building, institution strengthening and training

1. Building awareness for integrated floodplain management

Develop and implement clear communications strategies both for projects and programmes as for general campaigns.

2. Strengthening institutions capacity in integrated floodplain planning and management

Develop NGO capacity to contribute to effective decision making and project development; develop collaborative management agreements between governments and local communities; establish stakeholder groups to permit input to policy development, planning and implementation.

3. Training and educating for effective floodplain planning and management

Training and education efforts should focus on: development of technical expertise; training of staff in functions and values of floodplains; transfer of appropriate technology to local water managers and regional planners.

D. Financing of floodplain development.

1. The financial strategy:

Diversify sources of income so as to reduce risk; develop alternate financial strategies in the planning phase of the process.

2. Financing from foreign and domestic sources

Consider radical ideas such as new taxes for water use; work with donors and recipient governments on debt-relief arrangements and develop innovative funding mechanisms, such as debt-for-nature swaps.

3. Financing from the private sector

Develop partnerships between the private sector and government institutions; define and implement legislation, subsidies and incentives to control private sector investment.

E. Policy

1. Develop the concept of Integrated Water Resources Management (IWRM) and seek support from international organisations.
2. Develop a national wetlands policy in line with the guidelines provided by the Ramsar Convention and implement the wise-use concept promoted by the Ramsar Convention.
3. In line with OECD and Ramsar Convention guidelines, 1996, development agencies must therefore discourage support of any activities that can damage floodplain functions and services

About SAWEG

The Sahelian Wetlands Expert Group (SAWEG) is a network of floodplain specialist working in the Sahelian region of west Africa.

SAWEG currently includes around 100 members:

- with a wide range of disciplines, including hydrologists, water engineers, biologists, physicists, pedologists, planners, human and animal health experts, ecologists, sociologists, legal experts and agro-foresters;
- native to or working in Sahelian countries of Nigeria, Mauritania, Senegal, Mali, Niger, Chad, Burkina Faso, Gambia and Cameroon;
- represent key organisations, including universities, research institutions (both national and international), government departments, non-government organisations (from local to international, including the International Institute for the Management of Irrigation) and river basin development authorities such as OMVS, Niger Basin Authority, OMVG and the Lake Chad Basin Commission.

Development of the network was funded by the Ministry of Foreign Affairs of the Netherlands' Government. The network was developed and managed by Dr Mike Acreman on secondment to IUCN from the Institute of Hydrology, UK, under the guidance of Dr Jean-Yves Pirot, coordinator of the IUCN Wetlands and Water Resources Programme.

SAWEG is currently managed from IUCN's Regional Office for West Africa under the leadership of Mr Ibrahim Thiaw.

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