

THE WAZA-LOGONE FLOODPLAIN

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THE CONTEXT

Climatic and geographical conditions

The Waza-Logone area comprises 800,000 hectares in the Extreme-North province of Cameroon, between 10°50' and 12°10' North latitude within the lake Chad basin. It contains a vast flood plain known as the *yaéré* which is an important wetland in this part of the country. The annual average rainfall varies from around 750 mm in the South to 600 mm in the North and the wet season lasts only five months – from mid-May to mid-October – while little or no rain falls during the rest of the year. Temperatures vary from an average annual maximum of around 41°C to a minimum of 13°C.

Hydrology of the wetland

The main river of the area, the Logone, receives the greatest part of its flow from a higher rain fall zone in Cameroon (Adamaoua Province), Chad and the Central African Republic. During September and October the peak flow reaches the lower flood plain, and except in very poor rainfall years, the river overtops its banks and floodwaters spill onto the floodplain. Because of the almost complete lack of relief the flood spreads over a large area.

In the past, two principal seasonal rivers rising in the Mandara mountains, the Mayos Tsanaga and Boula, also contributed to the inundation. But their entire flow is now captured by the Maga dam, constructed for an irrigated rice scheme, so that their contribution to the flood has been greatly reduced.

Since 1994, the hydrological condition of the wetland has been improved by the opening of two seasonal watercourses connecting the Logone river to the Logomatya river, from whence significant flows spread onto the floodplain. This work, conducted by IUCN's Waza-Logone Project, seeks to:

- improve fish production and the quality of grazing lands for local populations; and
- increase the availability of surface water for vegetation and wildlife, including resident and migratory birds arriving from Europe during the winter months.

Habitat types and biological diversity contained in the wetland.

The Waza-Logone area contains two National Parks, Waza and Kalamaloue. The Waza National Park (1,700 km²) has been designated as a Biosphere Reserve, and retains large numbers of mammals and birds which depend on the annual inundation of the flood plain. Fauna include Elephant, Kob, Roan antelope, Red-fronted gazelle, Girafe, Lion, Jackal, Hyena. Due to its smaller size, mammals recorded in Kalamaloue (45 km²) are fewer in species and in numbers.

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In addition to the wildlife counted in the two parks mentioned above, ornithologists have carried out waterfowl counts in 1993, 1995, 1996 and 1997. The results shows that 370 different species of resident and migratory birds may be found in the Waza-Logone area, and spread across eight specific habitat types. The results also show that the number of waterfowl is increasing : 59,000 in 1993 as compared to 87,000 in 1997.

The Waza-Logone floodplain constitutes a highly productive breeding ground for fish, which are harvested intensively each year (around 2,000 tonnes dry weight in 1996/1997 with 30.6% of *Clarias sp.*; 34.4% of *Tilapia sp.*; 6.5.% of *Alestes nurse*; 7.6% of *Petrocephalus sp.*; 11.8% of *Labeo tibesti*; 9.1% of other species). The pastures are equally productive, sustaining large numbers of livestock (around 100,000 units) during the dry season.

Human-environment relationship

The construction of the Maga dam and its embankments in 1979, and the drought in the 1980s have reduced the extent of flooding over the flood plain, and resulted in a drastic reduction in fishing activities and livestock rearing. A large number of people left the area, and wildlife numbers also fell because of the lack of dry-season grazing and surface water. Other consequences have been the over-exploitation of the fisheries and the grazing, and the migration of many animals outside the parks during the dry season, then increasing susceptibility to poaching.

Although the reduction of flooding has had a significant negative effect on Kalamaloue National Park, its proximity to N'Djamena (the capital of Tchad) and the intensity of human activities (poaching, removal of tree cover, destruction of fish stocks and grazing) also contribute to its degradation. The park is under pressure from the inhabitants of surrounding villages and migrants from other areas and its existence is seriously threatened. The future of this park depends on the will of Cameroon government to stop the degradation.

The condition of the wetland has been improving since 1994 when the Waza-Logone Project began the implementation of its hydrological programme with the first pilot release. The project is an integrated conservation-development initiative established to remedy the negative effects on the environment caused by the Maga dam the embankments constructed along the Logone river.

The current condition of the wetland is better than before the project began. The rehabilitation process started by the Waza-Logone Project gives cause for hope. However much remains to be done in collaborative management of all the resources of the area. The project is setting up management structures to ensure the long term sustainability of these natural resources.

Socio-economic profile of the area

The Waza-Logone area is predominantly rural, despite the existence of some important localities, namely Kousseri, Waza, Logone-Birni, Zina, known as subdivisional country towns. In each subdivision, there exists one or more traditional units, or *Cantons*, which contain a number of villages. Cantons are headed by traditional chiefs who used to be key actors in resource management. Land use and management systems fall under their control and the success of any management initiative cannot be guaranteed without their participation.

Between 1995 and 1997 a demographic survey and monitoring have been undertaken by the Waza-Logone Project. Results have shown the predominance of five ethnic groups : Mousgoum (35.9%); Bornouan (22.1%); Peulhs (12.5%); Arab Choa (11.3%); and Kotoko (7.7%).

The Mousgoum are primarily involved in agriculture and fishing; the Kotoko in fishing; the Bornouan in trading; and the Peulhs and Arab Choa are mainly cattle owners. Survey results have also shown that total fertility rate is approximately 9 children per woman, and that the population growth rate is approximately 2% for the 183,000 resident inhabitants settled within the area. In addition to this number, there are nomadic and transhumant populations who spend eight months of the year in the area to exploit the dry season grazing, and also fishermen from surrounding areas and from outside Cameroon. Another type of migration is internal, as fishermen and agriculturists move within the area to find suitable localities for their activities. The most numerous of the migrant groups are the nomadic pastoralists, followed by fishermen.

The same survey has shown that although close to half the population is under age 15, only 6% of the total population attends primary school. One reason for this situation is the lack of awareness amongst parents of the importance of education for their children. Another reason is the insufficiency of the number of schools within the area and the distance between the school and the student's home, especially in the inundated area where people are obliged to walk or to use boats during the wet season to reach school. Even if a family has its own bicycle, this is only useful during the dry season when soils become dry and pathways and minor roads through the flooded area are suitable for motor vehicles. The paved road connecting Maroua and Kousseri towns is used throughout the year. Important waterways exist for boats that carry goods to different markets when canals and rivers are flowing.

There are also health problems in the area. This situation is due to the insufficiency of health care infrastructure and to their inaccessibility for a part of the year. It is also due to lack of human resources available for health care, to a lack of awareness amongst the local population of basic hygiene. As a result, people suffer from diseases, particularly water related diseases, such as malaria and gastro-enteritis. The crude death rate was 10 per 1,000 population between 1996 and 1997, with 3 per 1,000 for children in the interval 0-5 years (**Or were 30% of the total deaths in the area to children under 5?**).

History of land ownership and management practices in the area

The Waza-Logone area, like the rest of the national territory is primarily state property containing two National Parks and also private property with title deeds. In general, those who want to settle must follow town planning regulations. However, the procedures for gaining access to land in rural zones (whether in use or not in use) are straightforward. Land that is not in use, for example grazing land, has open access and the users (especially the nomadic groups with their cattle) must pay grazing rights, a tribute for the *Lamido* (the canton chief or *chef de canton*). For the land in use (obviously except private land), people must apply to the village chief who is locally responsible for land management. He will consider the request and allow them to settle or not. However he must inform his senior in the hierarchy (the *chef de canton*) who has the authority to reverse his decision. User groups (from outside) must pay traditional taxes, locally known as *zaka*, and estimated at 10% of their production. An important fact here is that the chief of the village is helped in his

decision by a number of advisers who consider people's requests for all land-use types. Due to scarcities of land suitable for cultivation and for settlement (the amount of land above the flood levels is limited), these requests for land need to be balanced with availability.

Meanwhile, access to grazing and fishing in the flood plain and watercourses is free (according to agreements of the lake Tchad Basin commission) and falls under the responsibility of the *Lamido*, who collects his own taxes. **(Is it free or taxed? This seems to be a contradiction.)** The further levels of taxation (legacy taxes) are levied by the municipality and by central government. Finally, water holes within the flood plain and some river sections are common property whereas fishing canals, pools and fish reserves are private.

It is important to emphasise that nowadays, the administrative authority is the legal manager of lands according to the law. But traditional chiefs do not want to lose the customary rights on resource tenure, including the rights to taxation that comes with them. **(Correct?)** This situation leads to conflicts in several cases and remain an unsolved problem in Waza-Logone area.

Political and governance context

Cameroon became independent in 1960 after a liberation struggle led by Nationalists against the colonial system. From the 1960s to the 1980s the country was governed by a president helped by a prime minister and a parliamentary group. There was only one party and opposition was prohibited. Today, the political system in the country and thus in the Waza-Logone area is approximately the same, though since democratisation in the early 1990s the state is officially multiparty.

Notions of "democracy" confuse local populations, and are often subject to misinterpretation. In the beginning, democracy was considered as total liberty and open access to all natural resources within the area without following the existing rules. This situation has been a problem for traditional chiefs to whom populations used to give respect. Chiefs have had to struggle very hard to re-establish their previous authority but are now expected to consult and take into consideration their citizen's viewpoints. Citizens are happy to take advantage of the present system to express their opinions on the management of public affairs in general and local natural resources in particular.

At the level of the government authorities charged with wetland conservation or management, the involvement of the local population in the management of the wetland means the sharing of responsibilities and rights. This means a partial loss of administrators' power and advantages. However, the new approach (participatory management) still has unknown consequences. For this last reason, the government has opted for gradual decentralisation of responsibilities in participatory management structures as defined in the legislation. An obvious example is the new forestry law which clearly mandates the involvement of local people in forest and protected areas management in the field. These laws are not yet well known or used by local authorities. Thus, obtaining their support for promoting the involvement of local and indigenous people in the management of wetlands necessitates an extra effort from field workers.

INVOLVEMENT OF STAKEHOLDERS

Stakeholders in the management of Waza-Logone area

Each stakeholder has a particular relation, direct or indirect, with the wetland. Stakeholders may be classified into three categories :

1. Those who depend entirely or partly on natural resources for their livelihood. They can be affected by management agreements and they have an important role to play in management structures. In this category, one finds:
 - Sedentary populations living in the area. Their main activities are agriculture, fishing and stock breeding. They possess customary use over the natural resources of their zone but not in protected areas or private properties.
 - Transhumant fishermen coming from the surrounding villages and countries (Nigeria, Chad) to harvest fish in the flood plain and watercourses such as the Mayo Vrick, Logomatya, Lorome Mazra and Logone. In general, their stays vary from two to three months depending on the duration of flood. They pay tribute to the *chef de canton*.
 - Nomadic and transhumant stock breeders who spend around eight months each year in the wetland to exploit grazing lands. They also pay grazing rights.
 - Transhumant agriculturists coming from neighbouring villages to cultivate rice (wet season) and millet (dry season).
 - Traders of the Waza-Logone and from the surrounding areas who are involved in commercial activities of fish and livestock. These activities are spread throughout the year. Traders can easily earn the equivalent of one to two thousand US dollars per year, a large sum by local standards.
 - Traditional chiefs (*chef de canton*) who are customary managers of lands, human and natural resources.
1. Decision makers and technical services within the area. The state has given them the mandate to manage land and natural resources. They can ruin the management system if they are not implicated. This category contains the following groups:
 - Administrative and municipal authorities whose decisions have an effect, positive or negative, on the use of natural resources; they also collect taxes (on fish canals for example).
 - Heads of some operating technical services in the zone, including those related to agriculture, forestry, stock breeding and fishing. They are close to local populations in order to give technical support in different activities. They also collect central government taxes if any exist.
 - Leaders of political parties legally recognised.

1. Development agencies, research institutions, NGOs and others who use wetlands as recreational areas or undertake short duration activities that have both conservation and development objectives.

- Foreign and in-country tourists, tourist operators, managers of hotels.
- CEDC, IRAD, and other research institutions with programmes within the area.
- IUCN, WWF, SNV, and Ramsar for conservation and development programmes.
- SEMRY for its contribution to water management. This institution manages the water of lake Maga and in the future could discharge the surplus into the floodplain.

Stakeholders within the management structures.

With the exception of traditional chiefs, administrative and municipal authorities and Provincial heads of technical services who sit on a regional committee, namely the permanent committee for management of the Waza-Logone Region, other stakeholders are being put together in management structures on lower levels by the Waza-Logone Project to remain in charge of the management of natural resources. These management institutions, in which stakeholders who interact directly with the environment of the flood plain will be represented, have the mandate to define management agreements and to see that they are implemented and respected.

As mentioned in the context of this case study, the Waza-Logone area also contains two National Parks which are partly inundated. The project has opted for specific management structures depending on the type of the zone concerned: protected or flooded area. For the Waza National Park and its immediate surroundings, a management plan has been prepared by the project in collaboration with MINEF (Ministry of Environment and Forest), and has received government approval. Its implementation is going on.

At this stage, the project team has noticed the difficulty in working with persons in charge of the park conservation who voice agreement with the new policy of involving local population in the park management, but who have not yet changed their mentalities.

Another difficulty is the representation of different ethnic groups and villages from the immediate surrounding zone of the park. Two cases are known:

- Five villages were put together to choose their two representatives for the park management committee, but the choice made by the representatives of the five villages has been contested by one village chief who said that he cannot accept the appointment of one of his colleagues because of a private problem;
- The village of Tchede (Kotoko ethnic group) located in the sub-zone east of the park wanted to appoint its own villager as the male representative of all five villages in the sub-zone because of the lack of confidence in the Mousgoum ethnic group from the four other villages.

For the rest of the flood plain, the project has started the process of setting up a management structure. Currently, a model of this structure has been defined and the project approach is to negotiate management agreements for each type of resource and conflict with different stakeholders and formalise them.

All together, these management structures are under the authority of an existing regional committee (the “permanent committee”) in charge of management of the entire Waza-Logone area. The role of this committee is to ensure that development activities in Waza-Logone area are compatible with conservation purposes, and to adjudicate conflicts within the management structures (park and flooded area). The role of stakeholders in each structure depends on natural resources at stake. The role of each group of stakeholders is specified below. Before continuing, it should be emphasised that the main role of park management committee members is to contribute to the protection of the park.

The role of stakeholders in the management structures.

For the first category of stakeholders above mentioned, their role is to use natural resources in compliance with management agreements and rules, to protect these resources against rank outsiders, and to participate in the identification, planning and monitoring of eco-development and micro-project activities. Administrative authorities considered as decision makers must check that agreements are respected and must adjudicate conflicts arising from the implementation of management agreements. Municipality authorities, who fix taxes on local resources, and are responsible for local development plans, must take the clauses of management agreements into consideration. Heads of technical services (agriculture, forestry, stock breeding and fish) contribute to control the use of natural resources and advise local populations when important decisions relating to the exploitation of resources are being taken. The role of development agencies and NGOs with both development and conservation purposes is to facilitate the establishment of management plans and committees. For research institutions, their advice in the use of natural resources (especially in the park) is necessary. SEMRY will give technical assistance for the management of the Lake Maga water.

Factors that promoted the involvement of local and indigenous communities in wetland management

The Waza-Logone project in its facilitation role has carried out a number of steps in the process of involving local and indigenous communities in wetland management. Its progress in this process depends on several crucial factors existing in the context of this case study:

- The secure system of access to resources and resource tenure is present in the Waza-Logone region, even if access to grazing land for nomadic and transhumant groups is more and more disrupted by the extension of fish canals and lands under cultivation.
- The population of the wetland has noticed the decline of their production system in the years after the construction of the Maga dam. Thus, they are aware of the necessity to manage resources rehabilitated by the Waza-Logone Project.
- The clearly defined boundaries of the wetland have been useful in identifying user groups of natural resources and other membership for participatory management institutions.

- Effective communication and co-ordination among stakeholders appears to promote their involvement. The significance of these factors has been established when the project organised the first major meeting of stakeholders for the territories comprising the park and its immediate surroundings. The meeting gave the opportunity to every stakeholder to mention his or her viewpoints on the definition, status and management structure of the immediate surroundings of Waza National Park, and on the possibility of gaining legal access to some natural resources inside the park. The issues debated throughout the meeting helped the project to prepare the management plan.
- Traditionally, conflict resolution mechanisms exist in the wetland. Conflicts are adjudicated by the village chief or the traditional chief or the administrative authority, depending on the seriousness of the problem and on powers of each adjudicator. Currently, this mechanism is recognised and the permanent committee for management of the Waza-Logone region will adjudicate unresolved conflicts.
- Financial support is an important factor seeing that preliminary studies, discussion with different group of stakeholders, and the preparation of management plans and agreements require a lot of money.
- Attention to gender issues and concerns is defined as a priority of the Waza-Logone Project as women represent 51% of the population within the wetland and are most affected by poverty. The project has decided to encourage their participation in management committees. Amongst 15 representatives of local populations defined in the management plan of Waza National Park and its immediate surroundings, seven are women.
- Because of the immediacy of human needs and the high levels of poverty in the area, long term sustainable management is not always a high priority for people in the Waza-Logone region. The project started eco-development and micro-project activities to satisfy prior needs of populations and to encourage their involvement in sustainable management policy. So, financial viability of activities coupled with management is also a crucial factor.
- The project also hopes to obtain, as it is defined in the management plan, an effective control of population dynamics in the immediate surroundings of Waza National Park in order to limit the pressure on park resources and to facilitate the exclusivity on resources in the surrounding zone for the local population (through “social fencing” to limit further immigration).
- For the management structure of the flood plain, the project has decided to base its strategy on the existing traditional management institution, namely traditional water and livestock chiefs and to see that management agreements and rules are respected.
- The Waza-Logone Project has progressed in its work in the context of the new forestry law which defines the legal framework of policy and regulations concerning the use of natural resources in Cameroon.
- The partial inundation of the flood plain with pilot releases, and other starter activities like rice cultivation and water supply, gave confidence to different user groups and highlighted the project intention.

- The project tried to establish regular contacts and to listen to each user group problems, especially nomads and other livestock holders groups who have had the opportunity to express their needs.

COSTS AND BENEFITS OF LOCAL PARTICIPATION

The main results for the wetland

The Waza-Logone project has undertaken a rehabilitation process of the floodplain, in collaboration with the local population who have contributed in collecting base data and in deciding on the main activities carried out. The work done until now has led to the partial restoration of hydrological and ecological functions of the wetland, including ground water recharge (not yet well known), extension of flooded areas, improvement of fish production and the quality of grazing lands and vegetation, and improvement of the quality of habitat types for wildlife and birds.

The main results for each part of the wetland

The wetland is comprised of two component parts: the Waza National Park, including its immediate surrounding zone, and the rest of the floodplain. For each component, a management structure is being set up but none of them is fully functional. Thus, the results presented in sections hereafter are those expected once the Waza-Logone Project has completed its work.

• *Costs and benefits for the park*

- ♠ The main Cost is the management power shared between park authorities and local populations that use the immediate surroundings of the park.

- ♠ The first benefit is the reduction of the large number of cattle that usually enter the Park and thus the decrease (limitation) of the risk of contagious diseases for wildlife, and the limitation of competition on pasture within the park.

- ♠ The second benefit is the limitation of poaching since the local population will help to safeguard the park.

- ♠ If the participation of local population in the protection of the park is effective, the Government will economise by not having to recruit the 17 additional gamekeepers necessary for a traditional management strategy.

- ♠ Another benefit will be the financial support provided by NGOs that promote well managed protected areas through the involvement of local people.

- ♠ The last benefit for the park is the increase of tourism income.

• *Cost and benefits for the local populations surrounding the park*

♠ The main Cost is the decrease of incomes related to the illegal exploitation of the park resources (fish, pasture, surface water, and gathering) since the management committee will regulate the access to these resources.

♠ The first benefit will be the acknowledgement of legal rights to controlled access to natural resources within the park.

♠ Other benefits are the profits related to eco-development activities set up in the villages surrounding the park (water supply, rice cultivation, and bee keeping) and the sustainable use of the floodplain natural resources.

• ***Costs and benefits for the floodplain ecosystem***

♠ The main benefits are maintenance or improvement of the ecosystem, biodiversity and ecological functions (fish, vegetation, birds, wildlife, animals, and ground water recharge) and the sustainable use of the floodplain natural resources.

♠ Another benefit is the limitation of human pressure on the ecosystem biodiversity.

• ***Costs and benefits for the people involved and for management***

♠ The money and time invested to run the management structure and to implement management agreements are the main costs.

♠ Another cost is the partial loss of management power of the local authorities.

♠ The main benefits include greater well being and increases in household incomes. Also, decreases in conflicts is another expected benefit.

RECOMMENDATIONS

Considering positive results currently obtained and those awaited from the Waza-Logone Project, it is recommended that local and indigenous communities be involved in wetlands management. Some criteria may guide the choice of the cases in which local participation is *crucial* to the success of management:

- High dependence by the local population on the wetland for their livelihood;
- Ability of local/indigenous communities to support the protection of the wetland; and
- Existence of traditional management skills among members of the local community.

Some conditions must be satisfied to involve residents communities:

- Awareness amongst residents communities of the importance of the wetland for their particular and general interest; and
- Existence of a legal framework of policy and regulations concerning the wetland management through the involvement of local population.

When these conditions exist, many forms of support are important for the involvement of resident communities:

- Financial support to prepare different groups of stakeholders for their full participation to the management; and
- Support to women – the principal users of natural resources – in order to facilitate their effective participation in management.

Considering the work done until now in the Waza-Logone zone, it is important for those wishing to establish participatory management structures to:

- Collect base-line data on local people (socio-economic and demographic) and the wetland (ecological and hydrological);
- Define wetland management objectives;
- Identify the main obstacles to the achievement of these objectives;
- Identify people and groups affected by these obstacles and/or concerned about them;
- Formulate a theoretical model of the management structure;
- Prepare stakeholders for their involvement in the management structure through awareness raising activities and capacity building;
- Organise different groups of stakeholders and empower them to choose their representatives;
- Organise negotiations among stakeholders with attention to establishing mechanisms of conflict management;
- Formulate a management plan which defines the management structure, its status and the role of its members, the management agreements, the activities that have priority;
- Formalise the management plan and its implementation; and
- Monitor and evaluate activities in order to respect the law and to adapt the plan to the management and stakeholder needs.

Concerning the negotiation procedures, it is advisable to inform each negotiating party of the importance of the resources at stake. In addition, the existence of a facilitator with great skills in negotiation procedures is necessary. For each management rule or principle not accepted by different stakeholders, the facilitator must be able to make a new proposal compatible with the management objectives and discuss it with stakeholders concerned. When they consent to a management rule or principle, it is important to formalise it on a written report signed by all parties. This report will avoid further disputes among stakeholders. In general, there exists a local authority or a local management committee in charge of the management of land and/or natural resources. The registration of written agreements among stakeholders close to management institutions is a good manner to enforce such agreements.

Concerning the management institution, Members with a right to vote should be equitably represented to avoid bias in decision making. If the administrative authority is member of a management institution where decisions are reached by consensus, there is a risk that the authority will influence the viewpoints of other members.

In terms of monitoring and evaluation procedure, the committee members should be in the forefront to monitor management agreements because they need sufficient information before

taking decisions in the next committee meeting. The evaluation meetings should be held once a year to define the manner to overcome difficulties encountered the year before.