

## COMMON PROPERTY RESOURCE MANAGEMENT, INSTITUTIONAL CHANGE AND CONFLICTS IN AFRICAN FLOODPLAIN WETLANDS

*Presentation of a research project and reflections on institutional change and conflicts*

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### 1. INTRODUCTION

Most contemporary discussions on African development since independence forty years ago emphasize the notion that Africa is still "mal parti". Many show discontent for what has been achieved in this time, despite that "Africa works" as is suggested by Chabal and Daloz in their widely discussed book (1999). I will focus on the issue of sustainable development in Africa. This will be illustrated by the presentation of a common property resource management research project (on fisheries, pastures, wildlife, water for irrigation, and forests). The question of why the overuse of natural resources and conflicts over resources are occurring in modern day Africa is addressed here. This research project is called "Common Property Institutions and Power Relations: Resource Management, Change and Conflicts in African Floodplain Wetlands". It focuses on six African floodplain wetlands in semi-arid zones (Internal Niger Delta in Mali, Hadejia-Jama'ara in Northern Nigeria, Logone Floodplain in Northern Cameroon, Pangani Floodplain in Tanzania, Okavango Delta in Botswana and Kafue Flats in Zambia (Haller 2001)). This work will be conducted by students from the Department of Social Anthropology, University of Zurich and by local students in these wetland areas, and will be under my supervision. The aim is to make a comparative analysis of these wetland areas, which should lead to a better understanding of the processes of resource use responsible for environmental problems and conflicts in these areas. The project is integrated in the Swiss National Centre of Competence in Research (NCCR) with the title "NCCR North-South: Research Partnerships for Mitigation Syndromes of Global Change". In this competence centre, research for mitigation of diverse problems concerning development in the Third World will be done over the next 10 years by a large group of Swiss research institutions who will conduct this research in partnership with local scientists in Third World Countries (SARPI 2000). The competence centre consists of different subprojects, one of them being the IP6 "Institutional Change and Livelihood Strategies", in which the presented research project

on African floodplain wetlands is integrated.<sup>1</sup> To illustrate the aim of the project and to give some reflections on institutional change and conflicts, two cases from Northern Nigeria and Mali will be presented. These two cases show how common property resources (CPR) such as fisheries were institutionally managed in former times, and how the traditional institutions have changed over the last forty years.

The aim of the wetlands project is to test the validity of the New Institutionalism theories on CPR Resource Management in a specific ecological and political setting. Firstly, the design principles by Elinor Ostrom on robust institutions for the sustainable use of CPR-resources (Ostrom 1990, Becker and Ostrom 1995) are compared with local CPR-institutions in the selected wetlands areas. Secondly, theories and approaches of the New Institutional Economics and Anthropology (North 1990, Ensminger 1992) will be tested. Finally, Jean Ensminger's explanations concerning institutional change and bargaining power are looked at in particular.

## 2. New Institutionalism and its role for anthropological research in CPR-Management

What do these approaches say and what is new about the New Institutionalism? Different approaches can be subsumed under this label, where institutions are seen as formal and informal "rules of the game", such as constraints, norms, values and rules. These give incentives for groups and individuals, and also structure human action and interaction, especially in economic activities, in collective action and in sustainable resource use. Institutions such as property rights systems or law are developed by the state (formal institutions) or by local communities where they are embedded in their culture (informal institutions) (North 1990, Ostrom 1990, Ensminger 1992, 1998). An important aspect of explaining how institutions operate is illustrated by the work of economists such as Douglass North (1990). He not only states that institutions matter for economic activities (old Institutionalism) but that if institutions work properly they reduce what in economics is called transaction costs. These are the costs that arise when two people engage in an economic transaction, which is, as Ronald Coase has shown, costly. To make a transaction one has to have information

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<sup>1</sup> After this paper had been presented in Libreville there have been some major changes: from October 2001 to October 2003 the Swiss National Science Foundation will finance my own research in Zambia. At the same time students from the Department of Social Anthropology, University of Zurich, will do research in Mali and Botswana. This data will be integrated in my post doctoral thesis that should be written by the end of 2003. From 2002 until 2005 research partnerships will be forged between students of the Department of Social Anthropology University of Zurich and Universities in Cameroon and Tanzania. Research conducted in this period will be integrated in the NCCR. A comparison of all these examples should be made by the end of 2005. No research will be done in Nigeria for the moment.

about product quality and about the other actors' behaviour. One also has to monitor the other actors and sanction them when needed. All these activities are costly because they consume time and resources (North 1990).

The interesting thing about looking at this theory in analysing CPR-management is the fact that it raises questions about some long held theories. In the debate on common property and sustainability the notion of Garret Hardin's famous "Tragedy of the Commons" paradigm (Hardin 1968)<sup>2</sup> could actually be undermined by a close look at how CPR-institutions work. Elinor Ostrom's work illustrates this by analysing different CPR institutions and their management by local communities all over the world. By looking at successfully operating, locally developed institutions that showed sustainable use of natural resources such as forests, irrigation water, fisheries and pastures, eight 'design principles' for effective operating institutions were developed. These are as follows (see Box):

1) Clearly Defined Boundaries

The boundaries of resource systems (e.g. groundwater basin or forest) and the individuals or households with rights to harvest resource products are clearly defined.

2) Proportional Equivalence Between Benefits and Costs

Rules specifying the amount of resource products that a user is allocated are related to local conditions and to rules requiring labor, materials and/or money inputs.

3) Collective-Choice Arrangements

Most individuals affected by harvesting and protection rules are included in the group who can modify these rules.

4) Monitoring

Monitors, who actively audit physical conditions and user behavior, are at least partially accountable to the users and/or are users themselves.

5) Graduated Sanctions

Users who violate rules are likely to receive graduated sanctions (depending on the seriousness and context of the offense) from the users, from officials accountable to these users, or from both.

6) Conflict-Resolution Mechanisms

Users and their officials have rapid access to low-cost, local arenas to resolve conflict among users or between users and officials.

7) Minimal Recognition of Rights to Organize

The rights of users to device their own institutions are not challenged by external governmental authorities, and users have a long-term tenure rights to the resource.

8) Nested Enterprises (For resources that are part of larger systems)

Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.

Source: Becker and Ostrom 1995:119 from Ostrom 1990:56f.

<sup>2</sup> Hardin states that resources held in common have to be overused because they belong to nobody and nobody takes care of them.

One can see that most of these design principles can actually be included in the notion of transaction costs. If CPR-institutions operate properly they in fact reduce these costs.

Why do we now want to apply or test these design principles in floodplain wetlands in dry-land Africa? These cases were chosen because most of the resources in these areas (fish, forests, pasture, wild products, wildlife, agricultural land) are held in common and are characterised by extreme seasonal variations in natural conditions, such as rainfall, within the year and within the wetlands themselves and their adjacent territories. The interesting thing is that in these floodplain areas - due to the strong variability of the water levels - a resource such as fish can be open access during the time of flooding, when a very large area is inundated. When the water recedes and the fish are only found in small and large ponds and swamps, a local group or village regards it as their common property, and defends it against people from other villages or lets them fish only after permission has been given. So the notion of clear boundaries becomes difficult and there is much space for reciprocal access due to the variability of the resource base and the vulnerability to hazards for the resource users. Moreover, the socio-cultural setting of these wetlands is very heterogeneous: Agro-pastoralists, agro-fishermen, transhumant fishermen and pastoralists all have different access to these resources (Moorehead 1989, Thomas 1996). These characteristics make African inland-wetlands and the common-property-institutions that developed there, interesting cases for the re-evaluation of Ostrom's principles. This evaluation will be part of our research, and will especially focus on the so-called traditional wetlands institutions that had been developed in pre-colonial times.

### **3. Two examples from northern Nigeria and Mali**

The literature research we have conducted to date, suggests that in the selected areas there were traditional institutions which fulfilled, to a large extent, Ostrom's design principles and led to the reduction of transaction costs so that the sustainable use of the CPR was ensured. To illustrate this, two examples of traditional fisheries in northern Nigeria and in Mali will be looked at. The traditional fishery-institutions that have been developed there deal with the irregular accessibility of the fish stocks due to the irregular size of floods and with the relationship between indigenous users and outside users.

***Fisheries in the Hadejia-Jama'are Floodplain by Islamic Hausa, Bede, Manga (northern Nigeria)***

The Hadejia-Jama'are floodplain consists of a seasonally flooded inland river-system, which is located in a semi-arid zone in northern Nigeria. It is a chaotic and risky environment due to irregular rainfall and flooding. Different uses of fish resources become possible according to different waterlevels. When the whole area is inundated during high floods, migrating fish are found in the whole area, and when the water level falls the water only remains in deeper areas, called *fadamu*. Some of these are permanent little lakes and ponds. The smaller ones dry out when the water returns to the level of the major rivers and tributaries. The fish stocks are very diverse: Some species stay in the few permanent ponds, while others, such as lungfish, stay in the sand of lower regions, and some are migratory fish. Spawning takes place in the newly flooded regions. When the floods recede the fish migrate back to the permanent ponds and rivers (both young and old).

The institutional regulations that govern the access of the Hausa, Bede and Manga groups that live in villages, are, in many ways, also related to this specific environment. When the total area is flooded, fish are open access, but when water levels fall, the fish in the *fadamu* become the CPR of the nearby villages. They are defended, and access from outside requires permission from the villagers. One third of the catch is centrally given to the old or is sold (in former times this was very rare), with the money being used for the community. In permanent water ponds (fish refuges) there are rules for fishing. Only fishing with special techniques (no fine mesh nets) is allowed during the three phases when villages in the neighbourhood are invited. After the last phase, marked with a festival, fishing is forbidden and there are sanctions when people break this rule. There are clear normative rules when to fish and when not to. When these rules are broken, sanctioning roughly follows the concept of theft under Islamic ideology and rule. Monitoring and sanctioning are performed and enforced by villagers who fish collectively. There are reciprocal fishing arrangements between villages, which give those in need reciprocal access to the fisheries of their neighbours which can be seen as a minimax-strategy for equity and risk-reduction (Thomas 1996).

***Fisheries in the Niger Internal Delta, Bozo, Somono (Mali)***

The second example of the research, the Internal Niger Delta in Mali, shows some similarities with the Nigerian case. It is not a floodplain per se, but rather a whole internal delta, which is seasonally flooded, thus showing the

same chaotic and risky environment as in Nigeria. The different uses of the fish resources also depend or change according to the different waterlevels and areas (open water, swamps, and low water areas during inundation). The water stays in the riverbeds in the dry season. The fish stock is more or less the same as in the Nigerian case but the species here are more adapted to low seasonal water areas and swamps. From the institutional aspect there is open access during times of high floods, and CPR during times of lower water levels, but there are also differences from the Nigerian case: There are ethno-professional groups who identify themselves by their profession (fisheries, agriculture, pastoralism etc). Among the Bozo – a term given to them by outsiders - there are four ethnic groups, who fish in different habitats under different situations. Formalisation of older resource institutions took place during the 19<sup>th</sup> century, when the Dina-system was put in place by the hegemonic Fulbe groups. Under their rule pastures and fisheries were seen as CPR. The traditional pre-colonial institutions were very sophisticated and embedded in the animistic belief system of the Bozo. The ancestors of the founding lineages of a local group were seen as having a strong relationship – a kind of spiritual contract - with water spirits, who gave the right to fish to a local group and also punished people with sickness when they acted against customary law. These local groups were then allowed to fish under the direction of the oldest member of the founding lineage called Master of the Water (*dyituu* or *jitigi*). The Masters of the Water were in charge of making sacrifices to the water spirits through which the spiritual contract was renewed. But they also controlled the CPR, deciding when and when not to fish and ensured that young fish were thrown back. Stranger fisher groups were allowed to fish by giving a third of their catch, called *manga ji*, to the Masters of the Water for their supervision and spiritual activities. There was no exact territoriality, but rather spiritual power and environmental-technical use and knowledge (called *technotopes* by Claude Fay), that were different from the Bozo and Somono groups (Daget 1956, Fay 1994, 2000).

These two examples show that on one side the institutions are adapted to the natural environment and the riskiness of resource availability. When the fisheries come into common property regulation during a specific time of the year, there are rules that enable people without resources to have access. However, this is seen as reciprocal access and is regulated by local rules. On the other side there is a clear notion of who the resource in a specific place (information) belongs to, with its use clearly regulated, monitored and sanctioned. The limited space here does not enable further exploratory analysis. Nevertheless, does it suffice to say Ostroms' design principles can be identified with the exception, that although a clear notion of ownership

exists, there are no clear boundaries due to the irregularity of the resource base and the seasonal nature of flooding. What is important here is the regulated reciprocal access, which is not open access in this situation and does not lead to overfishing. These institutions can be seen as enabling the different ethnical groups in Mali and Nigeria to use the fish stock in a sustainable way.

#### **4. Institutional change, overuse and conflicts in the floodplain wetlands during colonial and postcolonial times**

The second aspect of the project deals with institutional change. The destruction of these resources (held and regulated in common), the changes in local institutions, and the conflicts characteristic of these areas today will be focused on in this project. The theoretical background is the New Institutional Economic Anthropology (Ensminger 1992) which analyses changes in institutions caused by shifts in so-called relative prices (external changes such as shifts in market situations, in infrastructure and transport systems etc.). As a result of these changes, endogenous factors in a local society, such as institutions, organisations, ideology and bargaining power are altered. Institutional changes and changes in bargaining power will be especially focused on. Ensminger has shown, that those actors in a society whose economic situation has been strengthened by the change in relative prices are becoming more powerful, and have more so-called 'bargaining power' to transform, erase, or replace institutions with new ones. In line with Douglass North, she illustrates that it is not the institutions which give the best result for all people involved that are selected, but the institutions that serve those actors with the most bargaining power (Ensminger 1992, North 1990). The theoretical approach of New Institutionalism will be tested with empirical evidence from the research in the six wetland areas selected for this project.

Although the research is only in its beginning, there are a number of findings that can be shown already. From the ecological perspective and from the viewpoint of sustainable development the floods are the heartbeat of resource production and reproduction of the region. But they are threatened as is shown by the World Conservation Union (IUCN) and others. Reduced flooding (due to dam-construction) and lower rainfall (climatic change) have been causing a general reduction of natural resources such as fish since 1960s. But they have also been diminishing because resource use patterns have changed (Loimeier 1986, Moorehead 1989, Bernacsek 1992, Chabwela 1992, Hollis 1992, Hughes and Hughes 1992, Acreman, M.C. and G.E. Hollis 1996, Thomas 1996, Adams 1996).

However, this threat is not only due to population growth in these countries, but due to the fact that these resources have increasingly received an economic and monetary value. A closer look at the changes taking place in the Internal Niger Delta in Mali illustrates the process: Although there has been fish trade for centuries as Claude Fay shows in his work (Fay 1994, 2000), the amount of fish traded since the 1950s has increased enormously. The reason for this development is a growing demand for fish in the larger African cities and in Europe. For traders and for local fishery groups the gains to be made from the commercialisation of the fisheries have been great. This process had many negative consequences, which are summarised by Claude Fay. In the first phase over-capitalisation took place, because the money obtained was invested in new equipment (motorboats, seine nets etc.). This led to greater takes of fish. Additionally, there is greater competition between traditional fishers and between modernised fisheries as well as between townsmen and local fisheries. Another aspect is the higher rate of mobility of young fishermen and upstream fishermen, who (with the new technologies) can get to areas where the local rules do not constrain them. Inside the communities there are generational conflicts because young men can fish individually and sell the fish for cash, which is no longer controlled by the heads of the family. On the state level, unclear administrative rules are leading to more and more conflicts between resource users who are competing over access to the fish resources due to different ideologies (religious privileges vs. state rules of citizens of a district (Fay 1994, 2000)). It has been shown by Fay (for Mali) and Thomas (for Nigeria, 1996) that the more powerful users, such as citymen with their capital, better equipment, and bribe money, can generally change and influence institutions and gain access to the resources, whose management is increasingly claimed by the state. The problem is that the state alone is unable to control the CPR. This is not only the case because there are unpaid corrupted bureaucrats, but because the state has high transaction costs. Furthermore, the local population is trapped due to the incapability of the state leading to an open access situation, while the traditional institutions are no longer operating. All these changes have undermined the institutional setting, which once managed the CPR, such as fish. These regions and the inhabitants are now in danger although the wetlands are the economic heartbeat for subsistence production. With the diminishing resource base, competition will increasingly become tougher, and take the form of ethnic conflicts between groups who organise themselves around these loyalties.



### Some reflections on the change of traditional institutions

The process of change briefly outlined in chapter four illustrates that locally developed institutions that were working 40 years ago are not working anymore. The reasons are that they have been altered by the powerful, and because of the monetarising process (a significant change in relative prices) that changed the institutional setting in a specific way. The hypotheses which will be tested in the project suggest that those traditional institutions that can be monetarized will stay in place, while those that impede or hinder the adaptation of the local users to earn cash with these resources, will be selected against. This cash is needed not only for consumer goods of the globalized world, but also for the construction of social networks (marriage etc., see also Sarah Berry 1989, 1993). I would like to finish with an illustration of this process - the Bozo and monetarisation of the *manga ji*.

The traditional meaning of *manga ji* has already been given above. It is important to know that this offering to the Master of the Water in the Bozo group from outside fishermen (a third of their catch, literally translated as "part of the water"), was compensation for the Master of the Water who dealt with the water spirits to maintain order. This idea of the traditional institution has transformed completely. It remains in name, but is becoming a monetary rent for lots of people claiming to be related to this right traditionally. This is not only true for the Masters of the Water, but also for other individuals and groups, and even the administrators who deal with this notion in order to obtain cash. The notion of the *manga ji* as a monetary rent gives way to a stricter idea of territoriality as well, which had not been the case in pre-colonial times. This notion is fostered by those who are able to gain most from the commercialisation of the fisheries, and therefore, those with the bargaining power, namely some of the Masters of the Water, traders and administrators.

Competition is taking place on all levels to secure funding, which can be obtained by making references to traditional institutions or to the changed versions of these institutions. The change in the traditional meaning of *manga ji*, clearly illustrates this tendency. All that remains of the traditional institutions is the monetary aspect. The original content and purpose has been erased completely.

### 5. Conclusions for further research in Africa and for the wetland project

The transformation of traditional institutions as well as the eradication of institutions that are unable to adapt to the monetarized world could provide a research topic for the future. One of the aims of this research project is to investigate transformed institutions, both new and old. These changes have

been effected by local adaptation, actors with more bargaining power and by frequently conflicting formalised state institutions. It remains an open question if old institutions can be reintegrated to fulfil their former beneficial tasks of reducing transaction costs, and making resource use more secure and sustainable. Unfortunately, these tasks do not pay in money at the moment, although when combined with other new rules in the future, they could well form part of a sustainable way for Africa in the 21<sup>st</sup> century.

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