

**AN OVERVIEW OF THE CONTEXT OF THE
JEWEL PROJECT:
ACCESS RIGHTS AND CONFLICT OVER
COMMON POOL RESOURCES IN THE
HADEJIA-NGURU WETLANDS**

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ACRONYMS

ADP	Agricultural Development Project
CBNP	Chad Basin National Park
CBO	Community Based Organisation
CPR	Common Property (or Pool) Resource
DFID	(United Kingdom) Department For International Development
FEPA	Federal Environmental Protection Agency
FGN	Federal Government of Nigeria
FMARD	Federal Ministry of Agriculture and Rural Development
FME	Federal Ministry of Environment
FMW	Federal Ministry of Works
FMWR	Federal Ministry of Water Resources
FUA	Fadama Users Association
HJRBDA	Hadejia Jama'are River Basin Development Authority
HNW	Hadejia-Nguru wetlands
HNWCP	Hadejia-Nguru wetlands Conservation Project
IUCN	World Conservation Union
JARDA	Jigawa Agricultural and Rural Development Authority (= ADP)
JEWEL	Jigawa Enhancement of Wetlands Livelihoods Project
JiSEPA	Jigawa State Environmental Protection Agency
KNARDA	Kano Agricultural and Rural Development Authority
LCBC	Lake Chad Basin Commission
LG	Local Government
LGA	Local Government Authority
MACBAN	Miyetti Allah Cattle Breeders Association of Nigeria
NEAZDP	North East Arid Zone Development Project
NGO	Non-Governmental Organisation
NLPD	National Livestock Project Division
NPB	National Parks (Service) Board
NPC	National Planning Commission
PA	Protected Area
PCU	Project Coordinating Unit
PIMU	Policy Implementation and Monitoring Unit
RBDA	River Basin Development Authority
SEPA	State Environmental Protection Agency
SG	State Government
SMARD	State Ministry of Agriculture and Rural Development
SME	State Ministry of Environment
SMWR	State Ministry of Water Resources
SPC	State Planning Commission
SWB	State Water Board
UNDP	United Nations Development Programme
UNICEF	United Nations Children's (Education) Fund
USAID	United States Agency for International Development
WB	World Bank
WUA	Water Users Association
YoSADP	Yobe State Agricultural Development Project
YSMoWR	Yobe State Ministry of Water Resources

1. THE GLOBAL AND AFRICAN CONTEXT OF WETLANDS

1.1 Wetlands represent one of the major productive systems of the terrestrial landscape. They are found in every continent except Antarctica and probably represent 4-6% of the earth's surface or 7-9 million km² (Mitch and Gosselink 2000:35). Typical surveys of the wetlands of the world are found in Dugan (1993), Whigham, Dykyjová & Hejny (1993), Mitsch (1994) and Finlayson & Van der Valk (1995). Swamps, bogs, mires, marshes, deltas and fens all constitute wetlands and occur in almost every climatic regime. Wetlands have previously enjoyed an extremely bad reputation as malarial swamps hardly suitable for cultivation and in many regions of the world they have been drained both for agriculture, or simply to subdue political opponents. They are typically occupied by residents who treat the land as a CPR and are difficult to bring under state control due to the inaccessibility of their habitat.

1.2 Wetlands have undergone a spectacular reversal in image as a consequence of scientific research during the twentieth century. It is now realised that they represent major reserves of biodiversity, that they supply irreplaceable ecosystem services and that their total productivity in fish, wildlife, grazing and agriculture is far greater than the agriculture that very often replaces them. In many areas of the world, wetlands loss has been halted, sometimes because hunting lobbies wish to conserve waterfowl in order to shoot them, but increasingly because they are defended by environmental advocacy groups. This is very much less the case in developing countries where an unequal distribution of power often means that the livelihoods of poor and dispersed households living in inaccessible habitats are sacrificed to the interests of peri-urban, articulate pressure groups. Without modern communications, the residents of wetlands may demonstrate considerable local anger but will be unable to make their views heard at higher levels where the power lies and key decisions are made. Wetlands continue to be lost at a rapid rate and it is now thought that some 50% of the wetlands in existence 10,000 years ago have been eliminated (Mitch and Gosselink 2000).

1.3 Nonetheless, it is now widely recognised that wetlands must be protected and the relevant international agreement is the RAMSAR convention, first established in Iran in 1971 and currently ratified by some 120 countries worldwide, including Nigeria. By 2000, there were some 1021 RAMSAR sites in the world covering some 74.8 million ha (Mitch and Gosselink 2000:650). Signing a convention is far from taking steps to implement it, and many countries have argued that this is a costly exercise which often benefits ornithologists from the developed world rather than their own populations. Such arguments are politically convenient, but spurious. Analyses of productivity regularly show that wetlands are of greater economic benefit to a nation in their existing form. However, when weighed against needs for irrigation or urban water supply from a nearby population, governments regularly find it expedient to ignore such arguments.

2. BACKGROUND TO THE HADEJIA-NGURU WETLANDS

Environment

Hydrology and vegetation

2.1 The Hadejia-Nguru wetlands¹ are situated in the Sahelian zone of NE Nigeria and have formed as a consequence of the Hadejia and Jama'are rivers encountering a series of fossil dunes aligned from SW to NE (Adams et al. 1993). The consequence has been the splitting of the rivers into multiple channels, the creation of lakes and seasonal ponds and zones of seasonally flooded land. Rainfall in the wetlands varies between 700 and 500 mm. annually, and despite strong local conviction, there is no evidence of declining precipitation (Thomas 1995).

2.2 The hydrology of the wetlands has been altered markedly by a series of impoundments since the early 1970s. The first of these was the Tiga Dam (constructed 1971-74 with the reservoir filled 1974-6) on the Kano river. This was designed to supply drinking water to Kano town and to irrigate the Kano River Project. Stock (1978) described the immediate impact on downstream users of this impoundment. The Challawa Gorge dam on the Hadejia River was finished in 1992 and is intended to supply the Hadejia Valley Project. A further dam, at Keffin Zaki on the Jama'are River, was first planned in the early 1990s but was eventually halted following a combination of financial constraints and opposition from wetlands groups. In February 2003, the FMWR approved an extension of the Kano River Project (KRIP II) which would also extract greater volumes for urban water supply. At the same time, there is substantial political pressure in Bauchi State to revive the Keffin Zaki project. If both of these impoundments go ahead, the Hadejia-Nguru wetlands will cease to exist in its present form.

2.3 The basic soils of the wetlands are halomorphic and formed of deltaic alluvium, whereas the uplands surrounding the wetlands are non-leached ferruginous dune soils. Adams et al. (1993:14) following the LRD (Land Resource Division²) classification set out a tripartite classification;

- a. Wazagal Plain. *Acacia spp.* and *Balanites* scrub savannah with areas of *Ziziphus spp.* and *Guiera spp.*
- b. Nguru Plain. Sand plains with dum palms, and acacias, with *Aristida spp.* and *Schizachyrium exile* grass. Swamp grasslands with *Echinochlo*
- c. Hadejia/Katagum floodplain. *Guiera spp.* scrub savannah, *Mitragyna* on low hills, with *Vetiveria* and *Andropogon gayanus* in swamp grassland.

2.4 For the tree species, this classification is largely historical, since extreme deforestation has taken out all but anthropic species in many regions. Thomas (1996) describes the type of environmental change that characterised the Hadejia-Nguru

¹ Except where referenced, data in this report are based on the outputs of a workshop held in February 2003 in Nguru and a scoping mission which took place immediately prior to the workshop. The organisers would like to thank all the participants in the workshop and the traditional authorities who took time to address the meetings. The villagers who kindly accepted that this was part of a training exercise contributed enormously to the success of the whole enterprise. The organizers would like to thank the Hadejia-Nguru Wetlands Conservation Project for the use of their offices and vehicles during the workshop and Nguru Local Government for their support throughout.

² A unit of the Ordnance Survey Department of the British Government that conducted extensive land use surveys in Nigeria in the 1960s.

Hadejia-Nguru wetlands overview. Roger Blench

wetlands in the early 1990s. However, there are now large expanses of weedy neem (*Azadirachta indica*) in many areas, baobabs are extremely common and large clusters of coppiced dum dominate great tracts of land. Many of the swamp grasslands have dried up due to high levels of water abstraction and have been taken over by weedy species. Many channels are now clogged with the bulrush *Typha dominguensis*, an invasive species that took hold in the 1990s.

Wildlife

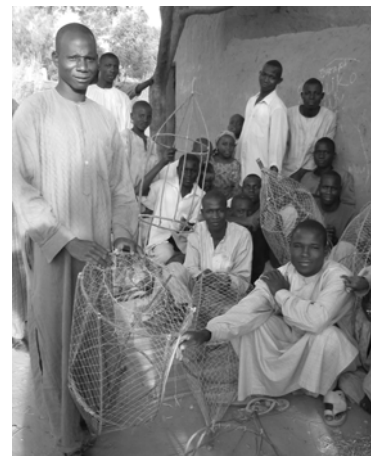
2.5 The wetlands must once have been a major centre of large mammals and reptiles, and indeed, the breeding sites of crocodiles and manatees are still recorded in oral tradition. Kano Zoological gardens was set up with two young lions captured in the wetlands in the early 1970s. Duikers and jackals persist in remote areas, as does the occasional warthog. But the large mammals are long gone, for interviews now produce only vague and contradictory reminiscences. Comparable wetlands elsewhere in Africa, such as the Okavango swamps, are still important for wildlife. However, the wetlands is internationally recognised as a habitat for wintering Palaearctic bird species, particularly for Afro-tropical waterbirds. Very large concentrations were recorded in the 1970s and 1980s and over sixty bird species are known (Adams et al. 1993:15). But more recent censuses have recorded dramatic falls in numbers, presumably due to the decreasing areas of surface water. The crowned crane, *Balearica pavonina*), once emblematic of the wetlands, has now completely disappeared.

Fisheries

2.6 The most significant account of the fisheries of Northern Nigeria remains Reed et al. (1967). The Sahelian waterways of the Chad Basin contain numerous species and traditions agree that catches were abundant and average size of the fish large. The fish resources of the Hadejia-Nguru wetlands are still extensive, but the present-day diversity must be only a fraction of that which occurred prior to the Challawa Gorge impoundment.

2.7 A survey by Jimoh (1989:2) recorded some nineteen species as regularly caught in the wetlands, but notes that a survey some fifteen years earlier had recorded forty-four species. Thomas et al. (1993) and Thomas (1995) describe the fisheries of the Hadejia-Nguru wetlands as they appeared in the early 1990s and they show many similarities to Lake Chad. The start of the dry season is usually deemed best for fishing, as fish leave the flooded plains and return to the main watercourses. Nonetheless, increasing pressure has ensured that fishing takes place throughout the year. Very little modern fishing gear is used; and most canoes are still not motorised; poison and dynamite are hardly used. Interviews with fishermen in 1998, reported in Rowley and Winter, suggest that there had been further decline in fish diversity and fish sizes. Some fishermen report catches made up of only three or four species.

Photo 1. mali fish-traps



Pastoralism

2.8 Village residents of the wetlands keep little or no livestock, usually only a few goats and some farmers with access to upland areas also keep traction bullocks. The environment is quite challenging for livestock and biting flies keep numbers low. Chickens are widespread along with Muscovy ducks and (surprisingly) domestic mallards. However, the main focus of livestock production is the pastoral nomads who pass through the region, principally the Fulbe. The exact history of the Fulbe in this area is a matter of some dispute, with different clans arriving at different times, but most villagers claim to have grown seeing the pastoralists already *in situ*. It seems likely that the area has gradually become more attractive to pastoralists because of the hunting out of all the potential vectors of tsetse fly, notably warthog and small antelope. This enables the cattle to survive the challenge of fly-borne disease more effectively. In addition, the drying up of many former flooded areas creates large new expanses of pasture that were previously under water, rather like Lake Chad.

2.9 The extensive grazing lands of the Hadejia-Nguru wetlands are highly attractive to pastoralists, but the biting flies are a deterrent and most of the groups who enter are seasonal visitors retreating when the flood rises. Broadly speaking, there seem to have been resident groups who practised short-distance transhumance and who had at least some rapport with villagers from the early colonial period. However, the Sahelian droughts of the 1970s and 1980s and agricultural expansion in Hausaland lured more Fulbe to explore the wetlands and the 1990s saw a major influx of new groups. In particular, the mid-1990s saw a particularly aggressive group of sheep-herders, the Uda'en, move into various parts of the wetlands. This is a significant reflection of the changing environment in the area, since previously sheep would have been too susceptible to footrot and humidity-related diseases to survive. Uda'en typically consist of single males with several hundred large Uda sheep, living in remote bush areas and largely avoiding settlements (cf. RIM 1992). However, they seem to have undergone a major cultural change, whether through Islamic militancy or other factors. Whatever the cause, the effect has been dramatic; from 1995, many of these herders gained access to modern weapons and seem prepared to use them at the slightest provocation (BSADP 1997). According to villagers interviewed, they deliberately allow their sheep to enter crops and the result are violent clashes ending in numerous deaths. A study of this situation in Bauchi State in 1997 recorded some deaths and all the reports seem to suggest that this is continuing (also in Blench, in press).

2.10 Another intriguing development is the appearance of Uled Suliman camel-herders in the wetlands. These are essentially a type of Saharan Bedouin, of Libyan origin, who moved into northern Niger and Chad in the 1930s. They were first reported in the arid northeast of Nigeria in RIM (1992) and it seems they had been crossing from Niger since the 1980s. However, in the mid-1990s they began to migrate down into the wetlands during the dry season and have been coming in increasing numbers every year. Apart from camels, they also bring large savannah goats, a powerful indicator of the desiccation of the wetlands; until recently the prevalence of biting flies and the marshy ground would have been a cause of high mortality among these breeds.

2.11 In a survey conducted by Hadejia-Nguru Wetlands Conservation Project (HNWCP) and Global Livestock and Agricultural Services Limited in 1999, three pastoralist categories were identified, based on their migratory movement. These include sedentary pastoralists, short-range migratory pastoralists and long-range migratory pastoralists. Among other clans settled around the wetlands include Jahun'en, Beze'en,

Hadejia-Nguru wetlands overview. Roger Blench

Bembe'en and Guddiranko'en largely found around Kajawai, Asurbum and Sugum. The breeds commonly seen grazing around the uplands and fadama areas of the wetlands include Rahaaji, Sokoto Gudali (Bokoloji) and small number of Mbunaji. An estimated cattle population of 320,000 (RIM, 1992) may visit the wetland areas every dry season.

2.12 The settled pastoral groups maintain permanent camps in the upland wet season grazing areas (*dumille*). However, interviews during February with pastoralists in Asurbum and Sugum confirmed that their cattle are sent to the Gamawa and Gumshi areas until the end of the wet season. The dampness of the area and the presence of biting flies informed their decision. This is common practice for the majority of the pastoralists settled in the wetlands. The youths (*kori'en*) move with the cattle while the elders remained behind to cultivate crops. Cereal crops are commonly grown by the pastoral groups. The semi-settled pastoralists on the other hand shift entirely to various upland grazing areas away from the wetlands during the wet season.

2.13 There is only one grazing reserve (Gabargal) within the wetlands established by the Jigawa State Government and some pastoralists are settled there all year round. It has an area of 8000 ha but is encroached by crop farmers. There are several other small *hurmis* established by local government councils within the wetlands but they are not protected and are therefore heavily encroached by crop farmers.

2.14 The wetlands provide good resources for dry season grazing (*sedille*). The cattle of the settled pastoralists, semi-settled and long-range pastoralists and camel herders all converge in the wetlands during the dry season. The long range pastoralists who come from further north in Nigeria and Niger Republic visit the wetlands for crop-residue grazing and carry on southwards to other fadama areas such as the River Benue and other wet areas. The latter groups remained in the wetlands throughout the dry season. After crop-residue grazing, they return to accessible fadama areas. Others graze in the game/forest reserves and national parks despite the difficulties. Tree lopping (browsing) takes place within the wetlands during the dry season, the consequences being the visible elimination of several tree species in 2003.

Agriculture

2.15 Agriculture remains by far the most important source of livelihoods throughout the wetlands (ICRA 1992). The main types of agriculture can be classified as follows;

- a. Upland
- b. Flood retreat
- c. *Fadama* / valley bottom/ natural floodland
- d. Irrigated vegetable production

2.16 Originally, upland production of millet for home consumption was supplemented with wild rice collection with traditional or *shaduf* irrigation for vegetables. Later, flood rice cultivation started in a few locations. Cassava and garden eggs were produced for home consumption and as sources of petty cash, while calabashes and cotton were the major items of trade. Upland crop production has always played a significant role in production. The principal crops are sorghum, millet, beans and a type of melon (*Citrullus lanatus*) locally known as *guna*, 'cow melon'. Gourd production is also a significant economic activity. A few people engaged in mat and rope making for market.

2.17 True irrigated schemes are rare, but horticulture based on small petrol pumps was introduced in the early 1980s and is now extremely common and continues to spread. Small pumps lift water from a river-channel and essentially replace the traditional *shaduf*, which is of considerable antiquity in this region. However, in recent years, however, groups of farmers have begun to club together to buy larger pumps that require hiring an individual to maintain it and to fill secondary channels that can carry water several kilometres. This is locally known as 'illegal channelling' although prosecutions are not a significant deterrent. These channelling initiatives require significant water-sharing arrangements.

Photo 2. Irrigation channel with cucurbits



2.18 Since the studies of the early 1990s there has been a major expansion of horticulture, focusing particularly on hot peppers and tomatoes (cf. Thomas & Adams 1999 for data to 1993). This is partly a consequence of relentless demographic increase in Nigeria and a growth of demand in the cities. The peppers are brought to smaller urban centres such as Nguru, Gashua and Hadejia, bulked up and then transported to major towns both North and South.

2.19 Biodiversity loss is probably responsible for the expansion and destructive impact of two major invasive species, the *quelea* bird (the black-faced dioch, *Quelea quelea*) and the invasive cat-tail (*Typha*) grass. These were cited in many interviews as the two most important issues for agriculture after declining flood levels and there is so far no satisfactory solution to either of these pest species.

2.20 The bulrush, *Typha domingensis*, has developed an invasive form in this region of Nigeria that is now a source of major economic losses. It was introduced into the area in the early 1990s, perhaps from Egypt, and has spread rapidly. It clogs waterways and blocks channels both changing water flow. Fishermen complain that it has decreased catches, because it provides hiding places for certain species. No economic use for *Typha* has yet been discovered in the form in which it grows in the wetlands, as it is too brittle for mat-making or basket weaving. However, some communities are reporting the visits of migrants from Kazaure, who cut off the heads and use them as fibre to stuff pillows and mattresses. This probably reflects the current rarity of the silk-cotton, *Ceiba pentandra*, once the preferred species for this type of fibre. Cutting back *Typha* is extremely laborious, and unless the rooting system is dug out it regrows annually. Despite many pronouncements on the importance of defeating *Typha* little or no effective action has been taken. McCoy & Rodriguez (1994) represent a major review of worldwide strategies to eliminate cat-tail and conclude that at present, only mechanical crushing is effective; a strategy that has little chance of being implemented in the Hadejia-Nguru Wetlands.

2.21 The black-faced dioch (*quelea quelea*) is a small finch that has developed into a major pest since the 1970s. It forms large gregarious flocks and swarms over standing crops, stripping fields of grain. Its multiplication is probably associated with habitat

Hadejia-Nguru wetlands overview. Roger Blench

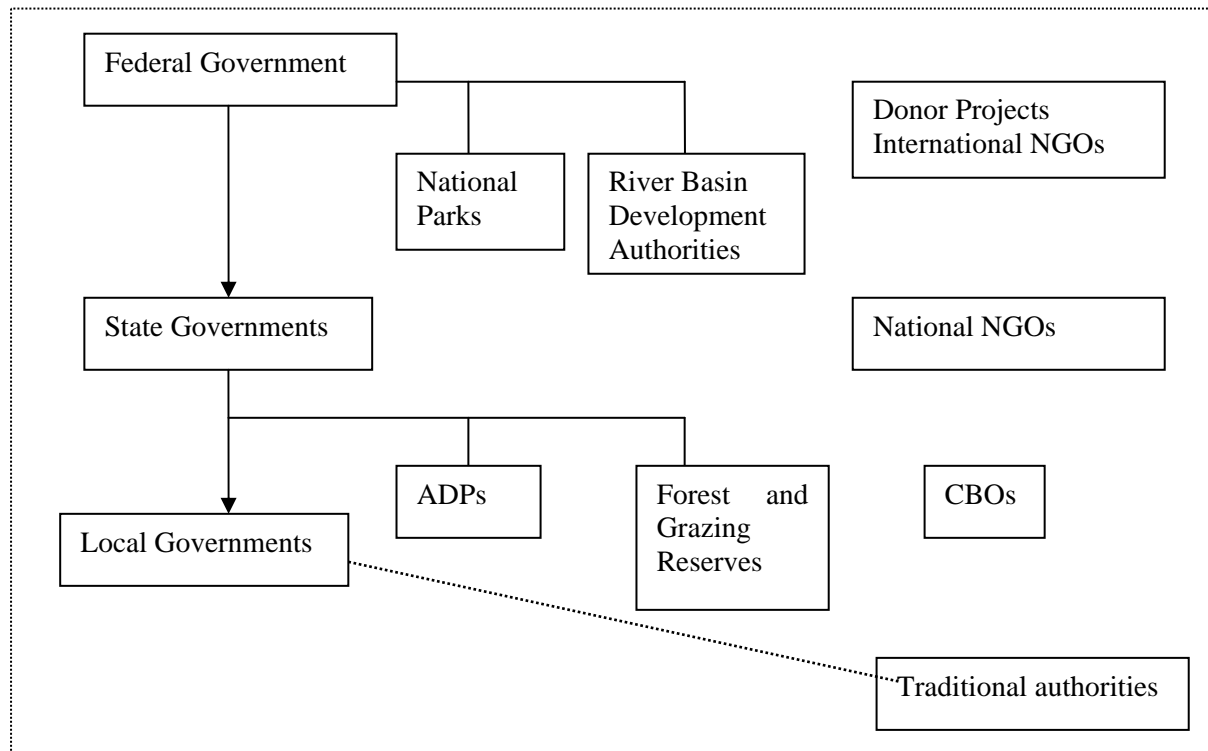
change and biodiversity loss in the Sahelian region; as low-intensity cropping has spread so has the *quelea* bird. The Nigerian government had spraying programmes in the northeast during the 1990s, but an inability to make regular payments to the aerial spraying companies has caused the programmes to fall into abeyance. *Quelea* has perversely contributed further to deforestation, because village communities identify particular trees as the roost of the *quelea* and then chop down the tree. However, more recently, *quelea* birds have adapted to roosting in *Typha* grass and have if anything increased their range. One response by farmers has been to switch to growing maize, which is much less vulnerable to their depredations. However, maize is not a sustainable long-term crop because of a lack of affordable fertilizer.

Institutional background

2.22 The main institutional bodies relevant to the management of CPRs in the Hadejia-Nguru wetlands are the Ministries of the Federal Government, the River Basin Development Authorities (which are parastatals falling under the Federal government), the State Governments (including the ADPs (Agricultural Development Projects) based in each state, Local Government, International NGOs and donor projects, national NGOs and CBOs (including informal associations based around traditional authorities. NGOs and CBOs do not form a hierarchy in the same way as government institutions; the HNWCP, UNDP, Sasakawa 2000 and JEWEL itself all fall into this category. National NGOs are notably the Miyetti Allah organisation representing Fulbe pastoralists, Al-Hayah representing the Shuwa and Koyam pastoralists, trade associations and other smaller groups. Local NGOs are typically the *Fadama* Users' groups found in many villages. Traditional rulers operate within the constraints placed on them by national government but are not formally part of the civil service

2.23 The Hadejia-Nguru wetlands falls principally within Jigawa, Yobe and Bauchi States, but Kano and Borno States also have an interest in decisions taken concerning policy and are thus treated as stakeholders. The police and the army, who are relevant to conflict management are Federal, but the judiciary falls under the State governments. Falling under Federal and State institutions are a variety of PAs in the wetlands. This nexus might be broadly represented visually as follows (Figure 1);

Figure 1. Visual representation of institutional structure



Protected Areas

2.24 The wetlands encompasses numerous protected areas (PAs) at both Federal and State level. The principal ones are as follows;

Federal

2.25 Bade-Nguru Wetlands Sector of Chad Basin National Park

This includes:

- Dagona Wildfowl Sanctuary
- Zurgum-Baderi Reserve formerly a Forest Reserve
- Gwaiyo Reserve Federal formerly a Forest Reserve

These are supervised by Game and Forest Guards and are usually better-funded and enforced than State PAs.

State

2.26 State PAs are supervised by park wardens and include the following:

Name	State	Comment
Baturiya Wetlands Reserve	Jigawa	
Yamdugu Forest Reserve	Yobe	
Gabargal Grazing Reserve	Jigawa	Funding from Federal to rehabilitate

3. ACCESS RIGHTS TO CPRS (IN THE WETLANDS)

Survey and inventory of issues concerning CPRs

3.1 CPRs (formerly Common Property Resources now usually Common Pool Resources) constitutes one of the most vexed issues in development planning. Economists who dominate planning at higher levels are very influenced models of economic individualism and the fluid and evolving nature of CPRs is often poorly reflected in documents emerging from their side. However, in much of dryland Africa, the patchy nature of resources has instigated widespread and rich CPR systems which remain only partly understood and are anyway changing rapidly under the impact of globalisation.

Out-of-date approaches

3.2 Broadly speaking, African systems of CPRs evolved in periods when resources were plentiful, when forest, wildlife, grazing, water etc. were abundant in relation to the population exploiting them. Nigeria, for example, may have had a population of ca. 10 million in pre-colonial times, but now there are up to 120 million Nigerians. CPR regimes that were perfectly rational in a former era have now become very inappropriate in a period of rising pressure on resources and extended trade networks. For example, when forests still covered large stretches of Northern Nigeria, open access on fuelwood was practical. Now that vast cities require fuelwood for the majority of their citizens and roads and transport networks can carry it there, traders can exploit customary access rights in pursuit of individual profit and effectively strip bare large tracts of land.

Governance

3.3 Apart from pressure by private citizens, however, governance issues play an important role in exacerbating inequities. Water was generally so abundant in the wetlands in pre-colonial time that it is doubtful that there was a conscious need to regulate access. A river-basin such as the Hadejia-Jama'are was self-regulating and water-sharing was equitable by default. However, when the potential to engineer large-scale abstraction became a reality, it simultaneously fell to the nation-state to ensure that the CPR represented by the water in the river basin was shared equitably among the variety of downstream users. But governments both consist of elites and attempt to satisfy an elite constituency. They are moreover more likely to listen urban rather than rural voices and the powerful and wealthy rather than the poor. As a consequence, all types of upstream water abstraction have been and continue to be put in place without any significant concern for the impact on downstream users. Adams (1988) in an account of rural protest over the Bakolori Dam on the Sokoto-Rima system, makes clear just how disempowered the rural poor have become in Nigeria. Even though there are now requirements for environmental impact assessments, these are at best cursory and have never halted any major engineering project in Nigeria. Similarly, government as regulatory authority has little impact on predatory extraction; although the effects of overfishing and deforestation are now well-known, licensing in this arena is simply a strategy for revenue collection, not an attempt to regulate those CPRs represented by forests and fish stocks.

International responsibilities

3.4 CPRs are increasingly seen as referring to a broader arena than the simply national. The Hadejia-Nguru wetlands is registered as a RAMSAR site and is important globally as a centre for breeding birds and fish and plant biodiversity. It is therefore in some sense of world significance, part of the heritage of the world's people, not simply the property of a nation-state to dispose of at will. Using this conceptualisation, Nigeria is a steward of a global resource, and indeed it has made a commitment on paper to protect that resource.

Hadejia-Nguru wetlands overview. Roger Blench

In practice, it is hard to point to single action that has enhanced the wetlands and many that have tended to further deteriorate conditions there. In this case, therefore, there is a conflict between the international community, perceiving such zones as a global CPR and the nation-state treating them as private property. The confrontations that continue to occur over access rights illustrate very well the competing conceptualisations discussed here. The following section includes both statutory instruments relating to and customary rights of access to CPRs in the Hadejia-Nguru wetlands.

Inventory of Statutory and examples of customary rights of access to CPRs

Statutory instruments relating to the CPRs of the Hadejia-Nguru wetlands

3.5 The following listing of statutory instruments was compiled by workshop participants. In addition to Federal and State, Local Governments have also passed numerous by-laws, but no listing of these is at present available.

Forestry

Instruments	Date
Federal	
Forestry Law of Nigeria	1938
Northern Nigeria Forest Law	1946
NA Forestry Rules	1945
State	
Jigawa Tree Planting	1994
Bauchi Forestry	2002

Wildlife

Instruments	Date
Federal	
Wild Animal Laws	1963
Wild Animal Laws Amended	1975
National Parks Decree No. 36	1991
Federal Decree	1999
State	
Bauchi	1981
Kano	1985

Fisheries

Instruments	Date
Federal	
Fisheries Law	1982
State	
Jigawa	1994
Kano	1987
Bauchi	1998
Borno	1996

Environment

Instruments	Date
Federal	
Environmental Protection Law Decree No. 45	1988/1989
Environmental Impact Assessment Decree No. 82	1992
State	
Kano Bush Fires	1988
Jigawa	1992

Livestock

Instruments	Date
Federal	
Grazing Reserves	1965
State	
Kano	1987

Other Federal Decrees

Instruments	Date
Land Use Decree	1978
Pollution Control Decree 46/8	1990
Water Decree	1992

Examples of customary rights of access to CPRs in the Hadejia-Nguru wetlands

Wild resources

3.6 The key wild resources of the Hadejia-Nguru wetlands can be divided in plant, animal and mineral. Fisheries are a major category treated separately below. All others are of relatively minor economic importance, although some are of cultural importance such as dum palm leaves.

3.7 Some general principles are operative in respect of wild resources. When a fixed resource (plant or mineral) occurs on the farmland of a household, members of that household have primary access. This can be ceded to others either by permission or through payment, for example in the case of potash or economic fruits. Where these occur in the wild, they are freely accessible. However, the establishment of Forest and Game Reserves has in principle cut off this access within Protected Areas. In practice, these wild resources can still be accessed; those of minor economic importance are tolerated whereas important resources such as grazing are the subject of conflict; pastoralists are desperate to enter reserved areas, and the authorities treat this as a major opportunity to extract payment, sometimes backed up by harassment.

Plant resources

3.8 **Fuelwood.** The wetlands must once have been rich in floral biodiversity, and supported a large and diverse tree population. Nigeria's urban population depends largely on fuelwood for cooking. The quest to supply this market has resulted in highly efficient extractive industries, involving fuelwood gathering in both Protected Areas and outside and sale to entrepreneurs with trucks coming from Kano and other urban centres. Cline-Cole et al. (1988) showed very clearly that strict customary regulation tree-cutting in the immediate area around Kano has forced dealers to look for remoter regions where control

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over access to resources is more ambiguous. Either the fuelwood dealers enter the PAs directly with hired labourers or they make agreements with villages adjacent to the PAs to supply them with firewood.

3.9 Jimoh (1989) undertook a fuelwood survey in 1988-1989 and England (1993) studied fuelwood in the Gwaiyo Reserve. Jimoh sampled thirty villages and found that thirteen were already travelling over 6 km. to collect fuelwood. Key fuelwood species such as *Khaya senegalensis* and *Anogeissus leiocarpus* had already vanished in the late 1980s, and he records *Acacia sieberiana* and *Mitragyna africana* as the most favoured species. In many areas, these two have now disappeared and coppiced neem (*Azadirachta indica*) and prosopis (*Prosopis juliflora*) are the dominant species although they make poor firewood. As a consequence, the more diverse tree species found in Protected Areas and Forest Reserves are highly attractive. Outside reserves, fuelwood is open access. Although the tradition is that dry wood is gathered and live trees left growing, in recent times cutting live trees has become common.

3.10 **Browse.** Pastoralists, especially the Fulbe who herd Sokoto Gudali cattle, depend heavily on browse in certain seasons, especially at the end of the dry season when the grass is finished. Herders climb trees and lop off the branches for the cattle and goats below. This practice can be non-destructive but where the appropriate species are short and the herds are large, trees are cut so heavily that they subsequently die. Cutting trees for browse within PAs is very common because it is hard to police. A particular case of resource conflict can occur over the dum palm (see next heading). The dum also acts as an emergency resource in times of feed shortage for livestock; the trunk can be chopped or burnt off and the meristem exposed, which cattle will eat. In an episode well-known locally, a group of Fulbe entered the Baturiya Wetlands Reserve in 1998 and cut up a large number of dum palms to the intense annoyance of local populations depending on the palms.

3.11 **Dum palm leaves.** The dum palm (*Hyphaene thebaica*) is part of the natural flora of the region, but selective protection has made it now locally common. Its leaves are used for weaving mats and it can be coppiced so that the leaves can be harvested regularly at ground level, rather than by climbing the tree. Leaves from the mature tree are less use for mat-making but can be used as a roofing material. They are not usually traded outside the region. It is not uncommon to come across large areas of coppiced dum palm, which, if well managed, can last for many years. There has been a recent expansion of the market for dum palm leaves (*kaba*) with the opening of a factory in Sokoto which produces ceiling tiles. By and large, dum growing on an individual's farm is deemed to be the property of that individual whereas, dum growing in the bush is open access. Over-exploitation of coppiced dum close to villages is often said to cause leaves to lose their strength. Migrant cutters from Niger Republic, Kano and Sokoto come every dry season and set up camp in areas bordering the PAs. It is considered a courtesy for mobile dum-palm leaf extractors to ask permission of the local Bulama or other authority but this can be by-passed when the collectors go into Protected Areas.

3.12 **Sedge** (*Cyperus rotundus*). The collection of nutgrass to make perfume from the roots is a traditional industry that has long been recorded in Hausaland. It is gathered by the riverside, bundled and sold to wholesalers in major towns. Unfortunately, competition from industrially manufactured perfumes has driven down prices and many interviewees stressed that it is declining in importance, as the processing time is relatively long. Nutgrass is generally considered open access, although it is considered courteous for migrant collectors to make a nominal payment to the village head.

3.13 **Wild fruits.** In a biodiverse environment, the collection of medicinal plants and wild fruits is often of considerable significance to the community. Outside individual farms, these could be collected freely in bush areas. In recent years, falling water levels and the declining nutritional status of communities has increased the importance of wild fruit collection and species such as *dinya* (*Vitex doniana*), *goriba* (*Hyphaene thebaica*), *aduwa* (*Balanites aegyptiaca*), *kurna* (*Ziziphus spp.*), *kanya* (*Diospyros mespiliformis*), baobab (*Adansonia digitata*) and tamarind (*Tamarindus indica*) are now much sought after. Of these, only *goriba*, the fruit of the dum palm, is traded long distances and every dry season buyers come from Kano and buy sacks of fruits from villagers. In theory, fuelwood collectors are supposed to leave such economic trees, but it seems that the value of wood is such that they are being cut down in remoter areas. Despite the unsustainable nature of this, the difficulties of the customary CPR regime make it difficult to enforce any sanctions against the cutters.

Animal resources

3.14 Since the disappearance of large animals, the only species that seem to be regularly caught by hunters are various rats (*Cricetomys* etc.), squirrels and the monitor lizards (*Varanus* spp.) which can be seen being smoked on market days in small numbers at urban centres such as Hadejia and Nguru. There appears to be little or no control on this trade and all animals that can be caught are effectively open access.

3.15 Elsewhere in Nigeria, non-fish aquatic resources, such as shellfish, frogs, crabs and snails are highly prized and heavily exploited. But in the wetlands they are mostly considered not fit for consumption and do not appear in the markets. Whether this is somehow related to Islam is unclear. But it creates, as it were, an open niche, and this is exploited by Tiv people who come up from Benue State just before the rains and capture very large number of amphibians, which are smoked and sent South. Since this resource is not locally exploited, frogs etc. are considered an open access resource.

Photo 3. Dagona waterfowl sanctuary sign



3.16 There seems to have been a small amount of local trapping for consumption but the opening up of the Nigerian economy has made it apparent to outsiders that the waterbirds are a major economic resource. Wildfowl are caught by hunters principally for sale to smokers, but there is a small trade in live birds for the exotica trade. Typically, these are storks, spur-wing geese, ibises, egrets and jacanas. Kano remains a major centre for dealing in live animals, despite persistent complaints both about the rarity of the animals sold and the malign conditions under which they are kept. Hunters by and large originate from external communities and most resident groups deny being involved in the bird trade, although they almost certainly snare small number of birds for local consumption.

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3.17 Professional hunters target migrations and well-organised individuals can kill as many as 2-300 in a single expedition. Regrettably, the prices they receive for these birds are very low, with as little as ₦30 per Abdim's stork being recorded in 2003, providing an even greater incentive to kill as many birds as possible. Apart from professional hunters, there are also sport hunters, military men, expatriates and local government officials coming from urban centres with high-powered rifles to kill birds for amusement. Birds appear to be completely open access with communities feeling they have no ownership over birds and that hunters are free to act. In view of the practice of using chemical poisons to kill certain species, this is unfortunate. There is an incipient change in attitude visible at Dabar Magani, the village where incipient ecotourism is being practised. As small numbers of tourists come to hire boats and guides to visit bird concentrations, hunters are being excluded for economic reasons. This is far from nascent environmentalism, however, and is unlikely to spread, as expanding water abstraction for dry-season horticulture is reducing breeding bird sites elsewhere in the wetlands.

Mineral resources

3.18 A major economic development in the wetlands has been the evolution of potash extraction during the mid-1990s. Potash (*kanwa*) considered essential in Nigerian cooking, has traditionally come from sources in the desert, and was brought to markets on the edge of the desert by camel trains, thereby becoming correspondingly expensive. But potash can also be extracted by evaporation from many sites in the wetlands and this has rapidly developed since about 1996. This is probably an unexpected consequence of salinisation of the wetlands following the falling flood. It is now a common sight to see buyers coming to villages and removing entire pickup trucks of sacks of potash for wholesale in markets such as Nguru. Ironically, the availability of potash is probably connected with the desiccation of the wetlands, as crusts of potash appear on dried-out floodlands. Although obviously, individual householders have primary rights over potash extracted from their own land, most communities stressed that potash collection was open access, and that unlike more traditional extractive industries practised by migrants it is not customary to pay even a nominal fee to the local ruler.

Photo 4. Pickup carrying kanwa sacks



Synthesis

3.19 Table 1 synthesises the access rights discussed in the previous section;

Table 1. Customary access to wild resources

Cat-egory	Item	Customary access	Comment
Plant	Fuelwood	Open access off-farm	Dry wood can be gathered in PAs but cutting is in theory forbidden
	Browse	Open access off-farm	Forbidden in PAs but widely abused
	Dum palm	Open access off-farm	Forbidden in PAs but widely abused
	Sedge	Open access off-farm	Declining trade means little competition for this
	Medicinal plants and wild fruits	Open access off-farm	Deforestation is reducing supply
Animal	Wild animals	Open access	Forbidden in PAs but almost all species extinct
	Amphibians	Open access	Forbidden in PAs
	Wild birds	Open access	Forbidden in PAs but widely abused
Mineral	Potash	Open access	Widely available and not a source of conflict

Source: interviews in 2003

3.20 The customary CPR regime of the wetlands was adapted to a low-density population and premised on its relative inaccessibility. The large-scale of the Nigerian economy and the growth of a network of roads and trade to the towns has made it possible for outsiders to exploit the ambiguities of the CPRs and engage in ruthless and unsustainable exploitation, leading to large-scale environmental degradation.

Fisheries

3.21 Fisheries, although technically a wild resource, constitute a category of their own. Access rights in fisheries are strongly related to the nature of water flow. Only when a fisheries resource can be clearly demarcated, can access be demarcated. The most significant aspect of this is the ponds that form every dry season in certain zones. When the flood falls, large ponds, often rich in fish, occur in roughly the same place every year. These ponds eventually dry up, so they can be fished out, as the fish would otherwise die anyway. The Bade people, in particular, consider these ponds to be owned by individual households, who have absolute rights over them, and can sell or give away the fisheries rights. Ownership was passed down in families. In a time of abundance, such rights are not considered troublesome since even poorer fishermen can still gain plenty from the main channel.

3.22 In recent years, owners of fishponds have been selling them through a sort of auction process, with the buyers often commercial operators from the Sokoto region. The alienation of these fish resources to outsiders has been the source of resentment to local fishermen, especially as catches are falling. Hence increasing reports of poaching in the fish-ponds and conflicts between indigenous populations and migrant fishermen. Declining floods are causing many ponds to disappear, but even where they persist, it seems likely that the traditional pattern of ownership may collapse.

3.23 The situation in villages along the Nguru-Hadejia road, where waters are rising every year, has created a curious inversion of tenure. Many ponds have

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disappeared completely, swamped by high water and with them the customary ownership pattern. Fisheries have reverted to almost completely open-access, with the waters free for all. The consequence has been to attract numerous migrant fishermen from outside the area.

3.24 Another consequence of an open-access system was that fishermen felt free to make use of increasingly extractive techniques, even when this would deny downstream villages of fish that would previously have been generally available. This is particularly a source of friction in the case of *dumba* fish-barriers. These are fences of mats that are stretched right across main channels and effectively block all but the very smallest fish from passing. Villages further downstream see their catch significantly reduced and some species disappearing altogether. The abundance of fish in a previous era meant that villages were not induced to make use of such unsustainable techniques so customary access rights had no remedy for this. In some cases, villages have resorted to direct action, going by night and destroying the *dumba* mats. Elsewhere they appealed to the local government. In one case, local government organised a meeting between the affected villages and those setting *dumba* mats, and got an agreement to dismantle the fence. The fence was temporarily taken down until all the aggrieved parties had gone back to their villages and then promptly set up again. This is a case where customary systems have no remedy and the weakness of local government revealed all too clearly. The issue is currently a 'hot' one and no system of resolution is in place.

Water

3.25 Water is a CPR, but its former abundance meant that access was not generally a problem. However, as water began to go short with the beginning of the damming process, it was gradually apparent that it was a resource that had to be competed for. There are some formal irrigation schemes in the wetlands, but the main source of abstraction is what is known as 'illegal channelling'. In the 1980s, migrant farmers from Kazaure set up camps in remote areas and began the commercial production of vegetables, especially hot peppers. As water became short, they began digging channels and purchasing ever more powerful pumps to bring water to their crops. These technologies have now spread to resident communities and in recent years groups of farmers have begun to club together to buy larger pumps that require hiring an individual to maintain it and to fill secondary channels that can carry water several kilometres. These require significant water-sharing arrangements and these have evolved remarkably quickly, given that they have no 'traditional' precedent. Although illegal channelling is prohibited by Federal Decree 101, prosecutions are not a significant deterrent. It is hard not to sympathise with those digging the channels, although the consequences for downstream farmers can be disastrous, since their floodlands dry up and the water tables fall. As with *dumba* fisheries, traditional CPR rights have not evolved to deal with these long-distance impacts and the state is too weak to fill the gap, thus significantly increasing inequity in the region.

3.26 A secondary consequence of channelling is that the ditches often run transversely across traditional stock-routes thereby blocking access to riverine pastures. This has recently been the source of conflict, with cattle breaking down the edges of ditches or polluting the water and farmers taking action against the herders. Such conflicts are probably easily resolved by creating fixed crossing points, or small bridges across the ditches but the present climate of tension is such that these solutions are not in place.

Agricultural land

3.27 As with water, when the human population was lower, and market penetration limited, there seems to have been limited competition for agricultural land. Families held floodland in the household, and upland farms were largely free access. Outsiders coming in could be granted land by the chief and indeed migrants were often welcomed. For example, according to interviews in Dagona, the *Takari*, migrant fishermen from Sokoto, were originally granted land because they understood the cultivation of floodland rice and could teach the local populations.

3.28 Increasing human population and changes in the hydrology, as well as expanding market demand for horticultural products, particularly hot peppers, have made competition for land a major issue in many parts of the wetlands. Rice floodlands have decreased in overall extent as have areas suitable for recession farming. At the same time, land watered by locally-dug irrigation channels has increased in value. As a consequence, land sales have begun to occur, in sharp contrast to the past, where land was considered vested in a corporate group such a household or lineage and thus not alienable. Outright purchase is still rare and tends to occur close to towns. However, it is likely to increase in the future and to be the subject of more intense disputes. The changing value of land following the hydrology has also permitted the development of a system of smoothing transactions, the land lease. First mentioned as beginning about fifteen years ago, i.e. in the late 1980s, it is now reported from a number of villages. A farmer agrees to lease a piece of land for a specified period, for example ten years, and the lessee pays either in cash or kind. This began as a fairly informal arrangement before the Village Head, but now there are semi-professional leasing agents who expect to make a commission on bringing together leaser and lessee. Indeed the leasing agents are known as *dilali* in Hausa, the term also used for cattle brokers.

3.29 Overall, thus, except in very remote areas, a transition is under way between regarding agricultural land as a CPR to be allocated by the traditional authorities, to a valuable commodity, to be bought and sold like any other. This process is well-known and has occurred in many other parts of Nigeria, especially around large towns such as Kano. However, the additional twist in the Hadejia-Nguru wetlands is that the unpredictable hydrology means that the value of land is liable to change from one year to another, so flexible systems have had to develop to prevent farmers from being trapped with the equivalent of negative equity.

Pasture

3.30 Pasture or grazing land is a major resource in the wetlands; every year the retreat of the flood leaves large stretches of fresh grass on the unfarmed floodland. As a consequence, it has long attracted pastoralists, notably the Fulbe . Prior to chemical fertilizers, pastoral herds were often welcomed on the farm after harvest, because as the cattle grazed crop residues they dropped manure, acting to fertilise the farms. In practice, many Fulbe groups formed long-term relationships with villages and had customary access to pastures near those village which they exploited every year. As pressure on resources has grown, and the use of traction animals has spread, both pasture and crop residues have become more valuable. Farmers growing high-value crops, both maize and vegetables report buying fertiliser whenever possible. In many cases, farmers now charge Fulbe several hundred Naira for access to their fields after harvest, while those growing horticultural products discourage cattle from entering their fields at all.

3.31 These difficulties have made the pasture in PAs distinctly more attractive and many Fulbe find it hard to understand why their traditional grazing grounds have been declared off-limits. They therefore enter anyway, and hence enter into conflict with the

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game guards. The issue can often be resolved for a small payment, but where relations break down, such as at Dagona, there are cases of arrest, the police are brought in and large sums of money change hands. Since there are no longer any large ruminants in the PAs, grazing by cattle and sheep may not be very destructive, certainly compared with lopping browse.

4. SURVEY AND INVENTORY OF TYPES OF CONFLICT

4.1 The conflicts over access rights grow out of the issues described in the previous sections. They can be divided into three broad categories;

Table 2. Categories of conflict over access rights

Category	Example
Society-internal	farmer-farmer
Inter-society	farmer-herder
Individuals and communities versus regulatory authorities	fuelwood traders versus PA authorities

4.2 Table 3, Table 4 and Table 5 summarise these conflicts in more detail;

Table 3. Society internal conflict over access rights

Category	Examples
farmer-farmer	access to irrigated land upstream water abstraction for irrigation
fisher-fisher	setting of <i>dumba</i> nets access to individually owned ponds
pastoralist-pastoralist	established and incoming pastoralists compete for grazing

Table 4. Inter-society conflict over access rights

Category	Examples
farmer-pastoralist	cattle enter crops or residues without permission farmers cultivate across stock-routes or in riverine grazing areas
fisher-pastoralist	herders destroy fishing-gear fishermen block livestock crossing places
pastoralist-migrant gatherers	pastoralists lop browse and dum palm for feed

Table 5. Citizens versus regulatory authorities in conflict over access rights

Gatherers seek wild resources (dum, fuelwood) in PAs
Farmers divert water from main channels
Upstream abstraction denies water to all categories of subsistence producer
Hunters poach birds and animals in PAs
Fishermen fish in PAs
Pastoralists enter PAs to graze, browse

Conflict Management

Conflict management types and discussion of experiences of conflict management

4.3 According to almost all interviews, all conflicts between subsistence producers are best settled by the traditional authorities. Only the traditional authorities have put in place any pre-emptive measures to try and prevent conflicts getting out of hand. Recourse to the police or army indicates a failure of the system. Nonetheless, this does happen, either because of weakness of the Village Head or because of breakdown of trust between mediators.

Traditional authorities

4.4 In the settled communities, a hierarchy of village elders, ward heads, Village Heads and District Heads can be called on to settle disputes. Usually, the more senior the authority, the greater the scale of damages. The main problem with the traditional authorities according to many interviewees was that their interest in these matters is highly variable. Some take strong action to set up court-like procedures, with witnesses, site inspection and independent assessment of costs. Others make arbitrary judgments, and it is a common accusation that these are influenced by payment. Reports on this were either highly contradictory or else an expression of considerable local variation. In some areas, the pastoralists were always said to win cases because they were wealthier than farmers and could pay more. Elsewhere, judgements were always said to go in favour of farmers. Making a rough estimate, about three-quarters of the villages interviewed said they were satisfied with the traditional authorities. If complainants would not get satisfaction, their next step is usually to call the police.

4.5 More forward-looking village heads have established pre-emptive measures; the slightly oddly-named 'Hospitality Committee'. These are a group of individuals nominated by the village head to go and meet with Fulbe who are coming to an area or who are setting up camp. Ideally, these are transhumants who have already visited the area in previous years and so bringing about meetings is unproblematic. However, in some cases, villagers must negotiate with a wholly unfamiliar set of pastoralists. The Committee tries to establish ground rules with the Fulbe, so that if crop damage or other disputes occur, then both sides have accepted an agreed procedure. They also have an indigenous version of a Resource User Agreement, essentially demarcating land where grazing is acceptable and warning off the herders from potential farmland.

Police/courts

4.6 No cases were reported of pastoralists taking cases to the police; indeed they are natural victims because they are known to be able to raise money rapidly. However, farmers reported calling the police when the traditional authorities failed them. In no example was the result satisfactory, and this stratagem is more a case of revenge, since once the herders are arrested they must inevitably pay considerable sums to be released from prison. However, the farmers often reported having to make payments themselves to ensure the police took action and very often subsequently receiving no compensation for damage to their farms. The courts seem to very rarely feature; these cases are usually settled before they reach court.

4.7 Conflicts in PAs between officials and herders or other extractors such as fuelwood gatherers are almost always settled at a police station and occasionally these do reach the courts. Wherever herders enter PAs to graze and are caught by forest guards, they

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are often carried to the police station and sprung from jail by the intervention of pastoralist leaders. Similar action may be taken with other resource extractors but since they have limited capital and the exercise is less profitable. This is not really conflict management; indeed conflict is usually exacerbated and occasionally violence erupts between official and herder. The problem is that the guards or the police are perceived as simply trying to extract money and using these incursions simply as an excuse.

Army

4.8 The army have no official role in conflict management at the local level, but some communities and local governments have called them in where civil insecurity has risen to unacceptable levels. But this is to usurp the role of the police and is highly irregular. The use of the army in settling conflicts is hardly to be recommended as their method is simply to threaten both sides with violent retribution if the peace is not kept. In Bauchi State, where armed robbery and murders in bush areas have become commonplace, the army appears to operate a shoot-to-kill policy. Needless to say, this method is quite effective and was given hearty approval by beleaguered villagers. Certainly where resource conflicts have turned into situations of major civil insecurity it is hard to see what other response will be effective. Nonetheless, this is not a long-term solution.

Local Government

4.9 The only case where Local Government has been directly involved in access rights conflict management is with the disputes between villages over the setting of *dumba* fish-fences. In one case, local government organised a meeting between the affected villages and those setting *dumba* mats, and got an agreement to dismantle the fence. The fence was temporarily taken down until all the aggrieved parties had gone back to their villages. It was then promptly set up again. Cases like this, where customary systems have no remedy and local government no enforcement procedures reveal the weakness of using similar mechanisms.

State

4.10 No cases of state intervention were recorded in the workshop, but it was acknowledged that the State Government has played a role in issues where large-scale engineering was required. In particular, villages that complain of siltation of channels causing either floods or water shortage have appealed to the State government in the name of equitable distribution of resources. In theory, this is contrary to Decree 101, the Federal Decree that forbids diversion of water without Federal approval. In practice, however, State ADPs have been involved in earthmoving to try and divert channels, although apparently with very limited success.

Conclusion

4.11 It is evident from this inventory that it is only the traditional authorities who really undertake conflict management. All other groups function simply to police disputes that get out of hand and usually end up leaving a trail of resentment and further aggression. Some are distinctly predatory and are fairly ruthless in extorting money from their victims. Only the traditional authorities take any preventive action; the process is far from perfect but significantly better than any other and therefore a major target for reinforcement and strengthening.

5. CONCLUSIONS

5.1. The Hadejia-Nguru wetlands, despite its world-level importance as a RAMSAR site, is undergoing rapid environmental deterioration, largely as a result of unsympathetic policies at the level of water impoundments and a failure to regulate predatory extractive industries. This in turn is because the benefits from these activities, such as fuelwood, water supply and peri-urban agriculture, are visible to an articulate urban constituency, whereas the destruction occurs in remote and inaccessible communities in other states. Extensive flooding in 2000 due to mismanagement of the impoundments led to widespread loss of life and property but no changes have been put in place to ensure that this situation is not repeated.

5.2. The focus on birds that constitutes one element of the HNWCP has proven an important stick to beat almost any project set up in the region. Typically, Federal and State Government officials accuse externally funded programmes of being only interested in European birds and not in the welfare of resident populations. This has no empirical support from the published and grey literature emerging from these projects but as political rhetoric it plays extremely well to a Nigerian audience. The conception that Nigeria, as signatory to the RAMSAR convention, has some obligation to conserve the wetlands appears to be irrelevant.

5.3. All present evidence suggests that the situation will deteriorate still further in the next decade, as a consequence of the extension of the Kano River Valley Project and the possible construction of Keffin Zaki dam. The economic arguments against these developments would appear to be compelling and long since been set out in detail, but the relevant decisions are likely to be made on political rather than economic or even humanitarian grounds. On a small scale, these projects resemble much larger engineering enterprises in India and China, notably the Three Gorges dam, where the unwillingness of donors to criticise projects in countries that represent considerable markets for their products and the ability of the host governments to finance them from internal revenues allow environmentally damaging policies to go ahead.

5.4. Environmental stress leads almost directly to social stress; as resources decrease and human populations increase, migration and social fragmentation accelerate. Already there is strong anecdotal evidence for emigration from the wetlands and there is a corresponding increase in opportunistic exploitation of single resources by outsiders. Saddam Hussein drained the marshes of southern Iraq in order to destroy the traditional way of life of the Marsh Arabs; a virtually comparable act of environmental vandalism is taking place in the Hadejia-Nguru wetlands, not from malice but from a collapse in governance, especially as it relates to common property resources in favour of unenlightened self-interest.

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